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FINAL SCOPING DECISION

GENERIC ENVIRONMENTAL IMPACT STATEMENT ON
TIMBER HARVESTING AND MANAGEMENT IN MINNESOTA

MINNESOTA ENVIRONMENTAL QUALITY BOARD
658 CEDAR STREET
ST. PAUL, MINNESOTA 55155

DECEMBER 20, 1990

Minnesota Environmental Quality Board
Generic Environmental Impact Statement
Timber Harvesting and Management in Minnesota

Final Scoping Decision

I. INTRODUCTION

- A. EQB decision to Order a GEIS
- B. Minnesota's Forest Resources
- C. Minnesota's Forest Based Industries

II. GENERIC ENVIRONMENTAL IMPACT STATEMENT

- A. Criteria for Determining the Need for a GEIS
- B. Differences Between Generic and Project-Specific EIS

III. STUDY OBJECTIVES

IV. DESCRIPTION OF GEIS PROCESS

- A. Scoping
- B. Analysis
- C. Identification of Potential Significant Impacts
- D. Recommendations

V. MAJOR ASSUMPTIONS

- A. Geographic Coverage
- B. Forest Lands Under Consideration
- C. Relationship to Timber Harvesting and Management

VI. ALTERNATIVES ADDRESSED IN THE GEIS

VII. OTHER ANALYSES

VIII. ISSUES OF CONCERN

- A. Maintaining Productivity of Forests For Timber Production
- B. Forest Resource Base
- C. Forest Health
- D. Plant and Animal Diversity in Forest Ecosystems

- E. Forest Wildlife and Fish
- F. Water Quality
- G. Forest Soils
- H. Forest Recreation
- I. Economics and Management
- J. Aesthetic and Unique Cultural Resources

IX. IDENTIFICATION OF NECESSARY STUDIES

X. PROPOSED SCHEDULE FOR STUDY PREPARATION

XI. REFERENCES

APPENDICES

- A. TENTATIVE OUTLINE: DRAFT GEIS DOCUMENT
 - 1. Description of Forestry in Minnesota
 - 2. Public Forest Land Management Organizations in Minnesota
 - 3. Analysis of Issues
 - 4. Mitigation Alternatives and Impacts of Those Mitigation Measures
 - 5. Recommendations
 - 6. Future Research Needs
 - 7. Definition of Terms
- B. DEFINITION OF TERMS
- C. TOTAL WOOD HARVEST IN MINNESOTA
- D. MINNESOTA - NEW AND EXPANDING WOOD USING INDUSTRIES

I. INTRODUCTION

Consistent with Minnesota Statutes 116D.04, subdivision 4a, Minnesota's Environmental Review Program contains provisions for reviewing activities that are not adequately addressed on a case-by-case basis. This alternative form of environmental review, a generic Environmental Impact Statement (GEIS), is defined in Minnesota Rules, part 4410.3800. The purpose of a GEIS is to assess a number of separate, but related, activities whose cumulative impacts cannot be adequately addressed through project-specific environmental impact statements.

A. EQB Decision to Order a GEIS

In July, 1989, a citizen's petition was brought before the Minnesota Environmental Quality Board (EQB). This petition cited a number of specific issues (both environmental and economic) that could be directly impacted as a result of accelerated timber harvesting, and requested that the EQB prepare a GEIS on the cumulative impacts resulting from forest harvesting and related management activities. The major concern of the petitioners was that no formal environmental review process currently exists to provide an analysis of the collective impacts expanded timber harvesting activities may have on Minnesota.

The EQB deliberated this request at great length, devoting parts of three Board meetings and approximately eight hours of discussion and testimony to this issue. After hearing support for this study from a number of key stakeholders involved in the management and use of the state's forest resources, the Environmental Quality Board unanimously passed a resolution at their December, 1989 meeting authorizing the preparation of a generic Environmental Impact Statement (GEIS) on timber harvesting in Minnesota. Through passage of this resolution, the EQB designated itself as the governmental unit responsible for preparation of the GEIS on timber harvesting in Minnesota. Additionally, the EQB authorized the Chair to establish an Advisory Committee. This ten person advisory committee, which represents a broad spectrum of interests within the state's forestry community, was created to assist the EQB in the following capacities:

- Advise the EQB on the scope of the generic EIS, including the issues to be examined, the type and level of detail of studies to gather and analyze information, and the time frame for preparation of the generic EIS.
- Advise the EQB on the selection of consultants to assist in preparation of the generic EIS.
- Review and provide comment to the EQB on reports prepared by the consultants, and on the proposed draft and final EIS documents.
- On scoped issues for which analysis indicates the potential for significant impacts, the Advisory Committee

will recommend alternatives to mitigate the impacts for inclusion in the generic EIS.

B. Minnesota's Forests

Minnesota has a forest land base of 16.6 million acres, or nearly one-third of the state's land area. Of this total, however, approximately 3.0 million acres are not considered available for commercial timber production. Approximately 1.2 million of the 3.0 million acres of noncommercial forest land are set aside for parks, wilderness and other uses considered incompatible with commercial timber growing and harvesting. The Boundary Waters Canoe Area (BWCA) and Voyageur's National Park are two examples of forest lands set aside from commercial timber production. The remaining 1.8 million acres of Minnesota's noncommercial forest lands are available for timber harvesting, but have too low a basic biological productivity to be used for growing commercial timber.

Of the 13.6 million acres of forest land available for commercial timber production and harvesting, 9.8 million acres (about 70 percent) are hardwood forests. The most prevalent hardwood timber types in Minnesota are aspen and maple-basswood, which represent 55 and 13 percent of the state's total hardwood resource, respectively. Red oak, while accounting for less than ten percent of the state's total commercial hardwood resource, is also an important component of the state's forests. The state's remaining 3.8 million acres of commercial timberland are softwood. The most prevalent softwood cover type is spruce-fir, which represents 52 percent of Minnesota's softwood forest resource. In contrast to the state's hardwood forest resource, which is predominantly owned by private interests, the majority of Minnesota's softwood is in public ownership.

The state's 13.6 million acres of commercial forest land are nearly equally divided between public and private ownership. Public forest lands account for 6.8 million acres of Minnesota's commercial timberland, with state and county governments administering approximately equal amounts (2.7 million and 2.3 million acres, respectively). The federal government controls the remaining 1.8 million acres of public forest lands in Minnesota, and roughly 465,000 acres are owned by Native Americans. Approximately one-half of Minnesota's commercial forest land is held by private interests. By far, the largest single ownership class is the nonindustrial private forest landowner. Owning approximately 5.5 million acres statewide, these 130,000 landowners hold some of the most productive forest lands in the state. Only 800,000 acres (six percent of Minnesota's commercial forests) are owned by Minnesota's forest industries.

Minnesota has a significant share of the United States' total public forest land base. The state's two national forests (Superior and Chippewa) represent 2.1 percent of all commercial forest lands in the national forest system. They make up the largest national forest acreage holding of any state east of the

Mississippi River. The state's 2.7 million acres of state-administered and 2.3 million acres of county administered commercial forest land make Minnesota the largest holder of nonfederal public forest land of any state in the nation, exclusive of Alaska.

The expansion of the forest industry has generated a significant need for additional wood fiber. The volume of wood harvested from growing stock on Minnesota's forests for commercial and fuelwood purposes was estimated in 1988 at just over 3.2 million cords annually -- a 33 percent increase since 1979 (Appendix C). Of this total, approximately 2.7 million cords were used for commercial purposes and one-half million cords for residential fuelwood. This increase is expected to continue as the state's forest industry develops and expands its markets. If all forest industry expansions (planned or under construction) are realized, the statewide timber harvest for commercial forest land could increase to 4.9 million cords by 1995, an increase of 53 percent since 1988.

C. Forest Based Industries in Minnesota

Minnesota's wood-based industry is the second largest manufacturing industry in the state. There are over 1,750 Minnesota businesses that employ approximately 54,000 people in the manufacturing of wood products, approximately one-half of which is in the Twin Cities Metropolitan Area. Minnesota's wood products manufacturing facilities can be characterized as either primary (those that produce products directly from raw wood materials) and secondary (those that further produce wood products into other goods). The majority of the state's primary forest products manufacturers are located in the northern part of the state and produce a variety of forest products including paper, structural panelboard, and lumber products.

There is approximately an equal number of secondary manufacturers as there are primary manufacturers. In contrast to most primary manufacturers which are located in northern Minnesota, secondary manufacturers can be found throughout the state. Furniture, cabinets, cardboard containers and wood framed windows are a few of the products produced by these firms. In terms of sales value, the paper and panelboard produced by the state's 16 mills and plants are by far Minnesota's dominant primary wood products. In addition to these plants, there are approximately 850 sawmills scattered throughout the state.

The maintenance and growth of another major economic sector in Minnesota - the outdoor recreation and tourism industry - is strongly linked to and heavily dependent on the state's forest resource. In 1988, outdoor recreation and tourism generated more than \$1.8 billion in economic activity and involved 57,000 full- and part-time jobs. Most of this outdoor activity takes place in the forested regions of the state and is directly dependent on the aesthetic values and wildlife habitat provided by the forest environment. It is estimated that outdoor

recreation in Minnesota will increase by 10 percent between 1985 and 2000.

II. GENERIC ENVIRONMENTAL IMPACT STATEMENT

A. Criteria For Determining the Need for a GEIS

While Minnesota's Environmental Review Program does not recognize circumstances in which preparation of a GEIS is mandatory, certain factors are considered by the EQB in determining the need for a GEIS. These factors are:

- Whether or not reviewing the proposed action can be better accomplished by a generic EIS than by project-specific review.
- Whether or not the possible effects on the human environment from a type of action are highly uncertain and involve unique or unknown risks.
- Whether or not a generic EIS can be used for tiering in a subsequent project specific EIS.
- The amount of basic research needed to understand the impacts of such projects.
- The degree to which decision makers or the public have a need to be informed of the potential impacts of such projects.
- The degree to which information to be presented in the generic EIS is needed for governmental or public planning.
- The potential for significant environmental effects as a result of the cumulative impacts of such projects.
- The regional and statewide significance of the impacts and the degree to which they can be addressed on a project-by-project basis.
- The degree to which governmental policies affect the number or location of such projects or the potential for significant environmental effects.

B. Differences Between Generic and Project-Specific EIS's

There are a number of important distinctions between a generic and a project-specific EIS, both in terms of the process for preparing the study as well as document content. In both the project-specific and generic EIS, alternatives will be discussed in terms of their impacts on the proposed project. A GEIS, however, does more than just identify the environmental impacts under alternative project scenarios. When environmental impacts are determined to be potentially significant, recommendations for means of reducing environmental harm will be included in the GEIS. Therefore, the GEIS goes a step beyond ordinary

environmental review processes in that it develops recommendations to alleviate or minimize environmental damage resulting from the activities under study.

Another major distinction between a generic and project-specific EIS is in terms of how the study is funded. Under project-specific review, the costs for preparing an Environmental Impact Statement are borne by the project proposer. However, because a GEIS generates information of a general nature that is available to both government decision makers and proposers, the costs of preparing a GEIS are paid for by taxpayers as opposed to individual proposers, typically via a special legislative appropriation. The EQB does not have the authority to establish rules relating to cost assessment of a generic EIS.

A third difference relates to the relationship between a generic EIS and project-specific review of individual projects. Because of its discretionary nature, a GEIS does not replace the need for project-specific environmental review on individual activities. In fact, the GEIS can facilitate environmental review by providing information useful in reviewing the impacts of individual projects. Similarly, the fact that a GEIS is being prepared does not preclude specific development activities considered by the GEIS from being undertaken or completed. The intent of the GEIS is to provide information beyond the scope of individual activities that will facilitate more efficient review of those activities when considered in aggregate.

III. STUDY OBJECTIVES

The Timber Harvesting GEIS has three basic objectives. These are to:

1. Develop a basic understanding of the status of timber harvesting and related timber management activities in Minnesota, and how this level of statewide activity relates to long-term sustainable levels of timber removals.
2. Identify and assess the environmental and related (i.e., economic and social) impacts associated with current and potential future elevated levels of statewide timber management and harvesting activity.
3. Develop strategies to mitigate such impacts where existing or potential significant adverse impacts are identified.

IV. DESCRIPTION OF THE GEIS PROCESS

The process for preparing a GEIS on timber harvesting activities in Minnesota can be broken down into the following four major components:

A. Scoping

The first step in conducting a GEIS is to identify and define the issues to be addressed in the study. This is done through a scoping process, which occurs prior to actually preparing the GEIS. The main purpose of scoping is to narrow the size of the study by clearly defining the problem areas in need of examination and eliminating those issues not considered critical to understanding the implications of timber management and harvesting in Minnesota. The scoping process should also define the nature of analysis for issues to be studied.

B. Analysis

Because of the nature of the GEIS, it is anticipated that adequate information may not be available to address all scoped issues at the same level of detail. Therefore, once the EQB issues a final scoping decision and selects a consultant to prepare the GEIS, an assessment will be made regarding the availability of information to address the issues identified in the scoping document. Specifically, this assessment will analyze the level of detail by which the scoped issues can be examined, given limitations with respect to funding, information availability and the study's time frame. Based on this analysis, a detailed workplan will be developed that identifies which and at what level the scoped issues will be analyzed. For those scoped issues identified as having significant limitations in terms of being examined within the context of this study, the GEIS will identify the general types of data as well as research strategies necessary to adequately address those issues.

C. Identification of Potential Significant Impacts - Based on the analysis, the Advisory Committee will recommend to the EQB those issues which they believe have the potential to be significantly impacted by timber harvesting. The EQB will use the input of the Advisory Committee and the EQB staff to determine those issues where significant impacts could result from timber harvesting.

D. Recommendations

The last major portion of the timber harvesting GEIS is to develop policy recommendations for those issue areas identified as having the potential for being significantly impacted by timber harvesting and management activities in Minnesota. In such instances, alternatives will be identified and the Advisory Committee will develop consensus recommendations on ways of mitigating those impacts identified in the analysis. Giving consideration to the advice of the Advisory Committee, the EQB will then develop policy recommendations for mitigating those impacts identified.

V. MAJOR ASSUMPTIONS

The following are major assumptions used in defining the scope of the GEIS on timber harvesting and management in Minnesota:

A. Geographic Coverage

The GEIS will examine the impacts timber management and harvesting has on Minnesota's environment and related economy. To the extent possible, all lands and resources within the state's boundaries will be considered in conducting this study. Issues and data will be gathered and analyzed at appropriate levels in order to determine statewide cumulative impacts.

B. Forest Lands Under Consideration

The Generic Environmental Impact Statement will examine the cumulative impacts of timber management and harvesting activities occurring on all lands in Minnesota. This includes, to the extent possible, all public forest lands owned and/or managed by federal, state, county or municipal governments as well as forest land owned by industrial and nonindustrial private interests. Both commercial and noncommercial forest lands will be subject of this study.

C. Relationship to Timber Harvesting and Management

The GEIS will analyze only those issues whose impacts are a result of timber harvesting and associated management activities in Minnesota. As used in this scoping document, timber harvesting and management is defined to include a broad range of human-induced activities related or incidental to altering forest environments. Although not inclusive, typical activities include logging, site preparation, reforestation (through both artificial and natural means), forest road design, density and construction, chemical applications and thinning operations.

VI. ALTERNATIVES ADDRESSED IN THE GEIS

Rules governing Minnesota's Environmental Review Program (parts 4410.2100, subpart 6, item E; and 4410.3800, subpart 6) require the scoping document to identify alternatives that will be addressed in the EIS. The purpose of discussing alternatives in an EIS is to compare the environmental impacts of the proposed project with other reasonable alternatives to the project, including the alternative of no action.

In the case of this particular GEIS, the "proposed project" is defined in terms of the state's cumulative timber harvesting and related activities. Therefore, alternatives addressed in the GEIS are defined as different levels of statewide timber harvesting and management activity. In addition to examining impacts based on Minnesota's current levels of harvesting, potential future timber harvesting levels will also be analyzed to identify impacts that would result if such a level of statewide activity were actually achieved.

To the extent possible, all issues will be reviewed from the following three levels of statewide timber harvesting and associated management activity:

- 3.2 million cords. This is the level of statewide timber harvesting activity that occurred in 1988, the most current year in which this data is available.
- 4.9 million cords. This is the level of statewide timber harvesting activity estimated to occur by 1995. (This also approximates a 50 percent increase in timber harvesting and associated management activity over 1988 statewide harvest levels.)
- 7 million cords. This is the estimated maximum annual volume of timber available for harvest statewide for all tree species in the year 2000. (This also approximates a 100 percent increase in timber harvesting and associated management activity over 1988 statewide harvest levels.)

These alternatives provide for analysis under three different perspectives: 1) the current level of timber management and harvesting activity; 2) a level of statewide timber harvesting activity that is estimated to occur in the near future (within the next five years) if proposed expansions occur; and 3) projected long-term future maximum recommended annual statewide timber harvest levels.

VII. OTHER ANALYSES

In addition to these alternatives in which issues identified in the scoping document will be assessed for their impacts, the GEIS will also include an analysis of the opportunities to meet Minnesota's future wood fiber demands by using recycled fiber by the state's wood-based industries, and the potential impact on Minnesota's environment and economy. Also, studies that address global warming and Minnesota's forests will be identified and described.

VIII. ISSUES OF CONCERN

The following are major issues associated with timber harvesting in Minnesota that were recommended by the Advisory Committee and adopted by the EQB to be included in the final scoping decision. Under each major issue is a series of questions. These questions are used to help more clearly define the significant aspects of each issue and, if addressed, provide a better understanding as to the impacts timber harvesting has on each.

It should be noted that inclusion of a particular issue in this document does not guarantee it will be examined in the GEIS. Uncertainty regarding both the study's final level of funding and the completeness and relevance of data associated with each issue make it impossible to ensure all issues will be adequately addressed within the context of this study. Where it is determined that a particular issue cannot be sufficiently analyzed, the GEIS will identify future research strategies necessary to obtain this information.

A. Maintaining Productivity of Forests For Timber Production.

Making sure that forests are able to sustain (over long periods of time) the production of ample supplies of timber in an environmentally sensitive manner is of major importance to society. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. Based on most recent statewide forest inventory information, what allowable timber harvest rates are sustainable for major Minnesota forest types? What rates are possible for sustaining economic activity based on pulp, fuelwood and quality sawtimber products? What methods are used (or could be used) to estimate allowable harvest rates (considering structural and taxonomic diversity, specific geographic areas, and various landowner classes)?
2. What is the relationship between current and future estimates of sustainable timber supplies and the demands expected for the supply of such timber? Are there seasonal differences in timber demand and supply?
3. Are there classes of landowners, geographic regions or forest types where timber harvest rates may be expected to exceed allowable timber harvest rates or biological growth? If needed, what strategies can be implemented to assure the perpetuation of a renewable forest resource? What are the impacts of these strategies and what forest conditions will result from their implementation?

B. Forest Resource Base. Forests are dynamic ecosystems which change naturally and in response to human intervention (e.g., timber harvesting). Understanding the nature and extent of such change is important to the making of wise management and land use decisions. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. To what extent have changes occurred in the size and composition of Minnesota's forest land base (using reliable statewide information)? What were the major factors contributing to this change?
2. To what extent do timber harvesting and management activities impact the abundance, composition, spatial distribution, age class structure, genetic variability, and tree species mixture (for example, in creating forest monocultures) of Minnesota's

forests (based on reliable information)? To what extent are changes in these characteristics specifically attributable to timber harvesting and management of certain forest landowner categories?

C. Forest Health. The management of forests should be undertaken so as to ensure that they are sustained in a healthy condition over long periods of time, recognizing that endemic pest conditions will be present. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. What impact does timber harvesting and management have on the change in risk of disease and insect infestations to Minnesota's forests?
2. To what extent are changes in the risks of insect and disease infestations specific to a particular forest landowner class, geographic region, tree species or forest type?

D. Plant and Animal Diversity in Forest Ecosystems. A diverse range of plants and animals are associated with forest ecosystems. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. What impact does timber harvesting and management have on the biological diversity of forests at the genetic, species and ecosystem levels? What spatial patterns of forest cover does timber harvesting create, and how do these patterns impact wildlife and native plant communities (for example, fragmentation of forests)?
2. To what extent are federal and state-listed species of special concern, threatened, or endangered species or their habitats impacted by timber harvesting and management?
3. Based on the DNR's final definition of "old growth" forests and "old" forests, to what extent do these forests exist in Minnesota; how are they identified and managed; and how are they impacted by timber harvesting and management?

E. Forest Wildlife and Fish. Forest wildlife and fish are an integral part of forest ecosystems. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. What are the forest dependent wildlife and fish species, their specific habitat requirements, and their current status and distribution?
2. To what extent does timber harvesting and management impact populations and habitats of each of the ten groups of wildlife and fish species as defined in Appendix B?

F. Water Quality. Forests are capable of influencing the flow of significant quantities of water of various qualities. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. To what extent does timber harvesting and management result in changes in the level of sedimentation, nutrient loading and runoff in lakes, rivers, streams and wetlands?
2. To what extent are fertilizers, compost, sludge and pesticides used in timber management, and what are their impacts on the quality of surface and groundwater?
3. To what extent does timber harvesting and management impact aquatic ecosystems, wetlands and peatlands?

G. Forest Soils. Forest soils are a fundamental resource on which rests the ability of forests to provide a wide variety of benefits. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. To what extent does soil erosion occur as a result of timber harvesting, and how does this rate of erosion compare with forest soil erosion rates in undisturbed forests? What specific timber harvesting and management activities are major contributors to the erosion of forest soils?
2. To what extent do timber harvesting and management (e.g., short cycle rotations) activities impact nutrient cycling and the productivity of forest soils? To what extent do specific management and timber harvesting practices impact the productivity of forest soils?
3. To what extent do timber harvesting and management activities impact the compaction of forest soils? To what extent does soil compaction impact forest productivity and the growth of forest plants?

4. To what extent does the time of year in which timber harvesting occurs impact forest soil productivity and the success of forest regeneration?

H. Forest Recreation. Forests provide significant opportunity for a wide variety of outdoor recreational experiences. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. To what extent are forest recreation opportunities, both quantitatively and qualitatively, impacted by timber harvesting and management? Do such impacts vary by type of recreation (e.g., day use, overnight, dispersed, nondispersed, on-site, off-site, consumptive, nonconsumptive)?

I. Economics and Management. Forests provide a variety of benefits which are critical to the economic and social health of regional and statewide economies. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. a) To what extent does timber harvesting and management impact regional and state economies?
b) Which and to what extent do specific economic sectors benefit from timber harvesting and management?
c) Which and to what extent are specific economic sectors adversely impacted by timber harvesting and management?
2. a) To what extent is the state's recreation and tourism industry impacted by timber harvesting and management?
b) Which and to what extent do specific segments of the recreation and tourism industry benefit from timber harvesting and management?
c) Which and to what extent are specific segments of the recreation and tourism industry adversely affected by timber harvesting and management?
d) To what extent will an increase or decrease in timber harvest affect the habitats of deer and ruffed grouse, other game species and other recreational use of wildlife; and how will these changes affect state and regional economies?

3. What is the current distribution of timber stumpage among various users? What laws, policies and procedures influence this distribution?
4. What level of forest road density, design and construction is appropriate to provide access for all forest activities (e.g., timber harvesting and management, fire/insect/disease protection and dispersed recreation on forest lands)?

J. Aesthetics and Unique Cultural Resources. Forests provide a variety of scenic vistas and often are the setting for important cultural and historic resources. Considering previously specified timber harvesting levels and looking at timber harvesting and management activities statewide:

1. To what extent are unique historical and cultural resources (e.g., Native American cultural, religious and spiritual resources) in forested areas impacted by timber harvesting and management?
2. To what extent does timber harvesting and management impact the visual quality of Minnesota's forests?

IX. IDENTIFICATION OF NECESSARY STUDIES

While Section VIII identifies the major issues related to timber harvesting that should be examined in the GEIS, it does not assess the level of detail by which the scoped issues can be analyzed, nor does it identify the specific studies needed to carry out the analysis. This information can be obtained only after the issues identified in the final scoping decision are thoroughly examined, giving consideration to study funding and time constraints. The consultant selected by the EQB to prepare the GEIS will make the data assessment and detail the specific studies needed to examine each issue as an initial step in preparing the GEIS. Through the development of a detailed workplan, the consultant will identify the specific studies that will be prepared to complete the GEIS, as well as delineate which studies will use existing data and which will require the development of new information (see Section IX, study preparation schedule). The final GEIS will also identify future research needs and strategies to address those scoped issues not adequately addressed in the study due to data limitations.

X. PROPOSED SCHEDULE FOR STUDY PREPARATION

The following outlines the proposed schedule for preparing the GEIS. All estimated dates are considered tentative.

<u>Task</u>	<u>Estimated Date</u>
Advisory Committee submits consensus recommendations on the proposed scope of the GEIS.	November, 1990
EQB issues final scoping decision.	December, 1990
EQB issues Request For Proposals.	January, 1991
Proposals reviewed, Advisory Committee recommends consultant, EQB selects consultant.	Feb.-March, 1991
Feasibility assessment of issues conducted. Detailed GEIS workplan developed by consultant. Advisory Committee reviews and provides comments on the feasibility assessment and the workplan. Workplan adopted by the EQB.	April, 1991
Workplan revised to reflect any additional funding.	June, 1991
Draft GEIS developed, including Advisory Committee mitigation recommendations.	January, 1992
Public comment on draft GEIS.	Feb.-March, 1992
Advisory Committee review of public comments and recommendations to EQB on final GEIS.	April-May, 1992
EQB issues final GEIS.	June, 1992

XI. REFERENCES

- Hahn Jerold T. and Brad W. Smith. 1987. Minnesota's Forest Statistics, 1987: An Inventory Update. NC-118. USDA-Forest Service, North Central Forest Experiment Station. St. Paul Minnesota.
- Minnesota Department of Natural Resources, Division of Forestry. 1989 and 1990. Unpublished material. St. Paul, Minnesota.
- Minnesota Environmental Quality Board. 1982. Statement of Need and Reasonableness, Environmental Review Program. St. Paul, Minnesota.
- Minnesota Governor's Commission on Forestry and Forest Products. 1989. Minnesota's Forest Resources: An Analysis and Recommendations For Sustained Growth, Use and Environmental Enhancement. State of Minnesota, St. Paul, Minnesota.
- Office of the Revisor of Statutes. 1989. Minnesota Environmental Quality Board, Environmental Review Program. State of Minnesota. St. Paul, Minnesota.

APPENDIX A

TENTATIVE GENERAL OUTLINE: GEIS DRAFT DOCUMENT

1. DESCRIPTION OF FORESTRY IN MINNESOTA
2. PUBLIC FOREST LAND MANAGEMENT ORGANIZATIONS IN MINNESOTA
 - a) Organizational histories and structures.
 - b) Major forest management and harvesting policies, including relevant statutes and regulations.
 - c) Major forestry programs and activities and public participation.
 - d) Current planning and coordination efforts.
3. ANALYSIS OF ISSUES
 - a) Background information.
 - b) Analysis of impacts under identified alternatives.
 - * description of possible impacts
 - * likelihood of occurrence
4. MITIGATION ALTERNATIVES AND IMPACTS OF THOSE MITIGATION MEASURES
5. RECOMMENDATIONS
6. FUTURE RESEARCH NEEDS
7. DEFINITION OF TERMS

APPENDIX B

DEFINITION OF TERMS

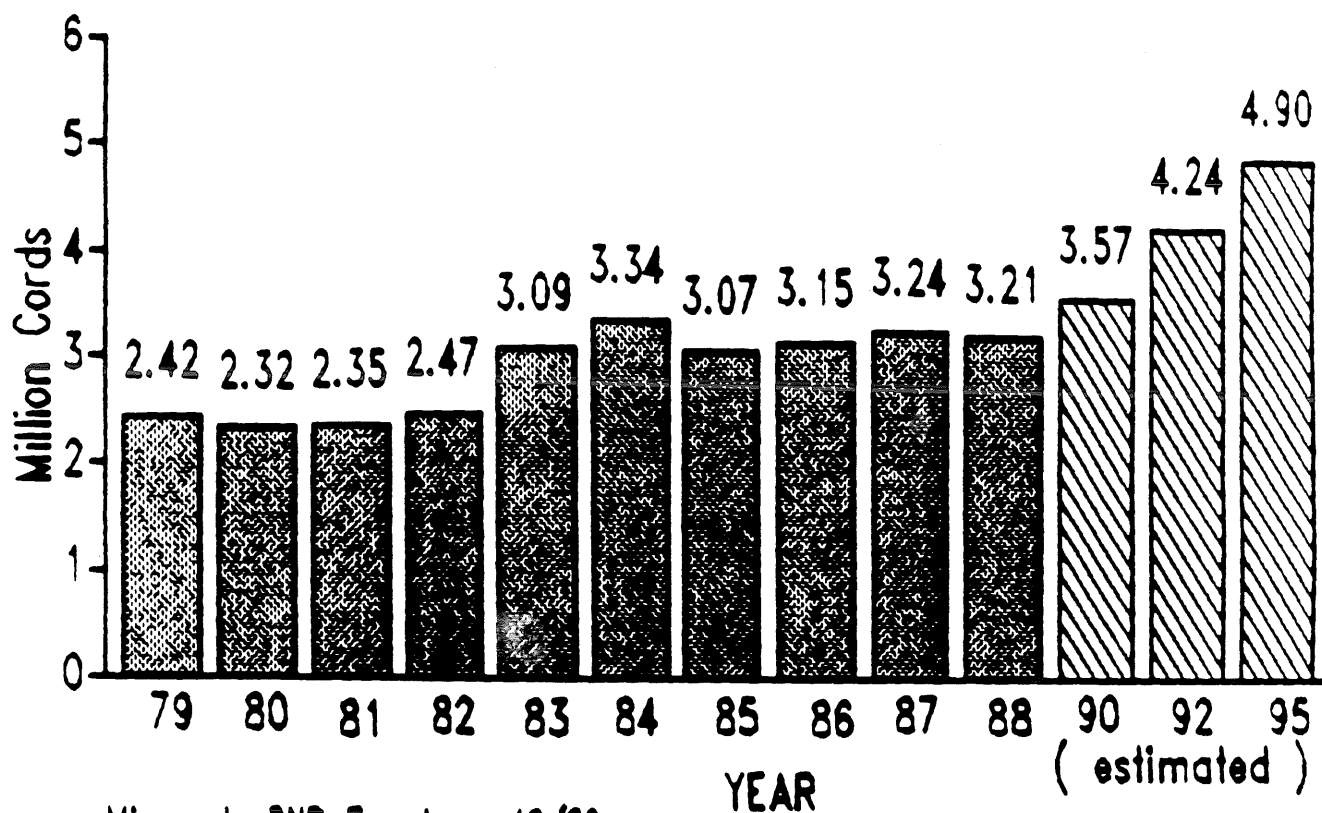
Cord - A typical measure of wood volume equal to 79 cubic feet of solid wood, which is roughly equal to 128 cubic feet of loosely stacked wood.

Forest Wildlife and Fish - For purposes of the GEIS, forest wildlife and fish consist of the following ten groups of species: forest ungulates, forest grouse, forest furbearers (carnivores and rodents), forest interior birds, conifer-dependent species, hardwood-dependent species, forest raptors (and their prey base), species that require old or mature forests, coldwater fish, and warmwater fish.

Timber Harvesting and Management - Includes a broad range of human-induced activities related or incidental to altering forest environments. Although not inclusive, typical activities include logging, site preparation, reforestation (through both artificial and natural means), forest road design, density and construction, chemical applications and thinning operations.

TOTAL WOOD HARVEST In MINNESOTA

- from Commercial Forest Land -



Source: Minnesota DNR-Forestry 10/89

Minnesota - New and Expanding Wood Using Industries

- Pulpwood -

<u>1979-1985</u>		<u>Additional Wood Use</u>	<u>Capital Investment (millions \$)</u>
Potlatch	Paper	30,000 cords	100
Potlatch	OSB	170,000 cords	40
Potlatch	OSB	170,000 cords	40
Northwood Panelboard	Waferboard	220,000 cords	45
Champion International	Paper	60,000 cords	250
Blandin	OSB	220,000 cords	50
Louisiana Pacific	Waferboard	90,000 cords	30
		<u>960,000 cords</u>	<u>\$555 million</u>
<u>1986 - 1990</u>			
Blandin	Paper	138,000 cords	350
Potlatch	Paper	None	100
Lake Superior Paper Ind.	Paper	130,000 cords	404
International Biltrite	Sheathing	50,000 cords	12
		<u>318,000 cords</u>	<u>\$866 million</u>
<u>1991-1995</u>			
Boise Cascade	Paper	340,000 cords	525
MacMillan Bloedel	**PSL	135,000 cords	70
Potlatch	OSB	160,000 cords	35
*Blandin #7	Paper	150,000 cords	300
*Lake Superior Paper Ind.	Paper	160,000 cords	505
*Potlatch	Paper	420,000 cords	400
*Champion International	Paper	60,000 cords	400
		<u>1,425,000 cords</u>	<u>\$2.235 Billion</u>

*Under study

* *Parallel Strand Lumber

Source: MN DNR - Forestry