A STUDY OF SELECTED FACTORS RELATED TO SNOWMOBILE ACCIDENTS BEFORE AND AFTER ENACTMENT OF REGULATORY LEGISLATION IN THE STATE OF NEW YORK

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
NANCY G. HINCKLEY
1972

This is to certify that the

thesis entitled

"A Study of Selected Factors Related to Snow-mobile Accidents Before and After Enactment of Regulatory Legislation in the State of New York"

presented by

Nancy G. Hinckley

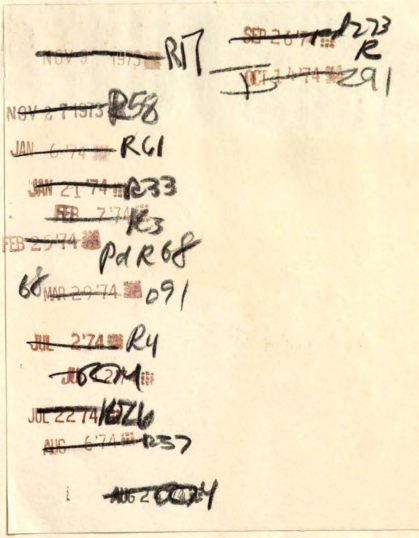
has been accepted towards fulfillment
of the requirements for

PHD degree in Education

Robert E. Swanson
Major professor

Date October 19, 1972

O-7639



ABSTRACT

A STUDY OF SELECTED FACTORS IN [illegible]
ACCIDENTS BEFORE AND AFTER [illegible]
REGULATORY LEGISLATION IN [illegible]
OF NEW YORK

By

Nancy G. Sinclair

Statement of the Problem

The number and severity of injuries incurred through snowmobile accidents is one aspect of the snowmobile problem that state legislatures are considering when passing statutes regulating snowmobiles. This study attempted to ascertain the differences in snowmobile accident involvement preceding and following regulatory legislation in the state of New York. Prior to regulatory legislation the accidents included 280 on-road and 237 off-road occurrences, in which there were 246 nonfatal injury accidents and 14 fatal injury accidents. Following regulatory legislation the accidents included 781 on-road and 406 off-road occurrences, in which there were 934 nonfatal injury accidents and 25 fatal injury accidents.

The study was conducted in New York because of the unusual situation of the snowmobile legislation restricting

ABSTRACT

A STUDY OF SELECTED FACTORS RELATED TO SNOWMOBILE ACCIDENTS BEFORE AND AFTER ENACTMENT OF REGULATORY LEGISLATION IN THE STATE OF NEW YORK

By

Nancy G. Hinckley

Statement of the Problem

The number and severity of injuries incurred through snowmobile accidents is one aspect of the snowmobile problem that state legislatures are considering when passing statutes regulating snowmobiles. This study attempted to ascertain the differences in snowmobile accident involvement preceding and following regulatory legislation in the state of New York. Prior to regulatory legislation the accidents included 200 on-road and 137 off-road occurrences, in which there were 246 nonfatal injury accidents and 14 fatal injury accidents. Following regulatory legislation the accidents included 281 on-road and 406 off-road occurrences, in which there were 576 nonfatal injury accidents and 25 fatal injury accidents.

The study was conducted in New York because of the unusual situation of the snowmobile legislation restricting

snowmobiles from travel along the highways in the 1970-1971 winter season whereas in the 1969-1970 winter season travel along the highways was permitted.

Methods of Procedure

This study considered the selected factors related to the operator, the vehicle, and the environment pertaining to: The populations of 337 snowmobile accidents in the 1969-1970 winter season and 687 snowmobile accidents in the 1970-1971 winter season; the on-road sub-group of 200 occurrences in the 1969-1970 winter season and 281 occurrences in the 1970-1971 winter season; and the off-road sub-groups of 137 occurrences in the 1969-1970 winter season and 406 occurrences in the 1970-1971 winter season. The data were collected from accident reports, computer analyzed for distributions of specified record columns, calculated for increase in per cent change, and tabulated.

The Major Findings

The following facts should be considered when interpreting the findings of this study based on data provided in accident report forms: (1) the total number of snowmobiles in the state of New York was not known; (2) the rate or amount of exposure to snowmobile use was not known; (3) all off-road snowmobile accidents involving personal injury and/or property damage in excess of $100.00 had to be reported in the winter season 1970-1971, whereas only off-road snowmobile accidents involving

fatal injury had to be reported in the winter season 1969-1970; and finally (4) in the 1969-1970 winter season snowmobiles had to be registered only if used on the roadway, whereas in the 1970-1971 winter season all snowmobiles had to be registered if used on other than private land. The following are the major findings.

1. Registration of snowmobiles increased 250 per cent from the 1969-1970 winter season to the 1970-1971 winter season.

2. In the 1969-1970 winter season there were 90.1 accidents for each 10,000 registered snowmobiles and in the 1970-1971 winter season there were 52.7 accidents per 10,000 registered snowmobiles.

3. Both winter seasons had eleven fatal injuries in the on-road accident sub-group.

4. There were eleven more fatal injuries in the off-road sub-group in the 1970-1971 winter season than in the 1969-1970 winter season.

5. Fifty-nine and four tenths per cent of the accidents occurred on-road in the 1969-1970 winter season, but only 40.9 per cent occurred on-road in the 1970-1971 winter season.

6. Of the on-road operations prohibited by the Harris Bill in 1970-1971, 65.3 per cent involved collision

with a motor vehicle in winter season 1969-1970 and 45.2 per cent in winter season 1970-197.

7. In both winter seasons the majority of operators involved in either on-road or off-road accidents resided in the county of their accident occurrence.

A STUDY OF SELECTED FACTORS RELATED TO SNOWMOBILE ACCIDENTS BEFORE AND AFTER ENACTMENT OF REGULATORY LEGISLATION IN THE STATE OF NEW YORK

By

Nancy G. Hinckley

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

College of Education

1972

ACKNOWLEDGMENTS

This study would not have been commenced nor accomplished without the cooperation and encouragement of numerous agencies and individuals. It is with a debt of gratitude that these acknowledgments are gratefully bestowed:

To Mr. Charles W. Bostick, Director, and Mr. D. Barry Negri of the Division of Research Development of the New York State Department of Motor Vehicles for providing copies of the snowmobile accident reports.

To Mr. Ivan Vamos, Director, and Mr. Roy Roberts of the Recreation and Planning Division of the New York State Office of Parks and Recreation for allowing examination of snowmobile accident reports.

To the members of the Doctoral Guidance Committee, Dr. Robert E. Gustafson, Chairman, Dr. Joseph G. Dzenowagis, Dr. George R. Myers, and Dr. Robert O. Nolan, who fostered inquiry into this area of concern.

To Mrs. Karen Gehring for diligent service during the manuscript phase of this endeavor.

To Theorodore E. Hinckley, my husband, for sustaining faith and confidence from the beginning to the end of this study.

TABLE OF CONTENTS

Chapter Page

APPENDICES

Appendix

LIST OF TABLES

CHAPTER I

THE PROBLEM

The development of the snowmobile occurred over a period of fifty years. The first recorded motorized, over snow travel took place in Kiev, Russia in a machine built by Igor Sikorsky in 1909.[1] Next, in 1913, the name snowmobile was copywrited by Virgil D. White of New Hampshire who also invented and patented the Model T snowmobile.[2] In 1928 the Ford Motor Company provided snow vehicles for Admiral Byrd's polar expedition.[3] The snowmobile, a machine with ski frontrunners and rear drive track without aerodynamic cowling, was invented and patented by Carl J. Ellison in 1929 in Wisconsin.[4] Finally, following attempts

---

[1]C. B. Colby, "Getting the Picture," Outdoor Life (November, 1969), 6.

[2]"The First Snowmobile," Yankee (January, 1971), pp. 74-79.

[3]James J. Tuite, Snowmobiles and Snowmobiling (New York: Cowles Book, 1969), p. 5.

[4]Stephen A. Briggs, II, "Snowmobile History," National Safety Congress Proceedings, 26:40 (1965), p. 40.

in 1923 and 1936, in 1959 Canadian Joseph-Armand Bombardier designed the snowmobile as we recognize it today.[5]

From Bombardier's meager beginnings in 1959, the snowmobile and support industries now boast a multi-billion dollar business.[6] The growth in the snowmobile industry is evidenced by the attendance of 250 exhibitors and 4,000 dealers and distributors at the 1971 Third International Snowmobile Trade Show.[7] The multi-billion dollar business is accrued through the cost of the snowmobile, trailer, clothing, transportation, lodging, meals, extra equipment, and insurance. On the average an individual pays $1,200 for a snowmobile and equipment[8] and not uncommonly a family has two snowmobiles. The number of snowmobiles per capita in a family has become a status symbol.[9] Snowmobile sales

---

[5]"Snow Vehicles," Machine Design, 38:138 (January, 1966), p. 140.

[6]Jack Olsen, "Bad Snow Out in the Cold Snow," Sports Illustrated, Vol. 32, No. 11 (March 16, 1970), 28.

[7]Pierre Aubin, "Snowmobile Country--The U.S.," Foreign Trade, 134:14-17 (November 7, 1971), p. 17.

[8]D. E. Clarkin, "The Industry Pledge," Proceedings of the International Snowmobile Conference (Minnesota Department of Conservation, February, 1970), p. 5.

[9]Richard N. Humphreys, "Those Snowmobiles: Bane or Bone?" Vermont Life, Vol. 26, No. 2 (Winter, 1971), 10.

information indicates that there are over one million snowmobiles in operation in North America.[10]

The varied uses and reasons for using snowmobiles lead to a large sales volume which is the generally accepted indicator of public acceptance. The varied uses of the snowmobile include: families enjoying the outdoors together, snowmobile clubs having developed from groups of people doing things together for social interaction,[11] and sporting events having developed to provide an outlet for competitiveness for many snowmobilers.[12] The snowmobile is also a great boon to search and rescue teams and law enforcement officials in areas of heavy snowfall.[13]

Although snowmobiles are popular with many people, they are becoming unpopular among the environmentalists for harassing wildlife, for making trails which predatory animals use,[14] for abusing public and private land,[15] and

[10]H. K. Howe, Snowmobile Industry Sales (Washington, D.C.: International Snowmobile Industry Association, June, 1970), p. 1.

[11]P. A. Snook, "Snowmobiling," National Wildlife, Vol. 7 (December-January, 1969), 43.

[12]John W. Malo, Snowmobiling--The Guide (New York: The Macmillan Company, 1971), pp. 127-39.

[13]Ibid., pp. 147-53.

[14]Richard E. Griffith, "Environmental Quality Impact," Proceedings of the International Snowmobile Conference (Albany, N.Y.: New York State Department of Conservation, May, 1969), p. 80.

[15]Olsen, loc. cit., p. 30.

for polluting atmospherically and sonically.[16] Also, private individuals dislike snowmobiles when the snowmobile is used for destruction of private property, tresspassing on private property, and for infringing on personal freedom by disturbing the peace.[17] The conflicts between the snowmobile and other winter activities and motor vehicles have augmented the feelings rising against snowmobiles.[18] Finally, the most important cause for the sentiment against the snowmobile is the number of operators, passengers, other winter sport participants, and spectators who are injured or killed through the unregulated use of the snowmobile.[19]

The enactment of legislation usually lays the foundation or provides the means for regulation of man's activities by setting standards, imposing limits, and establishing enforcement. The aim of legislation is the regulation of the behavior of man to protect man from himself and others. For example, any game or contest has

---

[16]Elizabeth N. Layne, "Abominable Snowmen," American Heritage, Vol. 21:113 (February, 1970), 113.

[17]Diane Lansing, "Snowmobiles Push Further Afield," Christian Science Monitor (November 25, 1969), p. 6.

[18]Henry Giniger, "Scotters, (Snowmobiles, That Is) Hit the Alps," The New York Times (January 22, 1972), p. 8.

[19]National Safety Council, "Snowmobile Accident Summary 1969-1970 Winter Season" (Chicago, Ill.: National Safety Council, 1970).

pre-established rules and regulations; all forms of transportation have federal, state, and local regulations. Generally speaking man's activities are regulated.

The increase in the number of the state legislatures passing statutes to regulate the use of snowmobiles is one indicator that the accident and injury statistics of snowmobilers have been growing at an alarming rate. Twenty-two of the twenty-eight snow-belt states have legislation pertaining to the snowmobile. Of the twenty-two, all require a head light and tail light on the snowmobile, twenty allow snowmobiles to cross the highway, nineteen have registration requirements, eighteen have muffler requirements, and fourteen require accident reports.[20] Many states also have equipment requirements relative to brake effectiveness.[21]

Malcolm Baldwin's Model Law was presented at the International Snowmobile Conference in Albany, New York, May, 1969. The titles within the law give an indication of its content. The titles are "Definition, Registration, Vehicle Identification, Licensing, Non Residents, Temporary Permission, Taxation, Dealers, Ownership Transfer, Noise

---

[20]"What You Should Know About Your Snowmobile and the Law," Snowmobile Handbook (Popular Science, 1972), pp. 42-43.

[21]"Winter's Horseless Sleigh: New State Law--Proposed Local Regulations of Snowmobiles," Municipality, Vol. 65:30 (February, 1970), 31.

and Exhaust, Operating Restrictions, Sanitation, Hunting and Use of Firearms, Liability, Accidents, Snowmobile Highway Use, Zones of Use, Municipalities, Penalties and Enforcement."[22] The text of this Model Law may be found in Appendix A.

The major concerns of individuals who want snowmobile legislation are to have the vehicle registered and the operator licensed.[23] However, according to some, there is little that legislation can do to reduce the hazard except to keep the snowmobile off the highway.[24]

A unique application of the motor vehicle law allowed snowmobiles to be operated upon the public highways of New York State after being insured and registered with the Department of Motor Vehicles for highway use.[25] However, subsequent to the enactment of the Harris Bill (4862-A) snowmobiles were registered with the Office of Parks and Recreation and were restricted to only direct crossings of highways at an angle of approximately ninety degrees and use of bridges and culverts in order to cross

---

[22] Proceeding of the 1969 International Snowmobile Conference (Albany, N.Y., May, 1969; Albany, N.Y.: New York State Conservation Commission, 1969), pp. 40-44.

[23] "Cool, Fast Fun--and Trouble, Too," Life, Vol. 70, No. 7 (February 26, 1971), 21.

[24] D. Bell, "The Move to Harness the Snowmobiliacs," Maclean's, Vol. 80:4 (April, 1967), 3.

[25] "Vehicle and Traffic Law," New York Department of Motor Vehicles (Albany, N.Y.: September, 1969), p. 193.

a body of water.[26] Therefore, in the winter season of 1969-1970, prior to the enactment of the Harris Bill snowmobiles were permitted to travel along highways. With the enactment of the Harris Bill, during the winter season of 1970-1971 snowmobiles were forbidden use of the highways except for crossing. This, then presented an exceptional opportunity to study the apparent effects of regulatory legislation on accident frequency and severity in New York state.

Statement of the Problem

The snowmobile problem is as complex as our society. The reduction of the number and severity of injuries incurred through involvement in snowmobile accidents is one aspect of the problem. New York's state legislature enacted a law to regulate snowmobile use to ameliorate the snowmobile accident and injury dilemma. It was hoped that this study would reveal that the law enacted in New York state caused modification of snowmobile accident and injury involvement.

Purpose of the Study

The purpose of the study was to ascertain the particular factors that were most conspicuous in snowmobile

---

[26] J. L. Harris, et al., "An Act to Amend the Vehicle and Traffic Law and Conservation Law in Relation to Registration, Operation and Control of Snowmobiles," The Assembly of the State of New York, No. 4862-A (February, 1970).

accidents preceding and following the enactment of regulatory legislation in the state of New York. This study considered factors relative to the operator, the vehicle, and the environment for on-road and off-road snowmobile accidents in the winter seasons of 1969-1970 and 1970-1971.

Assumptions

The information collected from the New York Department of Motor Vehicles accident report form (MV-104) and the New York Office of Parks and Recreation accident report form (MRV-202S) was assumed to be factual and objective.

Importance of the Study

Public and legislative concern has fostered legislative action. Hopefully, the information revealed through this study will disclose that persons concerned with the snowmobiling dilemma have made meaningful decisions and the elected representatives have passed legislation that deals effectively with the problem. This endeavor may serve as a base of information for future legislative and decision-making needs and may also be used as base year data for a longitudinal study.

Definition of Terms

Accident

An event, occurrence, or happening which is unexpected or undesigned; it has an element of chance or probability, and has undesirable or unfortunate results.[27]

Fixed Object

A visible immovable obstruction such as a tree or fence post.

Hidden Object

An obstruction not readily visible such as a stump covered with snow.

Motor Vehicle Accident Report

The accident report form MV-104 which must be completed by a police officer for any accident meeting statute definitions for on- or off-road accidents.[28] A copy of the report is contained in Appendix B.

---

[27] Stannard J. Baker and William R. Stebbins, Jr., Dictionary of Highway Traffic (Evanston, Ill.: Northwestern University, 1960), p. 2.

[28] Theodore E. Hinckley, "Analysis of Snowmobile Accidents Involving Young Operators in the State of New York" (unpublished Doctoral dissertation, Michigan State University, 1971), p. 11.

Office of Parks and Recreation
Accident Report

The accident report MRV-202S which must be completed by the accident subject for any accident meeting statute definitions for on- or off-road accidents. A copy of the report is contained in Appendix C.

Off-Road Accident

An accident that occurs outside the highway right of way. Reporting of such occurrences in the winter season of 1969-1970 was not required, except in the case of a fatal injury. Reporting to the Office of Parks and Recreation in the winter season of 1970-1971 was required if there was resulting injury and/or property damage in excess of $100.00.

On-Road Accident

An accident that occurs inside the highway right of way. Resulting personal injury and/or property damage in excess of $100.00 which, according to the law, must have been reported to the Department of Motor Vehicles in the winter season of 1969-1970 or the Office of Parks and Recreation in the winter season of 1970-1971.

Snowmobile

A motor-driven sled propelled by an endless track and steered by the use of a ski-like structure, designed to be operated on snow.[29]

Winter Season 1969-1970

Beginning November 1, 1969, and continuing through March 30, 1970.

Winter Season 1970-1971

Beginning November 1, 1970, and continuing through April 30, 1971.

Organization of the Study

In Chapter II a review of the literature related to snowmobile accidents will be presented. The chapter will be divided into two sections: research studies to determine factors prevalent in snowmobile accident occurrences and summarization of accident data and hospital records.

Chapter III will include the design and methodology of the study. The population will be described as well as the two sub-groups of special interest.

In Chapter IV data gathered from the New York Department Motor Vehicle Accident Report MV-104 and the New York Office of Parks and Recreation Accident Report

---

[29] Ibid., p. 12.

MRV-202S will be organized in table form to reveal particular relationships and accident factors.

In Chapter V the summary, conclusions, discussion of feelings not supported by the data, recommendations, and recommendations for further research will be presented.

CHAPTER II

REVIEW OF THE LITERATURE

Legislation is considered to be one of the ways to solve the problems caused by the phenomenal growth in the use of snowmobiles. Twenty-two states and four Canadian provinces have passed such legislation. The compilation of accident statistics by law enforcement agencies and research studies into the problem are attempting to provide a basis for knowledgeable legislation. The review of the literature is concerned with the major findings and recommendations of the research studies that were undertaken in order to ascertain the factors prevalent in snowmobile accident occurrences and a summarization of accident data and hospital records, which serves to divide the review into two parts.

Research Studies

One of the first research studies pertaining to snowmobiles was conducted by D. Barry Negri of the Department of Motor Vehicles. He prepared a preliminary review of accidents involving snowmobiles occurring in the winter

seasons of 1967 and 1968. He followed the first study with a detailed investigation of snowmobile accidents from January, 1969 to June, 1970, a one and one-half year period. In the preliminary review Negri reported that two-thirds of the accidents occurring on public roads involved collision with other motor vehicles, 49 per cent occurring off-road involved the snowmobile overturning, occupant falling off, or an event resulting from proceeding over bumps and ditches; the body areas sustaining the highest frequency of injury were the legs and head; more than half the accidents occurred on a combination of Saturday and Sunday; and half the accidents occurred from 3:00 P.M. to 8:00 P.M. Negri's recommendations in the first review included that: Snowmobile occupants wear helmets, snowmobile operators while driving on public highways should be extremely aware that automobiles represent a special hazard, and snowmobile operators should make frequent mechanical checks to be sure their vehicle is in good working order.[1] In the second report, a detailed investigation, similar findings were reported: Approximately two-thirds of the accidents occurring on public roads involved collisions with another motor vehicle, 44 per cent involved overturning, falling off, or

---

[1]D. B. Negri, Accidents Involving Snowmobiles--A Preliminary Review, No. 1970-1 (Albany, N.Y.: New York State Department of Motor Vehicle, Division of Research and Development, February, 1970).

proceeding over bumps and ditches; the body areas of highest frequency of injury were the legs and head, however there was a 29 per cent reduction in the probability of sustaining head injury for those wearing helmets. An additional finding was that snowmobile lighting may be deficient. Recommendations from Negri's second report included: Suggestion for further study to determine if snowmobile lighting is deficient, requirements and standards for helmets, public information concerning hazards of snowmobiles crossing public highways, vehicle safety maintenance, and snowmobiles should be equipped with a safety mechanism to prevent the throttle from sticking in the open position.[2]

Next Alfred S. King investigated the specific factors that were most prominent in snowmobile accidents in the state of Michigan. His information was obtained from traffic accident reports, driving records, and personal interviews. King's major findings included: January as the peak month for accidents; approximately one-fourth of the drivers had accidents in counties other than where they resided; the combination of Saturday and Sunday accounted for 77 per cent of the accidents; over half of the accidents occurred between the hours of 4:00 P.M. and

---

[2]D. B. Negri, Snowmobile Accidents--A Detailed Investigation, No. 1970-2 (Albany, N.Y.: New York Department of Motor Vehicles, Division of Research and Development, December 1970).

12:00 midnight; the average age of all the snowmobile drivers involved in accidents was 27.69 years; and over half the fatal accidents occurred when the driver attempted to cross the highway. King's major recommendations included: snowmobile regulations for an age limit for snowmobile operators; restricted use of snowmobiles on regularly traveled highways; requirement of safety helmets and goggles; research into better design and safety equipment for snowmobiles; and providing snowmobile safety information through the public media. Further study was recommended in the areas of legislation, safety equipment, and effects of the snowmobile on the wilderness.[3]

Most recently, the descriptive study of Theodore E. Hinckley attempted to identify the commonalities of snowmobile accidents. Forty-two young operators in the state of New York received an in-depth study. Data were collected from the motor vehicle accident report, snowmobile accident report, subject interview, school record report, and abstract of the driving record. Major findings included: A majority of the subjects indicated an interest in participating in a snowmobile operation and maintenance course; the majority of the snowmobiles in the study were unregistered; the majority of the accidents occurred under

---

[3]Alfred S. King, "A Study of Selected Factors Related to Snowmobile Traffic Accidents in the State of Michigan" (unpublished Doctoral dissertation, Michigan State University, 1971).

seemingly ideal conditions of weather, light, and terrain; over 74 per cent of the accidents were in collision with another motor vehicle; vehicle deficiencies were present in over 11 per cent of the accident occurrences; and over half the subjects in the sample felt that alcohol in their system may have been a factor in the accident. Recommendations cited were for the snow-belt states to earmark funds from snowmobile registration for the development of trails and/or areas for snowmobile use; a public education program be provided for snowmobilers and non-snowmobilers; snow-belt states cooperate in the development of a uniform accident reporting instrument; and uniform signs be developed. Hinckley indicated that further study is needed in the areas of the effectiveness of restrictive legislation in frequency and severity of accidents, to determine the accident rate per mile or per hour of snowmobile operation, and to establish standards regarding the vehicle and its components.[4]

Summarized Accident Data and Hospital Records

Much of the literature regarding snowmobiles is based on summaries of accident data and on summaries of hospital records. This section will be organized into those findings and recommendations pertaining to the operator, the vehicle, and the environment.

[4]Hinckley, loc. cit.

Common factors reported in summaries of accident data and hospital records as they relate to the operator include: A disproportionate number of victims either killed or injured in snowmobile accidents have been in the 24 and under age group;[5,6,7,8,9,10,11,12] a reportable number of vehicle operators were considered alcohol

---

[5]J. W. Martyn, "Snowmobile Accidents," Canadian Medical Association Review, Vol. 101:770-72 (December 27, 1969).

[6]R. H. Dominici and E. H. Drake, "Speed on Snow--The Motorized Sled," The American Journal of Surgery, Vol. 119 (April, 1970).

[7]R. L. Withington and L. W. Hall, "Snowmobile Accidents: A Review of Injuries Sustained in the Use of Snowmobiles in Northern New England During the 1968-1969 Season," Journal of Trauma, Vol. 10 (September, 1970).

[8]William Castor and Hugh McIntyre, "Snowmobile Accidents," Canadian Medical Association Journal, Vol. 102:421 (February, 1970).

[9]Ontario Department of Transportation, "Snowmobile Collisions on Highways and Roads in Ontario," Prepared for the 1970 International Snowmobile Congress, Duluth, Minnesota, by the Research Section (Toronto, Canada: Ontario Department of Transport, February, 1970).

[10]"Snowmobile Accidents in Canada Winter of 1969-1970," Canada Safety Council (Ottawa: October, 1970).

[11]"Snowmobile Accident Summary 1969-1970 Winter Season," National Safety Council (Chicago, Ill.: 1970).

[12]William Carlson and Marion Compton, "Snowmobile Crash Analysis," Highway Safety Research Institute (Ann Arbor, Mich.: March, 1971).

involved;[13,14,15,16] the largest percentage of snowmobile operators were male;[17,18,19,20,21,22,23,24] the type of injury most commonly reported was the fracture;[25,26,27,28] and the most common regions of injury were the lower

---

[13]Ontario Department of Transport, loc. cit.

[14]Martyn, loc. cit.

[15]Dominici and Drake, loc. cit.

[16]Richard W. McLay and Stanley E. Chism, "A Snowmobile Accident Study," A Report of a Study Given at the International Snowmobile Conference (Albany, N.Y.: May, 1969).

[17]Dominici and Drake, loc. cit.

[18]Martyn, loc. cit.

[19]Withington and Hall, loc. cit.

[20]Castor and McIntyre, loc. cit.

[21]Ontario Department of Transport, loc. cit.

[22]"Snowmobile Accidents in Canada," loc. cit.

[23]"Snowmobile Accident Summary," loc. cit.

[24]Carlson and Compton, loc. cit.

[25]Stanley E. Chism and A. Bradley Soule, "Snowmobile Injuries: Hazards from a Popular New Winter Sport," Journal of the American Medical Association, Vol. 209, No. 11 (September, 1969).

[26]Martyn, loc. cit.

[27]Dominici and Drake, loc. cit.

[28]Withington and Hall, loc. cit.

extremities and the head;[29,30,31,32,33] and finally, many of the studies recommended the use of protective helmets and goggles.[34,35,36,37]

Common factors reported in summaries of accident data and hospital records as they relate to the vehicle included: Strangulation of operators due to clothing caught in moving parts of a snowmobile;[38,39] injuries or

---

[29]Martyn, loc. cit.

[30]Dominici and Drake, loc. cit.

[31]Castor and McIntyre, loc. cit.

[32]Withington and Hall, loc. cit.

[33]Chism and Soule, loc. cit.

[34]Raymond T. O'Dell, "Report on Oversnow Vehicles," United States Department of the Interior National Park Service, June, 1968.

[35]Diminici and Drake, loc. cit.

[36]Withington and Hall, loc. cit.

[37]Castor and McIntyre, loc. cit.

[38]R. Dominici, "Safety," Presented at the Third Annual International Snowmobile Congress (Portland, Maine: October 13, 1970).

[39]"Snowmobile Accidents in Canada," loc. cit.

fatalities due to sticking throttles;[40,41,42] injuries due to insufficient padding and support;[43,44,45,46,47,48,49] lights inadequate for illuminating the path ahead and for

---

[40]Dominici and Drake, loc. cit.

[41]Martyn, loc. cit.

[42]Withington and Hall, loc. cit.

[43]R. C. Sturgis, et al., "Ergonomic Study of Snowmobiles," A Study made at the Highway Safety Research Institute, Ann Arbor, Michigan: Supported in part by an Exploratory Research Grant from the National Safety Council, Chicago, Illinois, June 30, 1970.

[44]Richard W. McLay, "Machine Considerations," Recommendations of a Machine Safety Workshop Held at the International Snowmobile Conference (Albany, N.Y.: May 20-21, 1969).

[45]Henry Kao, "Human Factors," Recommendations of a Human Factors Workshop Held at the International Snowmobile Conference (Albany, N.Y.: May 20-21, 1969).

[46]Richard W. McLay, Paul M. Whalen, and William T. Kurth, "Methods for Eliminating Snowmobile Caused Spinal Injuries," Presented at the International Snowmobile Conference (Duluth, Minn.: February 9-11, 1970).

[47]McLay and Chism, loc. cit.

[48]Castor and McIntyre, loc. cit.

[49]Chism and Soule, loc. cit.

recognition of other vehicles;[50,51,52,53,54,55] ineffective steering and inherent vehicle instability;[56,57,58] ineffective brakes,[59,60,61,62] unsafe windshields;[63,64] unshielded mechanisms;[65,66,67] excessive

---

[50]McLay, loc. cit. [51]Kao, loc. cit.

[52]Martyn, loc. cit.

[53]Dominici and Drake, loc. cit.

[54]Sturgis, loc. cit.

[55]Withington and Hall, loc. cit.

[56]Chism and Soule, loc. cit.

[57]Martyn, loc. cit.

[58]Dominici and Drake, loc. cit.

[59]McLay, loc. cit.

[60]Chism and Soule, loc. cit.

[61]Martyn, loc. cit.

[62]Dominici and Drake, loc. cit.

[63]Withington and Hall, loc. cit.

[64]Dominici and Drake, loc. cit.

[65]"Snowmobile Accidents in Canada," loc. cit.

[66]Chism and Soule, loc. cit.

[67]Dominici and Drake, loc. cit.

noise;[68,69,70,71] horsepower yielding high speeds;[72,73,74,75,76,77] and vehicle design.[78,79,80,81]

Common factors reported in summaries of accident data and hospital records as they relate to the environment include: A majority of the accidents occurred during dark hours, however many of the studies did not consistently

---

[68] McLay, loc. cit.

[69] Castor and McIntyre, loc. cit.

[70] "Snowmobile Accidents in Canada," loc. cit.

[71] Martyn, loc. cit.

[72] McLay, loc. cit.

[73] Kao, loc. cit.

[74] Dominici and Drake, loc. cit.

[75] Martyn, loc. cit.

[76] Chism and Soule, loc. cit.

[77] O'Dell, loc. cit.

[78] Chism and Soule, loc. cit.

[79] McLay, Whalen, and Kurth, loc. cit.

[80] Dominici and Drake, loc. cit.

[81] Withington and Hall, loc. cit.

demark the line between daylight and darkness:[82,83,84,85,86,87,88,89] a majority of the accidents occurred on the roadway and a majority of those were with other motor vehicles;[90,91,92,93,94,95] and a disproportionate number of the accidents occurred on Saturday and Sunday.[96]

Based on the summary of accident data and hospital records recommendations were made in the areas of

---

[82]McLay and Chism, loc. cit.

[83]Castor and McIntyre, loc. cit.

[84]Dominici and Drake, loc. cit.

[85]Withington and Hall, loc. cit.

[86]"Snowmobile Accidents in Canada," loc. cit.

[87]Ontario Department of Transport, loc. cit.

[88]"Snowmobile Accident Summary," loc. cit.

[89]Carlson and Compton, loc. cit.

[90]Martyn, loc. cit.

[91]Chism and Soule, loc. cit.

[92]Ontario Department of Transport, loc. cit.

[93]"Snowmobile Accident in Canada," loc. cit.

[94]"Snowmobile Accident Summary," loc. cit.

[95]Carlson and Compton, loc. cit.

[96]"Snowmobile Accident Summary," loc. cit.

legislation,[97,98] improved forms for accident reporting,[99] educational training programs,[100,101,102,103,104,105] and publication of owner-operator manuals.[106,107]

Summary

The review of the literature revealed the major findings and recommendations of the research studies carried out by Negri, King, and Hinckley. Collateral information was provided through the summarization of accident data and hospital records pertaining to the operator, the vehicle, and the environment.

---

[97] Chism and Soule, loc. cit.

[98] Withington and Hall, loc. cit.

[99] Withington and Hall, loc. cit.

[100] Charles E. Garrison, "Maine Safety Report," Recreational Industry (November, 1969).

[101] O'Dell, loc. cit.

[102] Castor and McIntyre, loc. cit.

[103] Martyn, loc. cit.

[104] Withington and Hall, loc. cit.

[105] "Snowmobile Survey," Research Committee, Public Utilities Section, National Safety Council (Chicago, Ill.: August, 1969).

[106] "Snowmobile Survey," loc. cit.

[107] Withington and Hall, loc. cit.

CHAPTER III

DESIGN AND METHODOLOGY

In this chapter the design and methodology used in the treatment of the data are delineated. The chapter includes: Selection of the population and sub-groups, selected factors of concern in this study, collection of the data, codification of the data, treatment of the data, and summary.

Selection of the Population and Sub-groups

The population for this study was comprised of the 337 snowmobile accidents reported to the New York Department of Motor Vehicles in the winter season of 1969-1970 and the 687 snowmobile accidents reported to the New York Office of Parks and Recreation in the winter season of 1970-1971. The population was subsequently divided into two sub-groups of on-road and off-road accident occurrences for each of the winter seasons. The on-road sub-group consisted of 200 snowmobile accidents for the winter season of 1969-1970 and 281 snowmobile accidents for the winter season 1970-1971. The off-road sub-group consisted of 137

snowmobile accidents for the winter season of 1969-1970 and 406 snowmobile accidents for the winter season of 1970-1971. Snowmobile accident reporting differed between the 1969-1970 and 1970-1971 winter seasons. In the 1969-1970 winter season, on-road snowmobile accidents that involved personal injury and/or property damage in excess of $100.00 and off-road snowmobile accidents that involved fatal injury had to be reported to the New York Department of Motor Vehicles. In the 1970-1971 winter season all snowmobile accidents that involved personal injury and/or property damage in excess of $100.00 had to be reported to the New York Office of Parks and Recreation. The preceding information is organized and presented in Table 3.1.

TABLE 3.1.--Distribution of Snowmobile Accidents of Interest in This Study.

Snowmobile Accidents	1969-1970[a]	1970-1971[b]
Population	337	687
On-road	200	281
Off-road	137	406

[a]Snowmobile accidents reported to New York Department of Motor Vehicles.

[b]Snowmobile accidents reported to New York Office of Parks and Recreation.

Selected Factors of Concern in this Study

The selected factors of interest in this study were grouped into three general areas: The operator, the

vehicle, and the environment. The factors considered in the area of the operator were age, sex, residence, ownership, region of injury, type of injury, operation at time of accident, classification of accident, and apparent cause of the accident. The factors to be considered in the area of the vehicle were registration, make, and horsepower. The environmental factors considered were the date, day of week, time, location, county, weather, surface condition, visibility, and terrain. These data were obtained from the Department of Motor Vehicles accident report form MV-104 and the Office of Parks and Recreation accident report form MRV-202S.

Collection of the Data

The Department of Motor Vehicles provided motor vehicle accident reports for the 337 accidents of the winter season 1969-1970 population. The Office of Parks and Recreation provided access to the 687 accident reports of the winter season 1970-1971 population.

Codification of the Data

Codifying manuals were developed for use with the Department of Motor Vehicles accident report form MV-104 and Office of Parks and Recreation accident report form MRV-202S. Each selected factor of concern in this study was itemized with the responses assigned a number from 0 to 9. The number of the response was entered on a summary sheet, then transposed to punch cards.

Treatment of the Data

The punch cards were submitted to the computer for distribution of specified record columns. The per cent change was calculated for most of the selected factors. The per cent change was computed by finding the difference between the frequencies of the two winter seasons for the specified selected factor, dividing by the frequency of the 1969-1970 winter season selected factor, and multiplying by 100. The value of the per cent change was rounded to the nearest whole per cent. The data were then organized into three parts for analysis. The first part was concerned with the selected factors relating to the populations of the winter seasons of 1969-1970 and 1970-1971. The per cent change for the population of 337 snowmobile accidents in the 1969-1970 winter season and the population of 687 snowmobile accidents in the 1970-1971 winter season was an increase of 105. Therefore, the expected increase in per cent change for each of the selected factors in the population would be 105. An increase in per cent change in excess of 105 would indicate more than the expected increase, while an increase in per cent change of less than 105 would indicate less than the expected increase. The second part pertained to the selected factors of concern in the on-road accidents of the 1969-1970 and 1970-1971 winter seasons. The per cent change for the on-road sub-group of 200 snowmobile accidents in the 1969-1970 winter season and the 281 in the 1970-1971 winter

season was an increase of 40. Therefore, the expected increase in per cent change for each of the selected factors in the on-road sub-group would be 40. An increase in per cent change in excess of 40 would indicate more than the expected increase, while an increase in per cent change of less than 40 would indicate less than the expected increase. The third part treated the selected factors of concern in off-road accidents of the winter seasons of 1969-1970 and 1970-1971. The per cent change for the off-road sub-group of 137 snowmobile accidents in the 1969-1970 winter season and the 406 of the 1970-1971 winter season was an increase of 195. Therefore, the expected increase in per cent change for each of the selected factors in the off-road sub-group would be 195. An increase in per cent change in excess of 195 would indicate more than the expected increase, while an increase in per cent change of less than 195 would indicate less than the expected increase.

The data will be presented in table form in Chapter V.

Summary

The design and methodology included in this chapter described the selection of the population and sub-groups, selected factors of concern in this study, collection and codification of the data, and treatment of the data. The

results of the computer analysis will be discussed and presented in Chapter IV.

CHAPTER IV

ANALYSIS OF THE DATA

Chapter IV includes an analysis of the data collected by the methods described in the preceding chapter. The results of the analyses are reported in three major parts, each of which is further divided into selected factors regarding the operator, the vehicle, and the environment. Part one deals with the populations of 337 snowmobile accidents in the winter season of 1969-1970 and 687 snowmobile accidents in the winter season of 1970-1971. The sub-groups of on-road snowmobile accidents of 200 in the winter season of 1969-1970 and 281 in the winter season of 1970-1971 are included in part two. In part three the sub-groups of off-road snowmobile accidents of 137 in the winter season of 1969-1970 and 406 in the winter season of 1970-1971 are presented. The analysis of the data is revealed through tables and statements.

The following facts should be considered when interpreting the findings of this study based on data provided in accident report forms: (1) The total number of snowmobiles in the state of New York was not known;

(2) The rate or amount of exposure to snowmobile use was not known; (3) All off-road snowmobile accidents involving personal injury and/or property damage in excess of $100.00 had to be reported in the winter season 1970-1971, whereas only off-road snowmobile accidents involving fatal injury had to be reported in the winter season 1969-1970; and finally (4) In the 1969-1970 winter season snowmobiles had to be registered only if used on the roadway, whereas in the 1970-1971 winter season all snowmobiles had to be registered if used on other than private land.

Selected Factors of the Population

Data from the Department of Motor Vehicles accident report MV-104 and Office of Parks and Recreation accident report MRV-202S relative to the operator, the vehicle, and the environment pertaining to the populations of 337 snowmobile accidents in the winter season 1969-1970 and 687 snowmobile accidents in the winter season of 1970-1971 are presented in this section. The expected increase in per cent change for each of the selected factors in the population is 105.

Operator

Age.--The age of the population is depicted in Table 4.1. The ages ranged from under fourteen to over fifty-one years. The mean, median, and mode of the ages of the population in the winter season 1969-1970 were 24.5

TABLE 4.1.--Distribution of Population by Age.

Years	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-14	32	9.5	99	14.4	208
15-20	88	26.1	166	24.2	97
21-26	68	20.2	124	18.0	82
27-32	53	15.7	99	14.4	86
33-38	32	9.5	94	13.7	194
39-44	14	4.2	43	6.3	207
45-50	11	3.3	24	3.5	118
51-over	15	4.4	26	3.8	60
Unknown	24	7.1	12	1.8	50
Total	337	100.0	687	100.1	

	Mean	Median	Mode
1969-1970	24.5 years	23.7 years	17.5 years
1970-1971	25.2 years	24 years	17.5 years
% Change	3	1	0

[a]Actual computed value rounded to the nearest tenth.

years, 23.7 years, and 17.5 years, respectively. The mean, median, and mode of the ages of the population for the winter season of 1970-1971 were 25.2 years, 24.0 years, and 17.5 years, respectively. The largest increase in per cent change occurred in the under fourteen and thirty-nine to fourty-four year age groups with 208 and 207, respectively. The least amount of increase in the per cent change occurred in the fifty-one years and over age group with 60.

Sex.--The sex of the operator is revealed in Table 4.2. In the winter season of 1969-1970, 9.2 per cent of the operators were female, compared with 89.0 per cent male. In the winter season of 1970-1971, 11.2 per cent of the operators were female, compared with 88.5 per cent male. This indicates an increase in the per cent change of 148 for the females and 103 for the males between the two winter seasons.

TABLE 4.2.--Distribution of Snowmobile Accident Involvement of Operators by Sex.

Sex	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Male	300	89.0	608	88.5	103
Female	31	9.2	77	11.2	148
Unknown	6	1.8	2	.3	-66
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

Ownership Status.--The status of ownership of the snowmobile is shown in Table 4.3. In the winter season 1969-1970, 199 of the operators involved in snowmobile accidents owned their own snowmobile, compared to 382 in the 1970-1971 winter season. This represents an increase in the per cent change of 92. Operators involved in snowmobile accidents on snowmobiles other than their own included 127 in the 1969-1970 winter season and 269 in the 1970-1971 winter season which is an increase in the per cent change of 112.

TABLE 4.3.--Distribution of Ownership Status of Snowmobiles Involved in Accidents.

Ownership Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Owned	199	59.0	382	55.6	92
Not Owned	127	37.7	269	39.2	112
Unknown	11	3.3	36	5.2	227
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

Residence of Operators.--The number and per cent of the residence of operators involved in snowmobile accidents per county in the 1969-1970 and 1970-1971 winter seasons are listed in Table 4.4. Counties with the largest number of operators involved in snowmobile accidents were Oneida--12.2 per cent, Onondaga--11.3 per cent, Oswego--9.2 per

TABLE 4.4.--Distribution of Snowmobile Operators Involved in Accidents by County of Residence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	2	.6	9	1.3	350
Allegany	2	.6	2	.3	0
Broome	3	.9	12	.8	300
Cattaragus	4	1.2	3	.4	-100
Cayuga	9	2.7	18	2.6	100
Chautauqua	3	.9	5	.7	66
Chemung	3	.9	1	.2	-200
Chenango	2	.6	7	1.0	250
Clinton	5	1.5	17	2.5	240
Columbia	. .	. .	12	1.8	1200
Cortland	4	1.2	7	1.0	75
Deleware	1	.3	5	.7	400
Dutchess	4	1.2	9	1.3	125
Erie	14	4.2	19	2.8	36
Essex	1	.3	10	1.5	900
Franklin	9	2.7	27	3.9	200
Fulton	. .	. .	7	1.0	700
Genesee	. .	. .	5	.7	500
Greene	2	.6	7	1.0	250
Hamilton	. .	. .	3	.4	300
Herkimer	6	1.8	11	1.6	83
Jefferson	28	8.3	43	6.3	54
Lewis	4	1.2	46	6.7	1050
Livingston	1	.3	5	.7	400
Madison	14	4.2	14	2.0	0
Monroe	10	3.0	17	2.5	70
Montgomery	5	1.5	12	1.8	140
Nassau	1	.3	. .	. .	-100
New York City	3	.9	. .	. .	-300
Niagara	. .	. .	7	1.0	700
Oneida	41	12.2	32	4.7	700
Onondaga	38	11.3	58	8.4	56
Ontario	2	.6	7	1.0	250
Orange	2	.6	3	.4	50
Orleans	1	.3	3	.4	200
Oswego	31	9.2	34	5.0	1
Otsego	3	.9	3	.4	0
Putnam	. .	. .	2	.3	200
Rensselaer	4	1.2	5	.7	25
Rockland	1	.3	1	.2	0
St. Lawrence	28	8.3	43	6.3	54
Saratoga	6	1.8	22	3.2	266
Schenectady	. .	. .	4	.6	400

TABLE 4.4.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	1	.3	1	.2	0
Schuyler	2	.6	3	.4	50
Seneca	2	.6	5	.7	150
Steuben	5	1.5	7	1.0	40
Suffolk	2	.6	1	.2	-100
Sullivan	2	.6	5	.7	150
Tioga	2	.6	5	.7	150
Tompkins	1	.3	2	.3	100
Ulster	1	.3	4	.6	300
Warren	. .	. .	11	1.6	1100
Washington	1	.3	21	3.0	2000
Wayne	6	1.8	41	6.0	583
Westchester	1	.3	1	.2	0
Wyoming	9	2.7	4	.6	-56
Yates	. .	. .	5	.7	500
Out of State	6	1.8	11	1.6	83
Total	337	100.9	687	99.0	

[a]Actual computed value rounded to the nearest tenth.

cent, Jefferson--8.3 per cent, and St. Lawrence--8.3 per cent in 1969-1970 and Onondaga--8.4 per cent, Lewis--6.7 per cent, Jefferson--6.3 per cent, St. Lawrence--6.3 per cent, and Wayne--6.0 per cent in 1970-1971. The counties with the largest increase in the per cent change were Washington, Columbia, Warren, and Lewis with 2000, 1200, 1100, and 1050, respectively.

Table 4.5 indicates that 78.9 per cent of the 1969-1970 winter season and 75.8 per cent of the 1970-1971 winter season operators were involved in snowmobile accidents in the county in which they reside. This represents an increase in the per cent change of 92. In the 1969-1970 winter season 1.8 per cent of the snowmobile accidents involved operators from out of state and in the 1970-1971 winter season 1.6 per cent of the snowmobile accidents involved out of state operators.

TABLE 4.5.--Distribution of Residence of Snowmobile Operator by County of Accident.

Residence	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Same County	266	78.9	521	75.8	92
Other N.Y. County	65	19.3	155	22.6	138
Out of State	6	1.8	11	1.6	83
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

Type of Accident.--Table 4.6 shows that in the 1969-1970 winter season 4.2 per cent of the accident occurrences involved fatal injuries, however, in the winter season 1970-1971 only 3.7 per cent of the accident occurrences involved fatal injuries. Non-fatal personal injuries accounted for 73.0 per cent of the snowmobile accidents in the 1969-1970 winter season and 83.8 per cent in the 1970-1971 winter season. There was a decrease in the per cent change of 79 for fatal injuries and an increase in per cent change of 134 for non-fatal injuries.

TABLE 4.6.--Distribution of Type of Snowmobile Accident.

Type	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fatal Injury	14	4.2	25	3.7	79
Non-fatal Injury	246	73.0	576	83.8	134
Property Damage	77	22.8	86	12.5	12
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

Region of Injury.--Table 4.7 shows that in the 1969-1970 winter season the areas of the body of snowmobile operators most frequently injured were the lower extremities with 28.2 per cent and the head with 16.9 per cent, and in the 1970-1971 winter season the areas of the body of snowmobile operators most frequently injured were the lower extremities with 31.2 per cent and the head with 22.1 per

TABLE 4.7.--Distribution of Region of Injury of Operators Involved in Snowmobile Accidents.

Region	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Head	57	16.9	152	22.1	167
Neck	3	.9	14	2.0	367
Chest	14	4.2	44	6.4	125
Upper Extremities	15	4.4	55	8.0	214
Back	16	4.8	36	5.2	266
Lower Extremities	95	28.2	214	31.2	125
Combination	31	9.2	50	7.3	6
Unknown	106	31.4	122	17.8	15
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

cent. The area of the body that received the largest increase in the per cent change was the neck with 367.

Type of Injury.--Table 4.8 indicates that the type of injury most frequent in the 1969-1970 winter season was the fracture with 18.1 per cent and in the 1970-1971 winter season it was the laceration with 27.9 per cent. It also shows that the type of injury that had the largest increase in the per cent change was the laceration with 226.

Classification of Accident.--In both the winter seasons the classification of accident that was most frequent was the collision with a motor vehicle. As shown in Table 4.9 in the winter season of 1969-1970, 46.3 per

TABLE 4.8.--Distribution of Type of Injury to Snowmobile Operator.

Type of Injury	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fracture	61	18.1	180	26.2	195
Laceration	59	17.5	192	27.9	226
Contusion	30	8.9	97	14.1	223
Sprain	19	5.6	47	6.8	147
Concussion	9	2.7	22	3.2	144
Miscellaneous	44	13.1	19	2.7	-57
Combination	10	3.0	17	2.5	70
Unknown	105	31.2	113	16.5	
Total	337	100.1	687	99.9	

[a]Actual computed value rounded to the nearest tenth.

cent of the accidents involved the motor vehicle and in the winter season 1970-1971, 24.4 per cent of the accidents involved the motor vehicle. However, the increase in the per cent change for collision with a motor vehicle was only 8 as compared to the increase in the per cent change of overturnings which was 362. Occurrences classified as "other" include collision with trains, going through ice, strangulation, etc., which had a per cent change increase of 200.

Operation at the Time of Occurrence.--Table 4.10 shows that cruising was the most common mode of operation in both winter seasons with 62.0 per cent in 1969-1970 and 61.0 per cent in 1970-1971. The largest increase in the per cent change is apparent in the "Sporting Events,

TABLE 4.9.--Distribution of Classification of Snowmobile Accidents.

Accident Classification	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fell Off	14	4.2	33	4.8	136
Overturning	26	7.7	120	17.5	362
Skidding or Bump	19	5.6	23	3.4	21
Collision/Person	12	3.6	12	1.8	0
Collision/M.V.	156	46.3	168	24.4	8
Collision/Snowmobile	49	14.5	92	13.4	88
Collision/Fixed Object	35	10.4	122	17.8	249
Collision/Hidden Object	4	1.2	47	6.8	108
Fire	. .	. .	4	.6	400
Other	22	6.5	66	9.6	200
Total	337	100.0	687	100.1	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.10.--Distribution of Snowmobile Accidents by Operation at the Time of the Occurrence.

Operation	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Crossing Highway	44	13.0	57	8.3	30
Cruising	209	62.0	419	61.0	100
Maneuvering	44	13.1	134	19.5	202
Towing	3	.9	18	2.6	500
Parked, Stopped	17	5.0	7	1.0	58
Starting	10	3.0	4	.6	-60
Racing, Sporting Event	1	.3	40	5.8	3900
Overtaking	6	1.8	4	.6	33
Slowing, Stop	3	.9	. .	. .	-300
Unknown	. .	. .	4	.6	400
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

Racing" area of operation which was 3900. The area with the least increase in the per cent of change was crossing the highway with 30.

Apparent Cause or Contributing Circumstance.--Imprudent speed and reckless driving combined were the apparent cause or contributing circumstance for 53.4 per cent of the population for the 1969-1970 winter season and 63.0 per cent of the 1970-1971 winter season as shown in Table 4.11. The apparent cause or contributing circumstance that exhibited the largest increase in the per cent change is unfamiliarity of terrain at 1367. Lack of experience

TABLE 4.11.--Distribution of Snowmobile Accidents by Apparent Cause or Contributing Circumstance.

Apparent Cause Contributing Circumstance	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Imprudent Speed	110	32.6	200	29.1	12
Reckless Driving	70	20.8	233	33.9	233
Failure to Yield	53	15.7	33	4.8	-38
Defective Equipment	27	8.0	70	10.2	158
Poor Visibility	8	2.4	49	7.1	513
Lack of Experience	19	5.6	23	3.4	21
Overtaken by Other	12	3.6	4	.6	-67
Unfamiliarity of Terrain	3	.9	44	6.4	1367
Following too Closely	12	3.6	6	.9	-50
Unknown	23	6.8	25	3.6	9
Total	337	100.0	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

and imprudent speed exhibited the least increase in amount of per cent change at 21 and 12, respectively.

Vehicle

Registration Status.--Table 4.12 shows that in the 1969-1970 winter season the counties with the highest registrations were Erie--2877, Oneida--2729, and Onondaga--2516 and in the 1970-1971 winter season Oneida--10,096, Onondaga--7698, and St. Lawrence--7272 were the highest. No county decreased in the number of registrations. Rockland had the highest increase in per cent change and Chautauqua had the lowest increase in per cent change at 754 and 109, respectively.

Table 4.13 indicates the status of registration of those snowmobiles involved in accidents. In the 1969-1970 winter season 50.7 per cent of the snowmobiles were not registered and in winter season 1970-1971 36.7 per cent were not registered. In the 1969-1970 winter season 47.8 per cent of the snowmobiles were registered and in the 1970-1971 winter season 63.2 per cent were registered. The per cent change for registered snowmobiles was an increase of 108 and for unregistered snowmobiles was an increase of 47. The vehicle and traffic laws relative to snowmobile registration for winter season 1969-1970 may be found in Appendix D and for winter season 1970-1971 in Appendix E.

TABLE 4.12.--Distribution of New York Snowmobile Registration by County.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	342	.9	2286	1.8	568
Allegany	262	.7	1044	.8	298
Broome	479	1.3	1963	1.5	310
Cattarague	768	2.0	1841	1.4	140
Cayuga	808	2.2	1751	1.3	117
Chautauqua	1034	2.8	2157	1.6	109
Chemung	157	.4	516	.4	229
Chenango	672	1.8	1946	1.5	190
Clinton	589	1.6	3683	2.8	525
Columbia	192	.5	1073	.8	459
Cortland	638	1.7	1523	1.2	139
Deleware	306	.8	1841	1.4	502
Dutchess	292	.8	1591	1.2	445
Erie	2877	7.7	6088	4.7	112
Essex	291	.8	2300	1.8	690
Franklin	536	1.4	2842	2.2	430
Fulton	614	1.6	2427	1.9	295
Genesee	377	1.0	1237	.9	228
Greene	248	.6	1334	1.0	438
Hamilton	102	.2	746	.5	631
Herkimer	1102	2.9	4084	3.1	270
Jefferson	2110	5.6	5652	4.3	168
Lewis	590	1.6	3029	2.3	413
Livingston	465	1.2	1429	1.1	207
Madison	1215	3.2	3429	2.7	186
Monroe	1749	4.6	5291	4.0	202
Montgomery	513	1.4	2280	1.7	344
Nassau	48	.1	214	.2	346
New York City	26	.1	107	.1	312
Niagara	434	1.2	1372	1.0	216
Oneida	2729	7.3	10,096	7.7	270
Onondago	2516	6.7	7693	5.9	206
Ontario	558	1.5	1698	1.3	204
Orange	155	.4	1227	.9	692
Orleans	269	.7	825	.6	207
Oswego	2121	5.7	5600	4.3	164
Otsego	459	1.2	2006	1.5	337
Putnam	52	.1	264	.2	408
Rensselaer	214	.5	1589	1.2	642
Rockland	35	.1	299	.2	754
St. Lawrence	1893	5.1	7272	5.6	284
Saratoga	680	1.8	3310	2.5	387
Schenectady	401	1.1	1732	1.3	332

TABLE 4.12.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	372	1.0	1411	1.1	279
Schuyler	213	.5	561	.4	163
Seneca	248	.6	790	.6	218
Steuben	583	1.6	1926	1.5	230
Suffolk	42	.1	212	.1	405
Sullivan	231	.6	1460	1.1	532
Tioga	257	.7	785	.6	205
Tompkins	564	1.5	1353	1.0	140
Ulster	234	.6	1679	1.3	618
Warren	258	.7	1785	1.4	592
Washington	225	.6	1669	1.3	642
Wayne	1395	3.7	3563	2.7	155
Westchester	73	.2	428	.3	486
Wyoming	577	1.5	1502	1.2	160
Yates	173	.5	515	.3	198
Total	37,410	99.3	130,396	99.3	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.13.--Distribution of Registered Status of Snowmobiles Involved in Accidents.

Registered Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Registered	161	47.8	434	63.2	107
Not Registered	171	50.7	252	36.7	47
Unknown	5	1.5	1	.2	-80
Total	337	100.0	687	100.1	

[a]Actual computed value rounded to the nearest tenth.

Vehicle Make.--Table 4.14 shows that in both the 1969-1970 and 1970-1971 winter seasons that Ski-Doo vehicles were most frequently involved in accidents with 47.8 per cent and 55.2 per cent, respectively. Table 4.14 also shows that there were eleven more makes of snowmobiles involved in accidents in the 1970-1971 winter season than the 1969-1970 winter season. Sno Prince, Massy Fergeson, and Artic Cat showed the largest increase in per cent change at 700, 700, and 495, respectively.

Horsepower.--Of the 77.2 per cent of the snowmobiles where horsepower information was available, as shown in Table 4.15, 33.5 per cent were in the 17-21 range in the 1969-1970 winter season. In 1970-1971 where 94.0 per cent of the snowmobiles had horsepower information available, as shown in Table 4.9, 23.7 per cent were in the 17-21 range. The 17-21 horsepower range was most

TABLE 4.14.--Distribution of Snowmobiles Involved in Accidents.

Name	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Ski Doo	161	47.8	242	35.2	50
Polaris	21	6.2	39	5.7	85
Sno-Jet	23	6.8	29	4.2	26
Moto Ski	13	3.9	43	6.3	233
AMF-Skidaddler	10	3.0	24	3.5	140
Ski Roule	11	3.3	16	2.3	46
Artic Cat	17	5.0	101	14.7	495
Scorpion	16	4.8	25	3.6	56
Fox Trac	2	.6	2	.3	0
Rupp	5	1.5	22	3.2	340
Boaski	11	3.3	13	1.9	27
Alouette	4	1.2	7	1.0	75
Evinrude	6	1.8	7	1.0	17
Yamaha	5	1.5	8	1.2	60
Sno Squire	1	.3	3	.4	50
Starcraft	3	.9	7	1.0	133
Massey Ferguson	. .	. .	7	1.0	700
Ariens Arrow	1	.3	5	.7	25
Northway	1	.3	3	.4	200
Wildcat	1	.3	1	.2	0
Chaparral	1	.3	5	.7	400
Viking	. .	. .	3	.4	300
Johnson	2	.6	4	.6	100
Bolens D/A	. .	. .	2	.3	200
Mercury	. .	. .	4	.6	400
Sno Prince	. .	. .	7	1.0	700
Sno Bug	3	.9	. .	. .	-300
Wheel Horse	. .	. .	2	.3	200
Yukon King	2	.6	1	.2	-100
Sno Ghia	1	.3	2	.3	100
Eskimo	. .	. .	2	.3	200
Home Lite	. .	. .	2	.3	200
Tradewinds	. .	. .	2	.3	200
Auto Ski	. .	. .	4	.6	400
Husky	. .	. .	2	.3	200
Auberg	4	1.2	. .	. .	-400
Unknown	11	3.3	38	5.5	245
Total	337	100.0	687	99.5	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.15.--Distribution of Horsepower of Snowmobiles Involved in Accidents.

Horsepower	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-16	59	17.5	108	15.7	83
17-21	113	33.5	163	23.7	44
22-26	37	11.0	154	22.4	316
27-31	33	9.8	96	14.0	190
32-36	6	1.8	74	10.8	1103
37-41	3	.9	19	2.8	534
42-46	9	2.7	10	1.5	11
47-51	. .	. .	4	.6	400
52-56	. .	. .	1	.2	100
57-over	. .	. .	17	2.5	1700
Unknown	77	22.8	41	6.0	-47
Total	337	100.0	687	100.2	

[a]Actual computed value rounded to the nearest tenth.

frequent for both winter seasons. There was a total increase in the per cent change of 2200 for the horsepower range of 47 and over. Alone, in the horsepower range of 57 and over there was an increase in the per cent change of 1700. The next largest increase in the per cent change at 1103 was the horsepower range of 32-36.

Environment

County of Accident Occurrence.--Table 4.16 discloses that Onondaga, Oswego, and Oneida counties had the highest incidence of accident occurrence with 12.5 per cent, 11.3 per cent, and 10.7 per cent, respectively for the 1969-1970

TABLE 4.16.--Distribution of Snowmobile Accidents by County of Occurrence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	2	.6	10	1.5	400
Allegany	3	.9	. .	. .	-300
Broome	3	.9	9	1.3	200
Cattaraugus	6	1.8	5	.7	-16
Cayuga	6	1.8	21	3.1	250
Chautauqua	3	.9	6	.9	100
Chemung	1	.3	. .	. .	-100
Chenango	3	.9	11	1.6	267
Clinton	6	1.8	16	2.3	167
Columbia	. .	. .	11	1.6	1100
Cortland	2	.6	5	.7	250
Deleware	1	.3	5	.7	400
Dutchess	4	1.2	11	1.6	200
Erie	12	3.6	16	2.3	33
Essex	1	.3	13	1.9	1200
Franklin	10	3.0	37	5.4	270
Fulton	1	.3	6	.9	500
Genesee	1	.3	4	.6	300
Greene	3	.9	6	.9	100
Hamilton	. .	. .	4	.6	400
Herkimer	8	2.4	27	3.9	238
Jefferson	24	7.1	30	4.4	25
Lewis	7	2.1	58	8.4	728
Livingston	. .	. .	6	.9	600
Madison	16	4.8	14	2.0	-16
Monroe	8	2.4	12	1.8	50
Montgomery	4	1.2	9	1.3	125
Nassau	. .	. .	. .	. .	. .
New York City	. .	. .	. .	. .	. .
Niagara	. .	. .	4	.6	400
Oneida	36	10.7	29	4.2	-19
Onondaga	42	12.5	61	8.9	45
Ontario	3	.9	8	1.2	167
Orange	1	.3	1	.2	0
Orleans	1	.3	6	.9	500
Oswego	38	11.3	23	3.4	-38
Otsego	3	.9	3	.4	0
Putnam	. .	. .	. .	. .	. .
Rensselaer	2	.6	3	.4	50
Rockland	1	.3	. .	. .	-100
St. Lawrence	30	8.9	45	6.6	50
Saratoga	6	1.8	18	2.6	200
Schenectady	. .	. .	1	.2	100

TABLE 4.16.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	2	.6	2	.3	0
Schuyler	3	.9	3	.4	0
Seneca	2	.6	5	.7	150
Steuben	8	2.4	8	1.2	0
Suffolk	. .	. .	. .	. .	. .
Sullivan	3	.9	5	.7	67
Tioga	1	.3	6	.9	500
Tompkins	1	.3	3	.4	200
Ulster	1	.3	4	.6	300
Warren	. .	. .	19	2.8	1900
Washington	4	1.2	28	4.1	600
Wayne	5	1.5	36	5.2	620
Westchester	. .	. .	1	.2	100
Wyoming	7	2.1	9	1.3	28
Yates	. .	. .	4	.6	400
Unknown	2	.6	. .	. .	-200
Total	337	100.6	687	100.2	

[a]Actual computed value rounded to the nearest tenth.

winter season. Table 4.10 also shows that Onodaga, Lewis, and St. Lawrence counties had the highest incidence of accident occurrence with 8.9 per cent, 8.4 per cent, and 6.6 per cent, respectively in the 1970-1971 winter season. Warren, Essex, and Columbia counties show the greatest increase in the per cent change with 1900, 1200, and 1100, respectively. Oswego county, one with high accident occurrence in the winter season of 1969-1970 showed a decrease in the per cent change of 38.

Location.--Table 4.17 shows that 59.4 per cent of the snowmobile accidents in the 1969-1970 winter season occurred on the roadway. However, in the 1970-1971 winter season only 40.9 per cent of the snowmobile accidents occurred on the roadway. The largest increase in the per cent change was the use of trails at 770. Another large increase in the per cent change was the use of the woods at 400. The per cent change for snowmobile accidents occurring on a lake or pond decreased 367.

Surface Condition.--Table 4.18 indicates that the road condition most common to snowmobile accidents was smooth with 76.0 per cent for the 1969-1970 winter season and 52.3 per cent for the 1970-1971 winter season, respectively. The classification of "other" includes railroad beds, ice, hill, etc., which exhibited an increase in the per cent change of 425. The increase of the

TABLE 4.17.--Distribution of Location of Snowmobile Accident by Terrain.

Terrain	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Lake or Pond	14	4.2	3	.4	-78
Woods	5	1.5	25	3.6	400
Field or Yard	99	29.4	262	38.1	164
Trail	10	3.0	87	12.7	770
Roadway	200	59.4	281	40.9	40
Unknown	9	2.6	29	4.2	250
Total	337	100.1	687	99.9	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.18.--Distribution of the Surface Condition of the Snowmobile Accident Location.

Surface Condition	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Smooth	256	76.0	359	52.3	41
Rough	65	19.3	275	40.0	323
Other	4	1.2	21	3.1	425
Unknown	12	3.6	32	4.7	116
Total	337	100.1	687	100.1	

[a]Actual computed value rounded to the nearest tenth.

per cent change for smooth surface was 40 and the increase for the per cent change for rough surface was 323.

Week of Season.--Table 4.19 shows that during the week of December 28, 1969 to January 1, 1970, 58 snowmobile accidents occurred which accounted for 17.2 per cent of the total. Table 4.19 also shows that during the week of January 17, 1971 to January 23, 1971, 66 snowmobile accidents occurred which accounted for 9.6 per cent of the total. The week comparable in the 1970-1971 winter season to the week of highest frequency in the 1969-1970 winter season (58 snowmobile accidents) included 63 snowmobile accidents which was the second highest frequency in the 1970-1971 winter season. Table 4.19 shows that the snowmobile accidents in the winter season 1970-1971 started a week later and lasted a month longer than in the winter season 1969-1970.

Day of Week.--Table 4.20 shows that the combination of Saturday and Sunday account for a majority of the snowmobile accidents with 56.4 per cent in the 1969-1970 winter season and 54.0 per cent in the 1970-1971 winter season. The largest increases in per cent change occurred on Thursday and Friday with 155 and 122, respectively.

Hour of Day.--Table 4.21 shows that in both winter seasons the hour of day when snowmobile accidents were most likely to occur is from 2:01 P.M. to 5:00 P.M. with 28.8

TABLE 4.19.--Distribution of Snowmobile Accidents by Week of Season.

Week Number	1969-1970				1970-1971			
	Dates		Number	Per Cent[a]	Dates		Number	Per Cent[a]
1	11- 9	11-15	1	.3	11-15	11-21	4	.3
2	11-16	11-22	1	.3	11-22	11-28	4	.3
3	11-23	11-29	1	.3	11-29	12- 5	5	.7
4	11-30	12- 6	17	5.0	12- 6	12-12	12	1.8
5	12- 7	12-13	8	2.4	12-13	12-19	28	4.1
6	12-14	12-20	23	6.8	12-20	12-26	49	7.1
7	12-21	12-27	29	8.6	12-27	1- 2	63	9.2
8	12-28	1- 3	58	17.2	1- 3	1- 9	31	4.5
9	1- 4	1-10	18	5.3	1-10	1-16	55	8.0
10	1-11	1-17	19	5.6	1-17	1-23	66	9.6
11	1-18	1-24	28	8.3	1-24	1-30	59	8.6
12	1-25	1-31	24	7.1	1-31	2- 6	36	5.2
13	2- 1	2- 7	17	5.0	2- 7	2-13	37	5.4
14	2- 8	2-14	18	5.3	2-14	2-20	37	5.4
15	2-15	2-21	25	7.4	2-21	2-27	41	6.0
16	2-22	2-28	13	3.9	2-28	3- 6	55	8.0
17	3- 1	3- 7	9	2.7	3- 7	3-13	33	4.8
18	3- 8	3-14	13	3.9	3-14	3-20	18	2.6
19	3-15	3-21	11	3.4	3-21	3-27	31	4.5
20	3-22	3-28	4	1.2	3-28	4- 3	9	1.3
21					4- 4	4-10	9	1.3
22					4-11	4-17	2	.3
Total			337	100.0			687	99.3

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.20.--Distribution of Day of Week of the Snowmobile Accident.

Day	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Saturday	84	25.0	162	23.6	93
Sunday	106	31.4	202	29.4	90
Monday	21	6.2	43	6.3	104
Tuesday	22	6.3	44	6.4	100
Wednesday	24	7.1	42	6.1	75
Thursday	40	11.9	102	14.8	155
Friday	40	11.9	89	13.0	122
Unknown	0	0.0	3	.4	300
Total	337	99.8	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

per cent in the 1969-1970 winter season and 30.3 per cent in the 1970-1971 winter season. The hour of the day with the largest per cent change is 5:01 A.M. to 8:00 A.M. with 1300. The period between 2:01 A.M. and 5:00 A.M. exhibits the smallest increase in per cent change at 25.

Weather.--Table 4.22 indicates that the most frequent weater condition during snowmobile accidents was "clear" with 57.9 per cent in the 1969-1970 winter season. Table 4.22 also shows that the "clear" weather condition was the most frequent in snowmobile accidents with 70.4 per cent for the 1970-1971 winter season. The largest increase in the per cent change was in the category "clear" with 148. The "cloudy" classification saw a decrease in

TABLE 4.21.--Distribution of Snowmobile Accidents by Hour of Day.

Time	1969-1971		1970-1972		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
11:01 p.m.- 2:00 a.m.	48	14.2	76	11.1	58
2:01 a.m.- 5:00 a.m.	8	2.4	10	1.5	25
5:01 a.m.- 8:00 a.m.	0	0	13	1.9	1300
8:01 a.m.-11:00 a.m.	17	5.0	30	4.4	76
11:01 a.m.- 2:00 a.m.	40	11.9	87	12.7	118
2:01 p.m.- 5:00 p.m.	97	28.8	208	30.3	114
5:01 p.m.- 8:00 p.m.	48	14.2	114	16.6	138
8:01 p.m.-11:00 p.m.	77	22.8	136	19.8	77
Unknown	2	.6	13	1.9	550
Total	337	99.9	687	100.2	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.22.--Distribution of the Weather Condition at the Time of the Snowmobile Accident.

Weather	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Clear	195	57.9	484	70.4	148
Cloudy	42	12.5	4	.6	-90
Rain	10	3.0	9	1.3	-10
Snow	77	22.8	133	19.4	73
Unknown	13	3.9	57	8.3	327
Total	337	100.1	687	100.0	

[a]Actual computed value rounded to the nearest tenth.

the per cent change of 90. There was also a decrease in the per cent change for "rain" of 10.

Visibility.--Table 4.23 indicates that the visibility at the time of over a majority of the accidents in winter season 1969-1970 was "poor-dark, lighted or unlighted" (53.1%) and that well over a majority of the snowmobile accidents in the 1970-1971 winter season occurred in "good-daylight" visibility (62.7%). There was an increase in the per cent change for "good-daylight" of 229 and a decrease in the per cent change for "poor-dark, lighted or unlighted" of 54.

Selected Factors of the On-Road Sub-Group

Data from the Department of Motor Vehicles accident report MV-104 and Office of Parks and Recreation accident

TABLE 4.23.--Distribution of Visibility at the Time of the Snowmobile Accident.

Visibility	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Good-Daylight	131	38.9	431	62.7	229
Fair-Dawn or Dusk	24	7.1	146	21.2	509
Poor-Dark, Lighted or Unlighted	179	53.1	82	11.9	-54
Unknown	3	.9	27	3.9	800
Total	337	100.0	687	99.7	

[a]Actual computed value rounded to the nearest tenth.

report MRV-202S relative to the operator, the vehicle, and the environment pertaining to the sub-group of 200 on-road snowmobile accidents in the winter season 1969-1970 and 281 on-road snowmobile accidents in the winter season 1970-1971 are presented in this section. The expected increase in per cent change for each of the selected factors in the on-road sub-group is 40.

Operator

Age.--The age of the on-road sub-group is depicted in Table 4.24. The ages ranged from under fourteen to over fifty-one years. The mean, median, and mode of the age of the on-road sub-group in the 1969-1970 winter season were 24.9 years, 22.5 years, and 17.5 years, respectively. The mean, median, and mode of the ages for the winter season of

TABLE 4.24.--Distribution of On-Road Sub-Group by Age.

Years	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-14	15	7.5	43	15.3	186
15-20	62	31.0	90	32.0	45
21-26	45	22.5	42	15.0	-8
27-32	24	12.0	35	12.5	46
33-38	18	9.0	34	12.1	89
39-44	8	4.0	16	5.7	100
45-50	4	2.0	10	3.6	150
51-Over	9	4.5	9	3.2	0
Unknown	15	7.5	2	.7	-650
Total	200	100.0	281	100.1	

	Mean	Median	Mode
1969-1970	24.9 Years	22.5 Years	17.5 Years
1970-1971	23.5 Years	21.4 Years	17.5 Years
Per Cent Change	6	5	0

[a]Actual computed value rounded to the nearest tenth.

1970-1971 were 23.5 years, 21.4 years, and 17.5 years, respectively. The largest increase in per cent change occurred in the under fourteen and forty-five to fifty age groups with 186 and 150, respectively. A decrease in the per cent change occurred in the twenty-one to twenty-six age group of 8.

Sex.--The sex of the on-road sub-group operator is revealed in Table 4.25. In the winter season of 1969-1970, 8.2 per cent of the operators were female, compared with 89.0 per cent male. In the winter season of 1970-1971, 7.8 per cent of the operators were female, compared with 91.8 per cent male. This indicates an increase in the per cent change of 45 for males and 28 for females between the two winter seasons.

TABLE 4.25.--Distribution of On-Road Snowmobile Accident Involvement of Operators by Sex.

Sex	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Male	178	89.0	258	91.8	45
Female	17	8.5	22	7.8	28
Unknown	5	2.5	1	.4	-80
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

Ownership Status.--Table 4.26 reveals that 60.0 per cent of the snowmobiles involved in on-road accidents were owned by the operator in the 1969-1970 winter season. This compares with 50.5 per cent of the snowmobiles that were involved in on-road accidents were owned by the operator in the winter season 1970-1971. In the winter season 1969-1970, 37.0 per cent of the snowmobiles were not owned by the operator and in the 1970-1971 winter season 44.8 per cent of the snowmobiles were not owned by the operator. The increase in the per cent change for ownership was 18 and for lack of ownership was 70.

TABLE 4.26.--Distribution of Ownership Status of Snowmobiles Involved in On-Road Accidents.

Ownership Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Owned	120	60.0	142	50.5	18
Not Owned	74	37.0	126	44.8	70
Unknown	6	3.0	13	4.6	116
Total	200	100.0	281	99.9	

[a]Actual computed value rounded to the nearest tenth.

Residence of Operators.--Table 4.27 shows the number and per cent of snowmobile operators involved in on-road accidents by county of residence. In the winter season of 1969-1970 Oneida, Oswego, St. Lawrence, and Jefferson counties had the highest frequency of residents

TABLE 4.27.--Distribution of Snowmobile Operators Involved in On-Road Accidents by County of Residence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	1	.5	1	.4	0
Allegany	1	.5	1	.4	0
Broome	1	.5	3	1.1	200
Cattaragus	2	1.0	2	.7	0
Cayuga	8	4.0	6	2.1	-25
Chautauqua	3	1.5	4	1.4	33
Chemung	3	1.5	1	.4	-67
Chenango	. .	. .	4	1.4	400
Clinton	4	2.0	10	3.6	150
Columbia	. .	. .	5	1.8	500
Cortland	1	.5	5	1.8	400
Deleware	1	.5	3	1.1	200
Dutchess	2	1.0	4	1.4	100
Erie	9	4.5	8	2.8	-11
Essex	1	.5	5	1.8	400
Franklin	7	3.5	11	3.9	57
Fulton	. .	. .	2	.7	200
Genesee	. .	. .	4	1.4	400
Greene	2	1.0	4	1.4	100
Hamilton	. .	. .	1	.4	100
Herkimer	5	2.5	6	2.1	20
Jefferson	15	7.5	19	6.8	27
Lewis	4	2.0	20	7.1	400
Livingston	1	.5	3	1.0	200
Madison	11	5.5	7	2.5	-36
Monroe	1	.5	9	3.2	800
Montgomery	3	1.5	5	1.8	66
Nassau	1	.5	. .	. .	-100
New York City	1	.5	. .	. .	-100
Niagara	. .	. .	2	.7	200
Oneida	29	14.5	22	7.8	24
Onondaga	12	6.0	15	5.3	25
Ontario	2	1.0	2	.7	0
Orange	2	1.0	2	.7	0
Orleans	1	.5	1	.4	0
Oswego	17	8.5	17	6.0	0
Otsego	3	1.5	3	1.0	0
Putnam	. .	. .	2	.7	200
Rensselaer	2	1.0	3	1.0	50
Rockland	. .	. .	1	.4	100
St. Lawrence	17	8.5	19	6.8	12
Saratoga	4	2.0	2	.7	-50
Schenectady	. .	. .	1	.4	100

TABLE 4.27.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	. .	. .	. .	. .	. .
Schuyler	2	1.0	1	.4	-50
Seneca	2	1.0	. .	. .	-200
Steuben	1	.5	2	.7	100
Suffolk	. .	. .	. .	. .	. .
Sullivan	2	1.0	2	.7	0
Tioga	1	.5	1	.4	0
Tompkins	1	.5	. .	. .	-100
Ulster	1	.5	1	.4	0
Warren	. .	. .	6	2.1	600
Washington	. .	. .	5	1.8	500
Wayne	4	2.0	9	3.2	125
Westchester	1	.5	. .	. .	-100
Wyoming	5	2.5	1	.4	-400
Yates	. .	. .	4	1.4	400
Out of State	3	1.5	2	.7	-33
Total	200	100.0	281	99.3	

[a]Actual computed value rounded to the nearest tenth.

involved in on-road snowmobile accidents with 29, 17, 17, and 15, respectively. Oneida, Lewis, Jefferson, and St. Lawrence counties had the highest frequency of residents involved in on-road snowmobile accidents in the winter season of 1970-1971 with 22, 20, 19, and 19, respectively. The counties with the largest increase in the per cent change were Monroe-800, Warren-600, Columbia-500, and Washington-500. Wyoming county experienced a decrease in the per cent change of 400.

Table 4.28 depicts the number of per cent of the on-road snowmobile operators involved in accidents that occurred in the county of their residence. In the winter season of 1969-1970, 78.0 per cent of the operators and in the winter season of 1970-1971 75.4 per cent of the operators were accidents involved in the county of their residence. This represents an increase in the per cent change of 28. One and five tenths per cent of the 1969-1970 winter season and eight tenths per cent of the 1970-1971 winter season involved operators from out of state.

Type of Accident.--The type of snowmobile accident most frequent in on-road occurrences is the nonfatal injury accident with 66.0 per cent in winter season 1969-1970 and 77.9 per cent in winter season 1970-1971, as shown in Table 4.29. In each of the winter seasons, eleven snowmobile accidents involved fatal injuries. There was no

TABLE 4.28.--Distribution of Residence of Snowmobile Operators Involved in On-Road Accidents by County of Occurrence.

Residence	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Same County	156	78.0	212	75.4	28
Other N.Y. County	41	20.5	67	23.8	63
Out of State	3	1.5	2	.8	33
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.29.--Distribution of Type of On-Road Snowmobile Accident.

Type	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fatal Injury	11	5.5	11	3.9	0
Nonfatal Injury	132	66.0	219	77.9	66
Property Damage	57	28.5	51	18.2	12
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

increase in the per cent change for fatal injuries and an increase in nonfatal injuries of 66 per cent change.

Region of Injury.--Table 4.30 shows that the areas of the body of snowmobile operators most frequently injured in on-road snowmobile accidents in both winter seasons were the lower extremities (25.0 per cent in winter season 1969-1970 and 27.4 per cent in winter season 1970-1971). The areas of the body that received the largest increase in the per cent change were the neck with 300 and the chest with 250.

TABLE 4.30.--Distribution of Region of Injury of Operators Involved in On-Road Snowmobile Accidents.

Region	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Head	33	16.5	63	22.4	91
Neck	1	.5	4	1.4	300
Chest	6	3.0	21	7.5	180
Upper Extremities	7	3.5	19	6.8	250
Back	5	2.5	14	5.0	172
Lower Extremities	50	25.0	77	27.4	54
Combinations	23	11.5	23	8.2	0
Unknown	75	37.5	60	21.4	-20
Total	200	100.0	281	100.1	

[a]Actual computed value rounded to the nearest tenth.

Type of Injury.--Table 4.31 shows that in the winter season of 1969-1970 the type of injury most frequently encountered in on-road snowmobile accidents was the fracture at 14.0 per cent and the laceration at 14.0 per cent. Table 4.31 also shows that in the winter season of 1970-1971 the type of injury most frequently encountered in on-road snowmobile accidents was the fracture at 29.2 per cent. The type of injury with the largest increase in the per cent change was the fracture with 193. Contusion was the type of injury which had the least amount of increase at 64.

TABLE 4.31.--Distribution of Type of Injury to Snowmobile Operators in On-Road Accidents.

Type of Injury	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fracture	28	14.0	82	29.2	193
Laceration	28	14.0	59	21.0	110
Contusion	22	11.0	36	12.8	64
Sprain	8	4.0	19	6.8	137
Concussion	7	3.5	12	4.3	72
Miscellaneous	25	12.5	9	3.2	-64
Combination	8	4.0	5	1.8	-38
Unknown	74	37.0	59	21.0	-21
Total	200	100.0	281	100.1	

[a]Actual computed value rounded to the nearest tenth.

Classification of Accident.--Table 4.32 indicates that 71.5 per cent of the on-road snowmobile accidents involved collision with a motor vehicle in the winter season of 1969-1970 and in the winter season 1970-1971 only 53.7 per cent of the on-road snowmobile accidents involved a collision with a motor vehicle. Those figures for collision with a motor vehicle yield an increase in per cent change of only 6. Large increases in the per cent change are found in the classifications of "overturning"--650, "collision with hidden object"--500, and "collision with fixed object"--400. The classification of "skidding or bump" had a decrease in per cent change of 20.

Table 4.33 shows the classification of the on-road snowmobile accidents as it relates to the kind of operation at the time of the accident. The operation at the time of the accident was divided into operations permitted on-road by the Harris Bill (crossing the highway) and operations prohibited on-road by the Harris Bill (cruising, maneuvering, towing, parked, stopped, starting, racing, sporting event, overtaking, and slowing). In operations both permitted and prohibited on-road by the Harris Bill, the classification of collision with a motor vehicle was not prevalent. Of the snowmobiles involved in accidents while crossing the highway (permitted operation by the Harris Bill) 95.2 per cent were in collision with a motor vehicle in the 1969-1970 winter season and 92.1 per cent in the 1970-1971 winter season. Of the snowmobiles involved in accidents while

TABLE 4.32.--Distribution of Classification of On-Road Snowmobile Accidents.

Accident Classification	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fell Off	2	1.0	2	.7	0
Overturning	4	2.0	30	10.7	650
Skidding or Bump	10	5.0	8	2.8	-20
Collision/Person	3	1.5	7	2.5	133
Collision/Motor Vehicle	143	71.5	151	53.7	6
Collision/Snowmobile	27	13.5	36	12.8	33
Collision/Fixed Object	5	2.5	25	8.9	400
Collision/Hidden Object	. .	. .	5	1.8	500
Fire	. .	. .	. .	. .	. .
Other	6	3.0	17	6.0	500
Total	200	100.0	281	99.9	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.33.--Distribution of Classification of On-Road Snowmobile Accidents by Operation Permitted or Prohibited by the Harris Bill.

Classification	Permitted Operation[b]					Prohibited Operation[c]				
	1969-1970		1970-1971		Per Cent	1969-1970		1970-1971		Per Cent
	#	%[a]	#	%[a]	Change	#	%[a]	#	%[a]	Change
Fell Off	0	.0	0	.0	0	2	1.2	2	.9	0
Overturn	..	..	1	2.0	100	4	2.5	29	12.6	575
Skid	..	..	1	2.0	100	10	6.3	7	3.0	-30
Collision/ Person	..	..	2	3.9	200	3	1.9	5	2.2	67
Collision/ Motor Vehicle	39	95.2	47	92.1	20	104	65.3	104	45.2	0
Collision/ Snowmobile	..	..	..	..	..	27	17.0	36	15.7	33
Collision/ Fixed Object	1	2.4	..	..	-100	4	2.5	25	10.9	525
Collision/ Hidden Object	..	..	..	..	..	..	..	5	2.2	500
Other	1	2.4			-100	5	3.1	17	7.4	250
Total	49	100.0	51	100.0		159	99.8	230	100.1	

[a]Actual computed value rounded to the nearest tenth.

[b]Crossing highway.

[c]Everything except crossing highway--cruising, maneuvering, towing, parked, stopped, starting, racing, sporting event, overtaking, slowing prohibited on-road.

operating on-road in a manner other than crossing the road (prohibited operation by the Harris Bill) 65.3 per cent were in collision with a motor vehicle in the 1969-1970 winter season and 45.2 per cent in the 1970-1971 winter season. The classification of accident, collision with a motor vehicle, which occurred during an operation permitted on-road by the Harris Bill had an increase in per cent change of 20. The classification of accident, collision with a motor vehicle, which occurred during an operation prohibited on-road by the Harris Bill had no increase in per cent change. The classifications of accidents overturn, collision with a fixed object, and collision with a hidden object while in operation prohibited on-road by the Harris Bill had large increases in per cent change of 575, 525, and 500, respectively.

Operation at the Time of Occurrence.--Table 4.34 reveals that the action of crossing the highway which was permitted in both winter seasons was the operation at the time of occurrence in 20.5 per cent of the accidents in winter season 1969-1970 and 18.2 per cent in winter season 1970-1971. The actions of crusing, maneuvering, towing, parked-stopped, starting, racing-sporting event, overtaking, and slowing-stop were permitted on-road during the 1969-1970 winter season but were prohibited on-road by the enactment of the Harris Bill in the 1970-1971 winter season. The combination of the preceding listed actions

TABLE 4.34.--Distribution of On-Road Snowmobile Accidents by Operation at the Time of the Occurrence by Action Permitted or Prohibited by the Harris Bill.

Operation	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Action Permitted by Harris Bill--On-Road					
Crossing Highway	41	20.5	51	18.2	24
Action Prohibited by Harris Bill--On-Road					
Cruising	105	52.5	150	53.4	43
Maneuvering	29	14.5	53	18.9	83
Towing	1	.5	2	.7	100
Parked, Stopped	14	7.0	6	2.1	-57
Starting	4	2.0	4	1.4	0
Racing, Sporting Event	. .	. .	11	3.9	1100
Overtaking	3	1.5	2	.7	-50
Slowing, Stop	3	1.5	. .	. .	-300
Unknown	. .	. .	2	.7	200
Sub Total	159	79.5	230	81.8	45
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

accounted for 79.5 per cent of the on-road accidents in the 1969-1970 winter season and 81.8 per cent in the 1970-1971 winter season. The increase in per cent change for action permitted on-road by the Harris Bill, crossing the highway, was 24. The increase in per cent change for all actions prohibited on-road by the Harris Bill, cruising, maneuvering, towing, parked-stopped, starting, racing-sporting event, overtaking, and slowing-stop, was 45.

Apparent Cause or Contributing Circumstance.--Table 4.35 shows that the contributing circumstance or apparent cause that exhibited the most frequency in both winter seasons was "imprudent speed" (31.0 per cent in 1969-1970 winter season and 32.0 per cent in 1970-1971 winter season). In the 1969-1970 winter season "failure to yield" had the second highest frequency, 24.5 per cent while in the 1970-1971 winter season "reckless driving" had the second highest frequency, 25.3 per cent. "Unfamiliarity of terrain" and "poor visibility" had the largest increases in per cent change with 700 and 300, respectively. "Failure to yield" exhibited a decrease in the per cent change of 39.

Vehicle

Registration Status.--During both winter seasons, more than half the snowmobiles involved in on-road snowmobile accidents were registered. Table 4.36 shows that 53.5 per cent were registered in the 1969-1970 winter

TABLE 4.35.--Distribution of On-Road Snowmobile Accidents by Apparent Cause or Contributing Circumstance.

Apparent Cause or Contributing Circumstance	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Imprudent Speed	62	31.0	90	32.0	45
Reckless Driving	29	14.5	71	25.3	144
Failure to Yield	49	24.5	31	11.0	-39
Defective Equipment	14	7.0	28	10.0	100
Poor Visibility	8	4.0	32	11.4	300
Lack of Experience	6	3.0	4	1.4	-50
Overtaken by Other	8	4.0	2	.7	-300
Unfamiliarity of Terrain	. .	. .	7	2.5	700
Following Too Closely	7	3.5	2	.7	-250
Unknown	17	8.5	14	5.0	-21
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.36.--Distribution of Registration Status of Snowmobiles Involved in On-Road Accidents.

Registration Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Registered	107	53.5	170	60.5	59
Not Registered	91	45.5	111	39.5	22
Unknown	2	1.0	0	0.0	-200
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

season and that 60.5 per cent were registered in the 1970-1971 winter season. Conversely, 45.5 per cent were not registered in the 1969-1970 winter season and 39.5 per cent were not registered in the 1970-1971 winter season. The increase in the per cent change for registered snowmobiles was 59 and for unregistered snowmobiles was 22.

Vehicle Make.--Table 4.37 reveals that in both the 1969-1970 and 1970-1971 winter seasons the Ski-Doo was the snowmobile most frequently involved in on-road accidents with 48.0 per cent and 30.6 per cent, respectively. There were twelve additional makes involved in on-road snowmobile accidents in 1970-1971 than in 1969-1970. Rupp and Artic Cat snowmobile makes showed the largest increase in the per cent change with 600 and 450, respectively.

Horsepower.--The range of horsepower that was most prevalent in both the 1969-1970 winter season and 1970-1971

TABLE 4.37.--Distribution of Make of Snowmobile Involved in On-Road Accidents.

Name	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Ski Doo	96	48.0	86	30.6	10
Polaris	12	6.0	19	6.8	58
Snojet	15	7.5	7	2.5	-53
MotoSki	11	5.5	22	7.8	100
AMF	7	3.5	11	3.9	57
Ski Roule	10	4.9	8	2.9	-20
Artic Cat	8	4.9	44	15.7	450
Scorpion	9	4.5	10	3.6	11
Fox Trac	1	.5	1	.4	0
Rupp	1	.5	7	2.5	50
Boaski	6	3.0	6	2.1	0
Alouette	2	1.0	3	1.0	33
Evinrude	4	2.0	4	1.4	0
Yamaha	3	1.5	4	1.4	0
Sno Squire	..	..	2	.7	200
Starcraft	2	1.0	1	.4	-100
Massey Ferguson	..	..	2	.4	400
Ariens Arrow	..	..	..	..	0
Northway	1	.5	1	.4	0
Wildcat	..	..	1	.4	100
Chaparral	1	.5	2	.7	100
Viking	..	..	1	.4	100
Johnson	1	.5	2	.7	100
Bolerns D/A	..	..	2	.7	200
Mercury	..	..	2	.7	200
Sno Prince	..	..	4	1.4	400
Sno Bug	3	1.5	..	..	-300
Wheel Horse	..	..	2	.7	200
Yukon King	1	.5	2	.7	100
Sno Ghia	..	..	..	..	..
Eskimo	..	..	2	.7	100
Homelite	..	..	1	.4	100
Tradewinds	..	..	2	.7	200
Auto Ski	..	..	1	.4	100
Husky	..	..	1	.4	100
Auberg	2	1.0	..	..	-200
Unknown	3	1.5	15	5.3	433
Total	200	100.3	281	99.2	

[a]Actual computed value rounded to the nearest tenth.

winter season in on-road snowmobile accidents was 17-21 as is shown in Table 4.38. Thirty-four and five tenths per cent of the 1969-1970 winter season snowmobiles were in the 17-21 range and 24.2 per cent of the 1970-1971 winter season snowmobiles were in the 17-21 range. This constituted a decrease in the per cent change of one for the 17-21 horse power range. The largest increase in the per cent change existed in the 32-36 horsepower range with 650.

TABLE 4.38.--Distribution of Horsepower of Snowmobiles Involved in On-Road Accidents.

Horsepower	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-16	33	16.5	45	16.0	36
17-21	69	34.5	68	24.2	-1
22-26	22	11.0	67	23.8	205
27-31	18	9.0	39	13.9	117
32-36	4	2.0	30	10.7	650
37-41	1	.5	7	2.5	600
42-46	7	3.5	2	.7	-250
47-51	6	3.0	3	1.1	-100
52-56	..	..	..	..	..
57-Over	..	..	3	1.1	300
Unknown	40	20.0	17	6.0	-135
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

Environment

County of Accident Occurrence.--Oneida, Oswego, Onondaga, and St. Lawrence counties had the highest frequency of on-road snowmobile accident occurrence (13.0%, 9.5%, 9.0%, and 9.0%, respectively) in the winter season 1969-1970, as is shown in Table 4.39. In the winter season 1970-1971 Lewis, Oneida, Onandage, and St. Lawrence counties had the highest frequency of on-road snowmobile accidents with 9.2 per cent, 6.8 per cent, 6.4 per cent, and 6.4 per cent, respectively, as shown in Table 4.22. Oswego one of the counties with highest frequency in 1969-1970 evidence a decrease in the per cent change of 58. The counties with the largest increases in the per cent change were Warren at 900 and Chenango at 600.

Location.--Because this is the on-road sub-group, the location of all the accidents of both winter seasons was on the roadway. The on-road sub-group for the 1969-1970 winter season consisted of 200 accidents and for the 1970-1971 winter season consisted of 281 accidents. This is indicative of an increase in the per cent change of 40 as is shown in Table 4.17.

Surface Conditions.--Table 4.40 indicates that 91.5 per cent of the on-road snowmobile accidents in the 1969-1970 winter season occurred on a smooth surface condition and that 54.8 per cent of the 1970-1971 winter

TABLE 4.39.--Distribution of On-Road Snowmobile Accidents by County of Occurrence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	1	.5	1	.4	0
Allegany	1	.5	..	..	-100
Broome	..	..	1	.4	100
Cattaraugus	2	1.0	2	.7	0
Cayuga	5	2.5	9	3.2	80
Chautauqua	3	1.5	4	1.4	33
Chemung	1	.5	..	..	-100
Chenango	1	.5	7	2.5	600
Clinton	4	2.0	12	4.3	200
Columbia	..	..	5	1.8	500
Cortland	1	.5	3	1.1	200
Deleware	1	.5	2	.7	100
Dutchess	2	1.0	4	1.4	100
Erie	10	5.0	7	2.5	-43
Essex	1	.5	6	2.1	500
Franklin	7	3.5	15	5.3	114
Fulton	1	.5	2	.7	100
Genesee	..	..	3	1.1	300
Greene	2	1.0	4	1.4	100
Hamilton	..	..	2	.7	200
Herkimer	7	3.5	17	6.0	143
Jefferson	12	6.0	14	5.0	17
Lewis	7	3.5	26	9.2	271
Livingston	..	..	3	1.1	300
Madison	11	5.5	6	2.1	-83
Monroe	1	.5	6	2.1	500
Montgomery	3	1.5	1	.4	-200
Nassau	..	..	..	..	..
New York City	..	..	..	..	..
Niagara	..	..	3	1.1	300
Oneida	26	13.0	19	6.8	-37
Onondaga	18	9.0	18	6.4	0
Ontario	1	.5	3	1.1	200
Orange	1	.5	1	.4	0
Orleans	1	.5	1	.4	0
Oswego	19	9.5	12	4.3	-58
Otsego	3	1.5	3	1.1	0
Putnam	..	..	..	..	..
Rensselaer	2	1.0	2	.7	0
Rockland	..	..	..	..	..
St. Lawrence	18	9.0	18	6.4	0
Saratoga	3	1.5	4	1.4	33
Schenectady	..	..	1	.4	100

TABLE 4.39.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	..	..	..	..	..
Schuyler	3	1.5	1	.4	-200
Seneca	2	1.0	..	..	-200
Steuben	3	1.5	2	.7	-100
Suffolk	..	..	..	..	..
Sullivan	2	1.0	3	1.1	50
Tioga	1	.5	2	.7	100
Tompkins	1	.5	1	.4	0
Ulster	1	.5	1	.4	0
Warren	..	..	9	3.2	900
Washington	2	1.0	4	1.4	100
Wayne	4	2.0	4	1.4	0
Westchester	..	..	..	..	..
Wyoming	4	2.0	4	1.4	0
Yates	..	..	3	1.1	300
Unknown	1	.5	..	..	-100
Total	200	100.0	281	100.3	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.40.--Distribution of Surface Condition of On-Road Snowmobile Accident Location.

Surface Condition	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Smooth	183	91.5	154	54.8	-158
Rough	16	8.0	97	37.5	512
Other			15	5.3	1500
Unknown	1	.5	15	5.3	1400
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

season snowmobile accidents occurred on a smooth surface condition. The decrease in number from 183 in 1969-1970 to 154 in 1970-1971 represents a decrease in per cent change of 19. The increase in the per cent change for rough surface condition was 512.

Week of Season.--Table 4.41 indicates that the week of the season in which most snowmobile accidents occurred in the 1969-1970 winter season was December 28, 1969 to January 3, 1970 with 25.5 per cent of the accidents. The week with the second highest frequency was January 18, 1970 to January 24, 1970 with 11.5 per cent. The week of the season with the highest frequency in the 1970-1971 winter season was February 28, 1971 to March 6, 1971 with 11.7 per cent. The weeks of December 20, 1970 to December 26, 1970 and December 27, 1970 to January 2, 1971, each with

TABLE 4.41.--Distribution of On-Road Snowmobile Accidents by Week of Season.

Week Number	1969-1970				1970-1971			
	Dates		Number	Per Cent[a]	Dates		Number	Per Cent[a]
1	11-19	11-15	1	.5	11-15	11-21	..	..
2	11-16	11-22	..	..	11-22	11-28	1	.4
3	11-23	11-29	1	.5	11-29	12- 5	2	.7
4	11-30	12- 6	6	3.0	12- 6	12-12	4	1.4
5	12- 7	12-13	6	3.0	12-13	12-19	14	5.0
6	12-14	12-20	13	6.5	12-20	12-26	29	10.3
7	12-21	12-27	19	9.5	12-27	1- 2	29	10.3
8	12-28	1- 3	51	25.5	1- 3	1- 9	10	3.6
9	1- 4	1-10	15	7.5	1-10	1-16	19	6.8
10	1-11	1-17	14	7.0	1-17	1-23	28	10.0
11	1-18	1-24	23	11.5	1-24	1-30	15	5.3
12	1-25	1-31	13	6.5	1-31	2- 6	12	4.3
13	2- 1	2- 7	4	2.0	2- 7	2-13	10	3.6
14	2- 8	2-14	7	3.5	2-14	2-20	20	7.1
15	2-15	2-21	13	6.5	2-21	2-27	13	4.6
16	2-22	2-28	3	1.5	2-28	3- 6	33	11.7
17	3- 1	3- 7	4	2.0	3- 7	3-13	16	5.7
18	3- 8	3-14	3	1.5	3-14	3-20	12	4.3
19	3-15	3-21	4	2.0	3-21	3-27	9	3.2
20	3-22	3-28	..	..	3-28	4- 3	..	..
21					4- 4	4-10	3	1.1
22					4-11	4-17	1	.4
Total			200	100.0			281	99.8

[a]Actual computed value rounded to the nearest tenth.

10.3 per cent, had the second highest frequency in the 1970-1971 season.

Day of Week.--The combination of Saturday and Sunday in both winter seasons accounted for most of the on-road snowmobile accidents (50.0 per cent in 1969-1970 and 47.5 per cent in 1970-1971) as shown in Table 4.42. Thursday accounted for the largest increase in per cent change with 92 while Wednesday accounted for the least increase in per cent change with 6.

TABLE 4.42.--Distribution of Day of Week of On-Road Snowmobile Accidents.

Day	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Saturday	44	22.0	65	23.1	48
Sunday	56	28.0	69	24.6	23
Monday	15	7.5	20	7.1	33
Tuesday	15	7.5	19	6.8	26
Wednesday	18	9.0	19	6.8	6
Thursday	26	13.0	50	17.8	92
Friday	26	13.0	38	13.5	46
Unknown	0	0.0	1	.4	100
Total	200	100.0	281	100.1	

[a]Actual computed value rounded to the nearest tenth.

Hour of Day.--The hours in the day when most on-road snowmobile accidents occurred, as shown by Table 4.43, in both the 1969-1970 and 1970-1971 winter seasons was 2:01 P.M. to 5:00 P.M. with 28.0 per cent and 29.2 per cent,

TABLE 4.43.--Distribution of On-Road Snowmobile Accidents by Hour of Day.

Time	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
11:01 p.m.- 2:00 a.m.	26	13.0	29	10.3	12
2:01 a.m.- 5:00 a.m.	7	3.5	7	2.5	0
5:01 a.m.- 8:00 a.m.	..	..	6	2.1	600
8:01 a.m.-11:00 a.m.	9	4.5	15	5.3	67
11:01 a.m.- 2:00 p.m.	25	12.5	40	14.2	60
2:01 a.m.- 5:00 p.m.	56	28.0	82	29.2	46
5:01 p.m.- 8:00 p.m.	33	16.5	46	16.4	39
8:01 p.m.-11:00 p.m.	44	22.0	49	17.4	12
Unknown	..	..	7	2.5	700
Total	200	100.0	281	99.9	

[a]Actual computed value rounded to the nearest tenth.

respectively. The time period of 5:01 A.M. to 8:00 A.M. accounted for the largest increase in the per cent change with 600.

Weather.--Table 4.44 indicates that "clear" weather was the condition most frequent in on-road snowmobile accidents in 1969-1970 with 57.5 per cent and in 1970-1971 with 65.1 per cent, respectively. The increase in per cent change for "clear" weather was 59. The weather condition of "cloudy" exhibited a decrease in per cent change of 96.

TABLE 4.44.--Distribution of Weather Conditions at the Time of the On-Road Snowmobile Accident.

Weather	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Clear	115	57.5	183	65.1	59
Cloudy	27	13.5	1	.4	-96
Rain	4	2.0	4	1.4	0
Snow	53	26.5	65	23.1	23
Unknown	1	.5	28	10.0	2600
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

Visibility.--Table 4.45 reveals that over half the on-road snowmobile accidents in the 1969-1970 winter season occurred in visibility conditions classified as "poor-dark, lighted, or unlighted" (53.5%) and that over half the on-road snowmobile accidents in the winter season

TABLE 4.45.--Distribution of Visibility at the Time of the On-Road Snowmobile Accident.

Visibility	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Good-Daylight	78	39.0	159	56.6	104
Fair-Dawn or Dusk	13	6.5	58	20.6	344
Poor-Dark, Lighted or Unlighted	107	53.5	51	18.2	-52
Unknown	2	1.0	13	4.6	5500
Total	200	100.0	281	100.0	

[a]Actual computed value rounded to the nearest tenth.

of 1970-1971 occurred in "good-daylight" visibility conditions (56.6%). The difference between the number of occurrences in the "good-daylight" condition represents an increase in the per cent change of 104. The difference in the number of occurrences in the "poor-dark, lighted or unlighted" condition represents a decrease in the per cent change of 52.

Selected Factors of the Off-Road Sub-Group

Data from the Department of Motor Vehicles accident report MV-104 and Office of Parks and Recreation accident report MRV-202S relative to the operator, the vehicle, and the environment pertaining to the sub-group of 137 off-road snowmobile accidents in the winter season of 1969-1970 and 406 off-road snowmobile accidents in the winter season

1970-1971 are presented in this section. The expected increase in per cent change for each of the selected factors in the off-road sub-group is 195.

Operator

Age.--Table 4.46 reveals the distribution of the off-road sub-group by age. The ages ranged from under fourteen to over fifty-one years. The mean, median, and mode of the ages are 26.1 years, 26.0 years, and 17.5 years, respectively for the 1969-1970 winter season. For the 1970-1971 winter season the mean age is 26.2 years, the median age is 25.0 years, and the mode age is 23.5 years. The largest increase in per cent change occurred in the thirty-nine to forty-four and thirty-three to thirty-eight age groups with 350 and 329, respectively. The age group that evidenced the least amount of increase in the per cent change is forty-five to fifty at 100.

Sex.--Table 4.47 indicates that 89.0 per cent of the snowmobile operators involved in off-road accidents are male, with 10.2 per cent female, in the winter season of 1969-1970 and that 86.2 per cent of the off-road snowmobile accident involved operators were male, and 13.6 per cent were female in the winter season of 1970-1971. The increase in per cent change for males was 235 and for females was 293.

TABLE 4.46.--Distribution of Off-Road Sub-Group by Age.

Years	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-14	17	12.4	56	13.8	229
15-20	26	19.0	76	18.7	192
21-26	23	16.8	82	20.2	256
27-32	29	21.2	64	15.8	121
33-38	14	10.2	60	14.8	329
39-44	6	4.4	27	6.6	350
45-50	7	5.1	14	3.4	100
50-Over	6	4.4	17	4.2	183
Unknown	9	6.6	10	2.5	11
Total	137	100.1	406	100.0	

	Mean	Median	Mode
1969-1970	26.1 years	26.0 years	17.5 years
1970-1971	26.2 years	25.0 years	23.5 years
% Change	0	-4	34

[a]Actual computed value rounded to the nearest tenth.

Ownership Status.--Over half the snowmobiles involved in off-road accidents were owned by the operator in both the winter seasons, as indicated in Table 4.48 (57.7 per cent in winter season 1969-1970 and 59.1 per cent in winter season 1970-1971). Thirty-eight and seven tenths per cent of the snowmobiles involved in off-road accidents were not owned by the operator in winter season 1969-1970 and 35.2 per cent in winter season 1970-1971. The increase in the per cent change for ownership of snowmobiles

TABLE 4.47.--Distribution of Off-Road Snowmobile Accident Involvement of Operators by Sex.

Sex	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Male	122	89.0	350	86.2	235
Female	14	10.2	55	13.6	293
Unknown	1	.7	1	.2	0
Total	137	99.9	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.48.--Distribution of Ownership Status of Snowmobiles Involved in Off-Road Accidents.

Ownership Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Owned	79	57.7	240	59.1	265
Not Owned	53	38.7	143	35.2	170
Unknown	5	3.6	23	5.8	360
Total	137	100.0	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

involved in off-road accidents was 265 and the increase in per cent change for non-ownership of snowmobiles was 170.

Residence of Operators.--Table 4.49 shows that Onodaga, Oswego, and Jefferson counties had the highest frequency of residents involved in off-road snowmobile accidents in the 1969-1970 winter season at 19.0 per cent, 10.2 per cent, and 9.5 per cent, respectively. In the 1970-1971 winter season, Onondaga at 10.6 per cent, Wayne at 7.9 per cent, and Jefferson at 5.9 per cent were the counties with the highest frequency of residents involved in off-road snowmobile accidents as indicated in Table 4.27. The counties that had the highest increase in per cent change of residents involved in off-road snowmobile accidents were Lewis-2600, Washington-1500, Wayne-1500, and Cayuga-1100.

Table 4.50 reveals the number and per cent of snowmobile operators involved in off-road accidents that occurred in the county of their residence. Eighty-one per cent of the operators were involved in an off-road snowmobile accident in the county of their residence in the winter season of 1969-1970. In the winter season of 1970-1971, 76.1 per cent of the operators resided in the county of the off-road snowmobile accident occurrence. In each of the winter seasons 2.2 per cent of the off-road snowmobile accidents involved residents from out of state. Sixteen and eight tenths per cent and 21.7 per cent in the

TABLE 4.49.--Distribution of Off-Road Snowmobile Operators by County of Residence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	1	.7	8	2.0	700
Allegany	1	.7	1	.2	0
Broome	2	1.5	9	2.2	350
Cattaragus	2	1.5	1	.2	-100
Cayuga	1	.7	12	3.0	1100
Chautauqua	..	..	1	.2	100
Chemung	..	..	..	..	..
Chenango	2	1.5	3	.7	50
Clinton	1	.7	7	1.7	600
Columbia	..	..	7	1.7	700
Cortland	3	2.2	2	.5	-100
Deleware	..	..	2	.5	200
Dutchess	2	1.5	5	1.2	150
Erie	5	3.6	11	2.7	120
Essex	..	..	5	1.2	500
Franklin	2	1.5	16	3.9	700
Fulton	..	..	5	1.2	500
Genesee	..	..	1	.2	100
Greene	..	..	3	.7	300
Hamilton	..	..	2	.5	200
Herkimer	1	..	5	1.2	400
Jefferson	13	9.5	24	5.9	85
Lewis	..	..	26	6.4	2600
Livingston	..	..	2	.5	200
Madison	3	2.2	7	1.7	133
Monroe	9	6.6	8	2.0	-100
Montgomery	2	1.5	7	1.7	250
Nassau	..	..	..	..	..
New York City	2	1.5	..	..	-200
Niagara	..	..	5	1.2	500
Oneida	12	8.8	10	2.5	-20
Onondaga	26	19.0	43	10.6	65
Ontario	..	..	5	1.2	500
Orange	..	..	1	.2	100
Orleans	..	..	2	.5	200
Oswego	14	10.2	17	4.2	21
Otsego	..	..	..	..	..
Putnam	..	..	..	..	..
Rensselaer	2	1.5	2	.5	0
Rockland	1	.7	..	..	-100
St. Lawrence	11	8.0	24	5.9	118
Saratoga	2	1.5	20	4.9	900
Schenectady	..	..	3	.7	300

TABLE 4.49.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	1	.7	1	.2	0
Schuyler	..	..	2	.5	200
Seneca	..	..	5	1.2	500
Steuben	4	2.9	5	1.2	25
Suffolk	2	1.5	1	.2	-100
Sullivan	..	..	3	.7	300
Tioga	1	.7	4	1.0	300
Tompkins	..	..	2	.5	200
Ulster	..	..	3	.7	300
Warren	..	..	5	1.2	500
Washington	1	.7	16	3.9	1700
Wayne	2	1.5	32	7.9	1500
Westchester	..	..	1	.2	100
Wyoming	4	2.9	3	.7	-100
Yates	..	..	1	.2	100
Out of State	3	2.2	9	2.2	200
Total	137	100.2	401	99.8	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.50.--Distribution of Residence of Snowmobile Operators Involved in Off-Road Accidents by County of Occurrence.

Residence	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Same County	111	81.0	309	76.1	118
Other N.Y. County	23	16.8	88	21.7	283
Out of State	3	2.2	9	2.2	200
Total	137	100.0	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

1969-1970 and 1970-1971 winter seasons, respectively, were involved in off-road snowmobile accidents in counties other than their residence. The largest increase in per cent change was apparent in accident occurrence in a county other than the one in which the operator resides with 283.

Type of Accident.--The nonfatal injury accident was the type of off-road snowmobile accident most frequent in both the 1969-1970 and 1970-1971 winter seasons. Table 4.51 shows that 83.2 per cent of the accidents were the nonfatal injury type in the 1969-1970 winter season and 87.9 per cent were nonfatal injury type accidents in the 1970-1971 winter season. The fatal injury accident accounted for 2.2 per cent of the accidents in the 1969-1970 winter season and 3.5 per cent in the 1970-1971 winter season. The increase in per cent change for nonfatal injury

TABLE 4.51.--Distribution of Type of Off-Road Snowmobile Accident.

Type	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fatal Injury	3	2.2	14	3.5	367
Nonfatal Injury	114	83.2	357	87.9	213
Property Damage	20	14.6	35	8.6	75
Total	137	100.0	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

accidents was 213 while the increase for per cent change of fatal injury accidents was 367.

Region of Injury.--Table 4.52 shows that the areas of the body of snowmobile operators most frequently injured in off-road accidents in both winter seasons were the lower extremities (32.8 per cent in the 1969-1970 winter season and 33.7 per cent in the 1970-1971 winter season) and the head (17.5 per cent in the 1969-1970 winter season and 21.9 per cent in the 1970-1971 winter season). The areas of the body that evidenced the largest increase in per cent change was the neck with 400 and head with 271.

Type of Injury.--The type of injury most frequently apparent in off-road snowmobile accidents was the fracture in the 1969-1970 winter season with 24.1 per cent and the laceration in the 1970-1971 winter season with 32.8 per cent as shown in Table 4.53. The type of injury that had

TABLE 4.52.--Distribution of Region of Injury of Operators Involved in Off-Road Snowmobile Accidents.

Region	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Head	24	17.5	89	21.9	271
Neck	2	1.5	10	2.5	400
Chest	8	5.8	23	5.7	100
Upper Extremities	8	5.8	36	8.9	62
Back	11	8.0	22	5.4	225
Lower Extremities	45	32.8	137	33.7	205
Combination	8	5.8	27	6.6	225
Unknown	31	22.6	62	15.3	100
Total	137	99.8	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.53.--Distribution of Type of Injury to Snowmobile Operator in Off-Road Accident Occurrences.

Type of Injury	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fracture	33	24.1	98	24.1	197
Laceration	31	22.6	133	32.8	329
Contusion	8	5.8	61	15.0	656
Sprain	11	8.0	28	6.9	152
Concussion	2	1.5	10	2.5	400
Miscellaneous	19	13.9	10	2.5	-90
Combination	2	1.5	12	3.0	500
Unknown	31	22.6	54	13.3	74
Total	137	100.0	406	100.1	

[a]Actual computed value rounded to the nearest tenth.

the largest per cent increase was the contusion at 656. The laceration type of injury had a per cent change increase of 329 and the fracture had 197.

Classification of Accident.--Table 4.54 reveals that "collision with fixed object" was the classification of accident most frequent in both winter seasons with 21.9 per cent in the 1969-1970 winter season and 23.9 per cent in the 1970-1971 winter season. Large increases in the per cent change occurred in the categories of "collision with hidden object"-950, "fire"-400, and "overturning"-320. "Collision with a person" evidenced a decrease in the per cent change of 80.

Operation at Time of Occurrence.--"Cruising" was the most frequent mode of operation in off-road snowmobile accidents in both the winter season 1969-1970 with 78.1 per cent and winter season 1970-1971 with 67.8 per cent as shown in Table 4.55. "Racing, sporting event" had an increase in per cent change of 2800, the largest of the categories.

Apparent Cause or Contributing Circumstance.--Table 4.56 reveals that in the 1969-1970 winter season "imprudent speed" was the most frequent apparent cause or contributing circumstance in off-road snowmobile accidents with 35.0 per cent and "reckless driving" with 39.9 per cent in the 1970-1971 winter season. The apparent cause

TABLE 4.54.--Distribution of Classification of Off-Road Snowmobile Accidents.

Accident Classification	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Fall Off	12	8.8	31	7.6	158
Overturning	22	16.1	90	22.2	320
Skidding or Bump	9	6.6	15	3.7	67
Collision/Person	9	6.6	5	1.2	-80
Collision/M.V.	13	9.5	17	4.2	32
Collision/Snowmobile	22	16.1	56	13.8	154
Collision/Fixed Object	30	21.9	97	23.9	223
Collision/Hidden Object	4	2.9	42	10.3	950
Fire	..	..	4	1.0	400
Other	16	11.7	49	12.1	206
Total	137	100.2	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.55.--Distribution of Off-Road Snowmobile Accidents by Operation at the Time of Occurrence.

Operation	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Crossing Highway	..	..	..	..	..
Cruising	107	78.1	275	67.8	157
Maneuvering	15	11.0	81	20.0	440
Towing	2	1.5	16	3.9	700
Parked, Stopped	3	2.2	1	.2	-200
Starting	6	4.4	..	..	-600
Racing, Sporting Event	1	.7	29	7.1	2800
Overtaking	3	2.2	2	.5	-100
Slowing, Stop	..	..	..	..	..
Unknown	..	..	2	.5	200
Total	137	99.4	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.56.--Distribution of Off-Road Snowmobile Accidents by Apparent Cause or Contributing Circumstance.

Apparent Cause or Contributing Circumstance	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Imprudent Speed	48	35.0	110	27.1	129
Reckless Driving	41	29.9	162	39.9	295
Failure to Yield	4	2.9	2	.5	-200
Defective Equipment	13	9.4	42	10.3	224
Poor Visibility	..	..	17	4.2	1700
Lack of Experience	13	9.4	19	4.7	46
Overtaken by Other	4	2.9	2	.5	-200
Unfamiliarity of Terrain	3	2.2	37	9.1	1133
Following Too Closely	5	3.6	4	1.0	-100
Unknown	6	4.4	11	2.7	86
Total	137	99.7	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

or contributing circumstance with second highest amount of frequency in 1969-1970 was "reckless driving" (29.9%) and in 1970-1971 was "imprudent speed" (27.1%). "Poor visibility" and "unfamiliarity of terrain" had the largest increase in per cent change with 1700 and 1133, respectively.

Vehicle

Registration Status.--Table 4.57 shows that during the 1969-1970 winter season 58.4 per cent of the snowmobiles involved in off-road accidents were not registered and 34.7 per cent in the 1970-1971 winter season. Thirty-nine and four tenths per cent of the snowmobiles involved in off-road accidents in the 1969-1970 winter season were registered and 65.0 per cent were registered in winter season 1970-1971. The increase in per cent change of registered status was 390 and for unregistered status was 76.

TABLE 4.57.--Distribution of Registered Status of Snowmobiles Involved in Off-Road Accidents.

Registered Status	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Registered	54	39.4	264	65.0	390
Not Registered	80	58.4	141	34.7	76
Unknown	3	2.2	1	.2	-200
Total	137	100.0	406	99.9	

[a]Actual computed value rounded to the nearest tenth.

Vehicle Make.--In both winter seasons, the Ski-Doo snowmobile was most frequently represented in off-road accidents. Table 4.58 reveals that 42.4 per cent of the snowmobiles were Ski-Doos in the 1969-1970 winter season and 38.4 per cent were Ski-Doos in the 1970-1971 winter season. Four snowmobile makes were not represented at all in off-road accidents. There were nine makes represented in 1970-1971 but not in 1969-1970 and four makes represented in 1969-1970 but not in 1970-1971. Moto Ski, Skiroule, and Artic Cat were the makes that had the largest increase of per cent change at 950, 700, and 563, respectively. Auberg was the make of snowmobile that had a decrease in the per cent change of 800.

Horsepower.--Table 4.59 shows that the horsepower range of 17-21 was most frequent in off-road snowmobile accidents in the winter season 1969-1970 (32.1%) and winter season 1970-1971 (23.4%). The largest increases in per cent change were the horsepower ranges of 32-36 at 2100, 57 and over at 1400, and 27-31 at 533. The horsepower range of 17-21 had an increase in the per cent change of 127.

Environment

County of Accident Occurrence.--The New York counties that had the highest frequency of off-road snowmobile accidents were Onondaga-17.5 per cent, Oswego-13.9

TABLE 4.58.--Distribution of Make of Snowmobiles Involved in Off-Road Accidents.

Name	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Ski Doo	65	47.4	156	38.4	137
Polaris	9	6.6	20	4.9	121
Sno Jet	8	5.8	22	5.4	175
Moto Ski	2	1.5	21	5.2	950
AMF	3	2.2	13	3.2	333
Skiroule	1	.7	8	2.0	700
Artic Cat	9	6.6	57	14.0	563
Scorpion	7	5.1	15	3.7	114
Fox Trac	1	.7	1	.2	0
Rupp	4	2.9	15	3.7	275
Boaski	5	3.7	7	1.7	40
Alouette	2	1.5	4	1.0	100
Evinrude	2	1.5	3	.7	50
Yamaha	2	1.5	4	1.0	100
Sno Squire	1	.7	1	.2	0
Star Craft	1	.7	6	1.5	500
Massey Ferguson	..	..	3	.7	300
Ariens Arrow	1	.7	5	1.2	400
Northway	..	..	2	.5	200
Wildcat	1	.7	..	..	-100
Chaparral	..	..	3	.7	300
Viking	..	..	2	.5	200
Johnson	1	.7	2	.5	100
Bolens D/A	..	..	..	..	..
Mercury	..	..	2	.5	200
Sno Prince	..	..	3	.7	300
Sno Bug	..	..	..	..	..
Wheel Horse	..	..	..	..	..
Yukon King	1	.7	..	..	-100
Sno Ghia	1	.7	2	.5	100
Eskimo	..	..	1	.2	100
Homelite	..	..	1	.2	100
Tradewinds	..	..	..	..	..
Auto Ski	..	..	3	.7	300
Husky	..	..	1	.2	100
Auberg	8	1.5	..	..	-800
Unknown	2	5.8	23	5.7	1100
Total	137	99.9	406	99.6	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.59.--Distribution of Horsepower of Snowmobiles Involved in Off-Road Accidents.

	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
0-16	26	19.0	63	15.5	136
17-21	44	32.1	95	23.4	127
22-26	15	10.9	87	21.4	480
27-31	9	6.6	57	14.0	533
32-36	2	1.4	44	10.8	2100
37-41	2	1.4	12	3.0	500
42-46	2	1.4	8	2.0	300
47-51	..	..	1	.2	100
52-56	..	..	1	.2	100
57-Over	..	..	14	3.4	1400
Unknown	37	27.0	24	5.9	..
Total	137	99.8	406	99.8	

[a]Actual computed value rounded to the nearest tenth.

per cent, and Jefferson and St. Lawrence-each 8.8 per cent, in the 1969-1970 winter season and Onondage-10.6 per cent, Lewis and Wayne-each 7.9 per cent, and St. Lawrence-6.7 per cent in the winter season of 1970-1971, as shown in Table 4.60. The counties that had the largest increase in per cent change were Lewis at 3200, Wayne at 3100, Cayuga at 1100, and Washington at 1100. Oswego one of the counties with high accident occurrence in the 1969-1970 winter season had a decrease in per cent change of 73.

Location.--Table 4.61 shows that most of the off-road snowmobile accidents occurred in a field or yard in winter season 1969-1970-72.3 per cent and in winter season

TABLE 4.60.--Distribution of Off-Road Snowmobile Accidents by County of Occurrence.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Albany	1	.7	9	2.2	800
Allegany	2	1.5	..	..	-200
Broome	3	2.2	8	2.0	167
Cattaraugus	4	2.9	3	.7	-33
Cayuga	1	.7	12	3.0	1100
Chautauqua	..	..	2	.5	200
Chemung	..	..	..	..	..
Chenango	2	1.5	4	1.0	100
Clinton	2	1.5	4	1.0	100
Columbia	..	..	6	1.5	600
Cortland	1	.7	2	.5	100
Deleward	..	..	3	.7	300
Dutchess	..	1.5	7	1.7	250
Erie	2	1.5	9	2.2	350
Essex	.	..	7	1.7	700
Franklin	3	2.2	22	5.4	633
Fulton	..	..	4	1.0	400
Genesee	1	.7	1	.3	0
Greene	1	.7	2	.5	100
Hamilton	..	..	2	.5	200
Harkimer	1	.7	10	2.5	900
Jefferson	12	8.8	16	3.9	33
Lewis	..	..	32	7.9	3200
Livingston	..	..	3	.7	300
Madison	5	3.6	8	2.0	60
Monroe	7	5.1	6	1.5	-17
Montogmery	1	.7	8	2.0	700
Nassau	..	..	..	..	..
New York City	..	..	..	..	..
Niagara	..	..	1	.3	100
Oneida	10	7.3	10	2.5	0
Onondaga	24	17.5	43	10.6	79
Ontario	2	1.5	5	1.2	150
Orange	..	..	..	..	..
Orleans	..	..	5	1.2	500
Oswego	19	13.9	11	2.7	-73
Otsego	..	..	..	..	..
Putnam	..	..	..	..	..
Rensselaer	..	..	1	.3	100
Rockland	1	.7	..	..	-100
St. Lawrence	12	8.8	27	6.7	125
Saratoga	3	2.2	14	3.4	367
Schenectady	..	..	..	..	..

TABLE 4.60.--Continued.

County	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Schoharie	2	1.5	2	.5	0
Schuyler	..	..	2	.5	200
Seneca	..	..	5	1.2	500
Steuben	5	3.6	6	1.5	20
Suffolk	..	..	..	..	..
Sullivan	1	.7	2	.5	100
Tioga	..	..	4	1.0	400
Tompkins	..	..	2	.5	200
Ulster	..	..	3	.7	300
Warren	..	..	10	2.5	1000
Washington	2	1.5	24	5.9	1100
Wayne	1	.7	32	7.9	3100
Westchester	..	..	1	.3	100
Wyoming	3	2.2	5	1.2	67
Yates	..	..	1	.3	100
Unknown	1	.7	..	..	-100
Total	137	100.0	401	100.3	

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.61.--Distribution of Location of Off-Road Snowmobile Accidents by Terrain.

Terrain	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Lake or Pond	14	10.2	3	.7	-367
Woods	5	3.6	25	6.2	400
Field or Yard	99	72.3	262	64.5	165
Trail	10	7.3	87	21.4	770
Unknown	9	6.6	29	6.1	250
Total	137	100.2	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

1970-1971-64.5 per cent. The largest increase in per cent change occurred in the categories of "trail"-770 and "woods"-400. A decrease in the per cent change was evidenced in "lake or pond" of 367. The increase in per cent change for the sub-group of off-road snowmobile accidents was 195.

Surface Condition.--The surface condition most prevalent in off-road snowmobile accidents, according to Table 4.62, was "smooth" in both the winter season of 1969-1970 and the winter season of 1970-1971 with 53.3 per cent and 50.5 per cent, respectively. The surface condition that had the largest increase in per cent of change was "rough" with 264. Surface condition "smooth" had an increase in the per cent change of 181.

Week of Season.--Table 4.63 reveals that February 1, 1970 to February 7, 1970 had the highest number of off-road

TABLE 4.62.--Distribution of Surface Condition of Off-Road Snowmobile Accident Location.

Surface Condition	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Smooth	73	53.3	205	50.5	181
Rough	49	35.8	178	43.8	264
Other	4	2.9	6	1.5	50
Unknown	11	8.0	17	4.2	64
Total	137	100.0	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

snowmobile accidents, 13, per week of the 1969-1970 winter season. The week with the next highest frequency of off-road snowmobile accidents, 12, was February 15, 1970 to February 21, 1970. The week of highest frequency of off-road snowmobile accidents in the winter season 1970-1971 was January 24, 1971 to January 30, 1971 with 44. The week with the second highest frequency (38) of off-road snowmobile accidents was January 17, 1971 to January 23, 1971.

Day of Week.--The combination of Saturday and Sunday were the days on which over half the off-road snowmobile accidents occurred in both winter seasons. Table 4.64 shows that 65.7 per cent of the off-road snowmobile accidents occurred on Saturday and Sunday in the 1969-1970 winter season and that 56.7 per cent of the off-road snowmobile accidents occurred on Saturday and Sunday

TABLE 4.63.--Distribution of Off-Road Snowmobile Accidents by Week of Season.

Week Number	1969-1970				1970-1971			
	Dates		Number	Per Cent[a]	Dates		Number	Per Cent[a]
1	11- 9	11-15	..	..	11-15	11-21	4	1.0
2	11-16	11-22	1	.7	11-22	11-28	3	.7
3	11-23	11-29	..	..	11-29	12- 5	3	.7
4	11-30	12- 6	11	8.0	12- 6	12-12	8	2.0
5	12- 7	12-13	2	1.5	12-13	12-19	14	3.4
6	12-14	12-20	10	7.3	12-20	12-26	20	4.9
7	12-21	12-27	10	7.3	12-27	1- 2	34	8.4
8	12-28	1- 3	7	5.1	1- 3	1- 9	21	5.2
9	1- 4	1-10	3	2.2	1-10	1-16	36	8.9
10	1-11	1-17	5	3.6	1-17	1-23	38	9.4
11	1-18	1-24	5	3.6	1-24	1-30	44	10.8
12	1-25	1-31	11	8.0	1-31	2- 6	24	5.9
13	2- 1	2- 7	13	9.5	2- 7	2-13	27	6.6
14	2- 8	2-14	11	8.0	2-14	2-20	17	4.2
15	2-15	2-21	12	8.8	2-21	2-27	28	6.9
16	2-22	2-28	10	7.3	2-28	3- 6	22	5.4
17	3- 1	3- 7	5	3.6	3- 7	3-13	17	4.2
18	3- 8	3-14	10	7.3	3-14	3-20	6	1.5
19	3-15	3-21	7	5.1	3-21	3-27	22	5.4
20	3-22	3-28	4	2.9	3-28	4- 3	9	2.2
21					4- 4	4-10	6	1.5
22					4-11	4-17	1	.2
Total			137	99.8			406	100.0

[a]Actual computed value rounded to the nearest tenth.

TABLE 4.64.--Distribution of Day of Week of Off-Road Snowmobile Accidents.

Day	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Saturday	40	29.2	97	23.9	146
Sunday	50	36.5	133	32.8	167
Monday	6	4.4	23	5.7	283
Tuesday	7	5.1	25	6.2	256
Wednesday	6	4.4	23	5.7	283
Thursday	14	10.2	52	12.8	266
Friday	14	10.2	51	12.6	265
Unknown	0	0.0	2	.5	200
Total	137	100.0	406	100.2	

[a]Actual computed value rounded to the nearest tenth.

in the 1970-1971 winter season. Monday and Wednesday had the highest increase in per cent change, each with 283. Thursday had the next highest increase in per cent change with 266.

Hour of Day.--In both the 1969-1970 and 1970-1971 winter seasons the time of day when most off-road snowmobile accidents occurred was between 2:01 P.M. and 5:00 P.M., as shown in Table 4.65 with 29.9 per cent and 31.0 per cent, respectively. The time span between 5:01 A.M. and 8:00 A.M. realized the largest increase in per cent change of 700. The hours from 5:01 P.M. to 8:00 P.M. had the second largest increase in per cent change of 353.

TABLE 4.65.--Distribution of Off-Road Snowmobile Accidents by Hour of Day.

Time	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
11:01 p.m.- 2:00 a.m.	22	16.1	47	11.6	118
2:01 p.m.- 5:00 a.m.	1	.7	3	.7	200
5:01 a.m.- 8:00 a.m.	..	..	7	1.7	700
8:01 a.m.-11:00 a.m.	8	5.8	15	3.7	88
11:01 a.m.- 2:00 p.m.	15	11.0	47	11.6	214
2:01 p.m.- 5:00 p.m.	41	29.9	126	31.0	206
5:01 p.m.- 8:00 p.m.	15	11.0	68	16.8	353
8:01 p.m.-11:00 p.m.	33	24.1	87	21.4	133
Unknown	2	1.5	6	1.5	200
Total	137	100.1	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

The time span of 8:01 A.M. to 11:00 A.M. had the least amount of increase in per cent change of 88.

Weather.--Table 4.66 shows that 58.4 per cent of the off-road snowmobile accidents occurred in "clear" weather in the 1969-1970 winter season and that in the winter season of 1970-1971, 74.1 per cent of the off-road snowmobile accidents occurred in "clear" weather. The increase in per cent change for the weather condition "clear" was 266. The weather conditions of "cloudy" and "rain" had a decrease in the per cent change of 400 and 20, respectively.

TABLE 4.66.--Distribution of Weather Condition at the Time of the Off-Road Snowmobile Accident.

Weather Condition	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Clear	80	58.4	301	74.1	266
Cloudy	15	11.0	3	.7	-400
Rain	6	4.4	5	1.2	-20
Snow	24	17.5	68	16.8	183
Unknown	12	8.8	29	7.1	141
Total	137	100.1	406	99.9	

[a]Actual computed value rounded to the nearest tenth.

Visibility.--In the winter season 1969-1970 52.6 per cent and 7.6 per cent in winter season 1970-1971 of the off-road snowmobile accidents occurred in the visibility

condition classified as "poor-dark, lighted or unlighted" as shown in Table 4.67. The "good-daylight" visibility condition was reported for 38.9 per cent of the off-road snowmobile accidents in 1969-1970 winter season and 67.0 per cent in 1970-1971 winter season. The visibility condition "good-daylight" had an increase in per cent change of 413. The visibility condition of "fair-dawn or dusk" had an increase in per cent change of 700 and "poor-dark, lighted or unlighted" had a decrease in per cent change of 132.

TABLE 4.67.--Distribution of Visibility at the Time of the Off-Road Snowmobile Accident.

Visibility	1969-1970		1970-1971		Per Cent Change
	Number	Per Cent[a]	Number	Per Cent[a]	
Good-Daylight	53	38.9	272	67.0	413
Fair-Dawn or Dusk	11	8.0	88	21.7	700
Poor-Dark, Lighted or Unlighted	72	52.6	31	7.6	-132
Unknown	1	.7	15	3.7	1400
Total	137	100.0	406	100.0	

[a]Actual computed value rounded to the nearest tenth.

Summary

Chapter IV presented an analysis of the data collected on the 337 snowmobile accidents in the 1969-1970 winter season and the 687 snowmobile accidents in the winter season 1970-1971 in the state of New York. The data was obtained through the New York Department of Motor Vehicles and the New York Office of Parks and Recreation.

The chapter was organized into three major parts: (1) selected factors relative to the populations; (2) selected factors relative to the on-road sub-group; and (3) selected factors relative to the off-road sub-group.

Tables were structured to more clearly reveal the amassed frequencies and percentages.

Chapter V will include the summary, conclusions, discussion of feelings not supported by the data, recommendations, and recommendations for further study.

CHAPTER V

SUMMARY, CONCLUSIONS AND DISCUSSION, AND RECOMMENDATIONS

The preceding chapter contained the analysis of the data collected. This chapter contains a summary, conclusions, discussion of feelings not supported by the data, recommendations, and recommendations for further study.

Summary

The purpose of this study was to ascertain the particular factors that were most prevalent in snowmobile accidents preceding (winter season 1969-1970) and following (winter season 1970-1971) the enactment of regulatory legislation in the state of New York. Data were collected on the population of this study, and selected factors were considered in the areas of the operator, the vehicle, and the environment.

The data for 337 snowmobile accidents in the 1969-1970 winter season and 687 snowmobile accidents in the 1970-1971 winter season were collected from accident reports, tabulated, and analyzed.

Summary of the Major Findings

The following facts should be considered when interpreting the findings of this study based on data provided in accident report forms: (1) The total number of snowmobiles in the state of New York was not known; (2) The rate or amount of exposure to snowmobile use was not known; (3) All off-road snowmobile accidents involving personal injury and/or property damage in excess of $100.00 had to be reported in the winter season 1970-1971, whereas only off-road snowmobile accidents involving fatal injury had to be reported in the winter season 1969-1970; and finally (4) In the 1969-1970 winter season snowmobiles had to be registered only if used on the roadway, whereas in the 1970-1971 winter season all snowmobiles had to be registered if used on other than private land.

Summary of the Selected Factors of the Population

The per cent change for the population of 337 snowmobile accidents in the 1969-1970 winter season and the population of 687 snowmobile accidents in the 1970-1971 winter season was an increase of 105. Therefore, the expected increase in per cent change for each of the selected factors in the population would be 105. An increase in per cent change in excess of 105 would indicate more than the expected increase, while an increase in per cent change of less than 105 would indicate less than the expected increase.

Operator.--

1. In both winter seasons in the age group 15-20 and the highest frequency of snowmobile accident involvement with 26.1 per cent (1969-1970) and 24.2 per cent (1970-1971). The age groups of 14 and under and 39-44 had increases in per cent change of 208 and 207, respectively.

2. In both winter seasons the operators most frequently had snowmobile accidents in the county in which they resided, 78.9 per cent in 1969-1970 and 75.8 per cent in 1970-1971.

3. Nonfatal injury snowmobile accidents were most frequent in both winter seasons with 73.0 per cent (1969-1970) and 83.8 per cent (1970-1971). The increase in per cent change in nonfatal injury accidents was 134. Fatal injury accidents had an increase in per cent change of 79.

4. In both winter seasons the regions of the body with the greatest frequency of injuries when involved in snowmobile accidents were the lower extremities, 28.2 per cent (1969-1970) and 31.2 per cent (1970-1971), and the head, 16.9 per cent (1969-1970) and 22.1 per cent (1970-1971). The area of the body that had the largest increase in per cent change was the neck with 367.

5. The type of injury that was most frequent in snowmobile accidents changed from the fracture with 18.1 per cent in the 1969-1970 winter season to the laceration with 27.9 per cent in the 1970-1971 winter season. The increase in per cent change for laceration was 226.

6. In both winter seasons "collision with a motor vehicle" was the most common classification of snowmobile accident with 156 occurrences (1969-1970) and 168 occurrences (1970-1971). The increase in per cent change was 8. The snowmobile accident classification "overturning" had an increase in per cent change of 362.

7. In both winter seasons the operation at the time of the snowmobile accident "cruising" had the highest frequency with 62.0 per cent (1969-1970) and 61.0 per cent (1970-1971). The smallest increase in per cent change was the operation of "crossing the highway" with 30. "Racing, sporting event" had an increase in per cent change of 3900.

8. In both winter seasons the combination of "imprudent speed" and "reckless driving" was the apparent cause or contributing circumstance of snowmobile accidents with the highest frequency, 53.4 per cent (1969-1970) and 63.0 per cent (1970-1971). The

apparent cause or contributing circumstance "unfamiliarity of terrain" had an increase in per cent change of 1367.

Vehicle.--

1. In the 1969-1970 winter season 50.7 per cent of the snowmobiles were not registered that were involved in accidents and 36.7 per cent in the 1970-1971 winter season. Whereas, 47.8 per cent of the snowmobiles involved in accidents in winter season 1969-1970 were registered and 63.2 per cent in winter season 1970-1971.

2. In both winter seasons snowmobiles involved in accidents with the horsepower range of 17-21 had the highest frequency, 33.5 per cent (1969-1970) and 23.7 per cent (1970-1971). The horsepower range of 47 and over and 32-36 had increases in per cent change of 2200 and 1103, respectively.

Environment.--

1. In both winter seasons the highest frequency of snowmobile accidents occurred on-road, 200 occurrences (1969-1970) and 281 occurrences (1970-1971). The increase in per cent change for on-road accidents was 40. The increase in per cent change for off-road accidents was 195.

2. In both winter seasons the surface condition "smooth" was most frequent in snowmobile accidents, 76.0 per cent (1969-1970) and 52.3 per cent (1970-1971). The increase in per cent change was 40 for "smooth" surface condition and 323 for "rough" surface condition.

3. In both winter seasons the combination of Saturday and Sunday accounted for the occurrence of most snowmobile accidents, 56.4 per cent (1969-1970) and 54.0 per cent (1970-1971). Thursday and Friday had increases in per cent change of 155 and 122, respectively.

4. In both winter seasons the hours of the day when the greatest frequency of snowmobile accidents occurred were 2:01 P.M. to 5:00 P.M.., 28.8 per cent (1969-1970) and 30.3 per cent (1970-1971). The hours of the day 5:01 A.M. to 8:00 A.M. had an increase in per cent change of 1300.

5. In both winter seasons, snowmobile accidents occurred most frequently in "clear" weather, 57.9 per cent (1969-1970) and 70.4 per cent (1970-1971). "Clear" weather had an increase in per cent change of 148 while "cloudy" weather had a decrease in per cent change of 90.

6. In the 1969-1970 winter season 53.1 per cent of the snowmobile accidents occurred in "poor-dark, lighted or unlighted" visibility conditions and 11.9 per cent in winter season 1970-1971. Whereas, in winter season 1969-1970 38.9 per cent of the snowmobile accidents occurred in "good-daylight" visibility conditions and 62.7 in winter season (1970-1971). The increase in per cent change for "good-daylight" visibility conditions was 229.

Summary of the Selected Factors of the On-Road Sub-Group

The per cent change for the on-road sub-group of 200 snowmobile accidents in the 1969-1970 winter season and the on-road sub-group of 281 snowmobile accidents in 1970-1971 winter season was an increase of 40. Therefore, the expected increase in per cent change for each of the selected factors in the on-road sub-groups would be 40. An increase in per cent change in excess of 40 would indicate more than the expected increase, while an increase in per cent change of less than 40 would indicate less than the expected increase.

Operator.--

1. In both winter seasons the age group 15-20 had the highest frequency of snowmobile accident involvement with 31.0 per cent (1969-1970) and 32.0 per cent (1970-1971). The age groups 14 and under and

45-50 had increases in per cent change of 186 and 150, respectively. The age group 21-26 had a decrease in per cent change of 8.

2. In both winter seasons most operators had snowmobile accidents in the county in which they resided, 78.0 per cent (1969-1970) and 75.4 per cent (1970-1971).

3. Nonfatal injury snowmobile accidents were most frequent in both winter seasons with 66.0 per cent (1969-1970) and 77.9 per cent (1970-1971). The rate for fatal injury snowmobile accidents was 5.5 per cent (1969-1970) and 3.9 per cent (1970-1971). There was an increase in per cent change of 66 for nonfatal injury accidents. There was no increase in per cent change for fatal injury accidents.

4. In both winter seasons the regions of the body with the greatest frequency of injuries when involved in snowmobile accidents were the lower extremities, 25.0 per cent (1969-1970) and 27.4 per cent (1970-1971), and the head, 16.5 per cent (1969-1970) and 22.4 per cent (1970-1971). The neck was the area of the body with the largest increase in per cent change with 300.

5. The type of injury that was most frequent in snowmobile accidents changed from the fracture and laceration sharing the first position in the

1969-1970 winter season, each with 14.0 per cent to the fracture alone in the 1970-1971 winter season with 29.2 per cent. The type of injury "fracture" had an increase in per cent change of 193.

6. In both winter seasons "collision with a motor vehicle" was the most common classification of snowmobile accident with 143 occurrences (1969-1970) and 151 occurrences (1970-1971). The increase in per cent change for "collision with motor vehicle" was 6. The classifications "overturning," "collision with hidden object," and "collision with fixed object" had increases in per cent change of 650, 500, and 400, respectively.

7. Of the snowmobile operation permitted on-road by the Harris Bill, crossing the highway, 39 occurrences involved collision with the motor vehicle in the winter season of 1969-1970 and 47 occurrences in the winter season 1970-1971. Of the snowmobile operation prohibited on-road by the Harris Bill, all actions but crossing the highway, 104 occurrences involved collision with the motor vehicle in winter season 1969-1970 and 104 occurrences in winter season 1970-1971. The increase in per cent change for collision with the motor vehicle for operations permitted on-road by the Harris Bill was 20 and for

operations prohibited on-road by the Harris Bill was zero.

8. In both winter seasons, actions that were subsequently prohibited on-road by the Harris Bill in the 1970-1971 winter season were most frequent in snowmobile accidents, 79.5 per cent (1969-1970) and 81.8 per cent (1970-1971). Actions prohibited on-road by the Harris Bill had an increase in per cent change of 45 while actions permitted on-road by the Harris Bill had an increase in per cent change of 24.

9. In both winter seasons "imprudent speed" was the apparent cause or contributing circumstance in on-road snowmobile accidents with the highest frequency, 31.0 per cent (1969-1970) and 32.0 per cent (1970-1971). The apparent cause or contributing circumstance "unfamiliarity of terrain" had an increase in per cent change of 700.

Vehicle.--

1. In both winter seasons most of the snowmobiles involved in on-road accidents were registered, 53.5 per cent (1969-1970) and 60.5 per cent (1970-1971). The increase in per cent change for registered snowmobiles was 59.

2. In both winter seasons snowmobiles with horsepower in the range of 17-21 had the highest frequency, 48.0 per cent (1969-1970) and 24.2 per cent (1970-1971). The horsepower range 17-21 had a decrease in per cent change of one. The horsepower range of 32-36 had an increase in per cent change of 650.

Environment.--

1. In both winter seasons the surface condition "smooth" was most frequent in on-road snowmobile accidents, 91.5 per cent (1969-1970) and 54.8 per cent (1970-1971). The surface condition "smooth" had a decrease in per cent change of 19, while the surface condition "rough" had an increase in per cent change of 512.

2. In both winter seasons the combination of Saturday and Sunday accounted for the occurrence of most on-road snowmobile accidents, 50.0 per cent (1969-1970) and 47.5 per cent (1970-1971). Thursday had the largest increase in per cent change with 92.

3. In both winter seasons the hours of the day when the greatest frequency of on-road snowmobile accidents occurred were 2:01 P.M. to 5:00 P.M., 28.0 per cent (1969-1970) and 29.2 per cent (1970-1971). The time period 5:01 A.M. to 8:00 A.M. had an increase in per cent change of 600.

4. In both winter seasons, on-road snowmobile accidents occurred most frequently in "clear" weather, 57.5 per cent (1969-1970) and 65.1 per cent (1970-1971). The weather condition "cloudy" and "snow" and decreases in per cent change of 2600 and 130, respectively.

5. In the 1969-1970 winter season 53.5 per cent of the on-road snowmobile accidents occurred in "poor-dark, lighted or unlighted" visibility conditions, whereas, in the 1970-1971 winter season 56.6 per cent of the accidents occurred in "good-daylight" visibility conditions. The "good-daylight" visibility condition had an increase in per cent change of 104, while the visibility condition of "poor-dark, lighted or unlighted" had a decrease in per cent change of 108.

Summary of Selected Factors of the Off-Road Sub-Group

The per cent change for the off-road sub-group of 137 snowmobile accidents in the 1969-1970 winter season and the off-road sub-group of 406 snowmobile accidents in the 1970-1971 winter season was an increase of 195. Therefore, the expected increase in per cent change for each of the selected factors in the off-road sub-groups would be 195. An increase in per cent change in excess of 195 would indicate more than the expected increase, while an increase

in per cent change of less than 195 would indicate less than the expected increase.

Operator.--

1. The age group 15-20 had the highest frequency of off-road snowmobile accident involvement in the winter season 1969-1970 with 19.0 per cent; however, the age group 21-26 had the highest frequency of off-road snowmobile accident involvement in the winter season 1970-1971 with 20.2 per cent. The age groups 39-44 and 33-38 had increases in per cent change of 350 and 329, respectively.

2. In both winter seasons the operators had off-road snowmobile accidents most frequently in the county in which they resided, 81.0 per cent (1969-1970) and 76.1 per cent (1970-1971). The increase in per cent change for operators residing in counties other than the county of occurrence was 283.

3. Nonfatal injury off-road snowmobile accidents were most frequent in both winter seasons with 83.2 per cent (1969-1970) and 87.9 per cent (1970-1971). The rate for fatal injury off-road snowmobile accidents was 2.2 per cent in winter season 1969-1970 and 3.5 per cent in winter season 1970-1971. The increase in per cent change for fatal injury accidents was 367 and for nonfatal injury accidents was 213.

4. In both winter seasons the regions of the body with the greatest frequency of injuries when involved in off-road snowmobile accidents were the lower extremities, 32.8 per cent (1969-1970) and 33.7 per cent (1970-1971), and the head, 17.5 per cent (1969-1970) and 21.9 per cent (1970-1971). The areas of the body with the largest increases in per cent change were the neck with 400 and the head with 271.

5. The type of injury that was most frequent in off-road snowmobile accidents changed from fracture (24.1%) in the 1969-1970 winter season to the laceration (32.8%) in the 1970-1971 winter season. The increase in per cent change for laceration was 329.

6. In both winter seasons "collision with a fixed object" was the most common classification of off-road snowmobile accidents with 21.9 per cent (1969-1970) and 23.9 per cent (1970-1971). The classification of accident "collision with hidden object" had the largest increase in per cent change with 950.

7. In both winter seasons the operation at the time of occurrence "cruising" had the highest frequency in off-road snowmobile accidents with 78.1 per cent (1969-1970) and 67.8 per cent (1970-1971). The

operation at the time of the accident that had the largest increase in per cent change was "racing, sporting event" with 2800.

8. The apparent cause or contributing circumstance of "imprudent speed" had the highest frequency in off-road snowmobile accidents in the 1969-1970 winter season with 35.0 per cent, while in the 1970-1971 winter season, "reckless driving" had the highest frequency in off-road snowmobile accidents with 39.9 per cent. The apparent causes or contributing circumstances "poor visibility" and "unfamiliarity of terrain" had increases in per cent change of 1700 and 1133, respectively.

Vehicle.--

1. In the 1969-1970 winter season 58.4 per cent of the snowmobile involved in off-road accidents were not registered and 34.7 per cent were not registered in winter season 1970-1971. Whereas, in winter season 1969-1970 39.4 per cent of the snowmobiles involved in off-road accidents were registered and 65.0 per cent were registered in winter season 1970-1971.

2. In both winter seasons snowmobiles involved in accidents with the horsepower range of 17-21 had the highest frequency, 32.1 per cent (1969-1970) and 23.4 per cent (1970-1971). The horsepower ranges

of 32-36 and 57 and over had increases in per cent change of 2100 and 1400, respectively.

Environment.--

1. In both winter seasons most of the off-road accidents occurred in a "field or yard," 72.3 per cent (1969-1970) and 64.5 per cent (1970-1971). The location "trails" had an increase in per cent change of 770. The location "lake or pond" had a decrease in per cent change of 367.

2. In both winter seasons off-road snowmobile accidents occurred most frequently on the surface condition "smooth" with 53.3 per cent (1969-1970) and 50.5 per cent (1970-1971). The surface condition "rough" had an increase in per cent change of 264.

3. In both winter seasons the combination of Saturday and Sunday accounted for the occurrence of most off-road snowmobile accidents, 65.7 per cent (1969-1970) and 56.7 per cent (1970-1971). Monday and Wednesday each had increases in per cent change of 283.

4. In both winter seasons the hours of the day when the greatest frequency of accidents occurred were 2:01 P.M. to 5:00 P.M., 29.9 per cent (1969-1970) and 31.0 per cent (1970-1971). The time span between 5:01 A.M. and 8:00 A.M. had an increase in per cent change of 353.

5. In both winter seasons, off-road snowmobile accidents occurred most frequently in "clear" weather, 58.4 per cent (1969-1970) and 74.1 per cent (1970-1971). The increase in per cent change for the weather condition "clear" was 266.

6. In the 1969-1970 winter season 52.6 per cent of the off-road accidents occurred in "poor-dark, lighted or unlighted" visibility conditions, conversely in the 1970-1971 winter season 67.0 per cent of the off-road accidents occurred in "good-daylight" visibility conditions. The increase in per cent change for "good-daylight" visibility conditions was 413.

Conclusions

1. While there was an increase in number of registered snowmobiles, there was a decrease in accident occurrences per registered snowmobiles in the 1970-1971 winter season compared to the 1969-1970 winter season.

Table 4.12 showed a total of 37,410 registered snowmobiles in the winter season 1969-1970 and 130,396 in the winter season 1970-1971, representing an increase of 250 per cent. In the 1969-1970 winter season there were 90.1 accidents for every 10,000 registered snowmobiles and in the 1970-1971 winter season there were 52.7 accidents for every 10,000 registered snowmobiles. However, the

percentage of registered snowmobiles of the total number of snowmobiles was not known; therefore, it cannot be determined whether the accident experience really was up or down.

2. The severity of injuries incurred in snowmobile accidents was less than anticipated for the 1970-1971 winter season.

Table 4.6 showed that 4.2 per cent of the snowmobile accidents involved fatal injuries in the winter season of 1969-1970 and 3.7 per cent in the 1970-1971 winter season. The expected increase in per cent change was 105, but for fatal injuries it was 79, representing a significant difference from what was anticipated. Table 4.7 showed an increase in per cent change of 226 for the type of injury "laceration" which represents a significant variance from the anticipated increase in per cent change of 105. Table 4.7 showed a less significant variance for the expected per cent change of 105 for "fracture," whose per cent change increase was 195.

3. On-road snowmobile accidents occurred less frequently than anticipated for the 1970-1971 winter season.

Table 4.17 showed that 200 of the snowmobile accidents occurred on-road during the 1969-1970 winter season, while 281 of the snowmobile accidents occurred on-road during the 1970-1971 winter season. The expected

increase in per cent change was 105, but for on-road accidents it was 40, representing a significant deviation from what was anticipated.

4. On-road snowmobile operations prohibited by the Harris Bill occurred less frequently than anticipated for the 1970-1971 winter season.

Table 4.34 showed that on-road snowmobile accidents involving on-road operations prohibited by the Harris Bill in the 1970-1971 winter season included 159 occurrences in winter season 1969-1970 and 230 occurrences in winter season 1970-1971. The expected increase in per cent change was 105, but for operations prohibited by the Harris Bill the per cent change was 45, representing a significant deviation from what was anticipated.

5. Collisions with motor vehicles in operations both permitted and prohibited on-road by the Harris Bill occurred less frequently than anticipated in the 1970-1971 winter season.

Table 4.33 showed that in on-road operations permitted by the Harris Bill 39 occurrences involved collision with a motor vehicle in winter season 1969-1970 and 47 occurrences in winter season 1970-1971. The expected increase in per cent change was 105, but for operations permitted by the Harris Bill involving collisions with motor vehicles it was 20, representing a significant deviation from what was anticipated. Table 4.33 showed

that in on-road operations prohibited by the Harris Bill 104 occurrences involved collision with a motor vehicle in winter season 1969-1970 and 104 occurrences in winter season 1970-1971. The expected increase in per cent change was 105, but for operations prohibited by the Harris Bill involving collision with motor vehicles it was zero, which represents a significant deviation from what was anticipated.

6. The frequency of fatalities in on-road snowmobile accidents was less than anticipated for the 1970-1971 winter season.

Table 4.29 showed that 5.5 per cent of the on-road snowmobile accidents involved fatal injuries in winter season 1969-1970 and 3.9 per cent in winter season 1970-1971. The expected increase in per cent change was 40, but fatal injuries had no increase in per cent change, representing a significant deviation from what was anticipated.

7. The severity of nonfatal injuries incurred in on-road snowmobile accidents increased more than was anticipated for the 1970-1971 winter season.

Table 4.31 showed an increase in per cent change of 193 for the type injury "fracture" which represents a significant variance from the expected increase in per cent change of 40. Table 4.31 showed a less significant

variance from the expected per cent change of 40 for "laceration," whose per cent change was 110.

8. The frequency of fatalities in off-road snowmobile accidents was more than anticipated for the 1970-1971 winter season.

Table 4.50 showed that 2.2 per cent of the off-road snowmobile accidents involved fatal injuries in winter season 1969-1970 and 3.5 per cent in winter season 1970-1971. The expected increase in per cent change was 195, but for fatal injuries it was 367, representing a significant deviation from what was anticipated.

9. The severity of nonfatal injuries incurred in off-road snowmobile accidents was less than anticipated for the 1970-1971 winter season.

Table 4.52 showed an increase in per cent change of 329 for the type of injury "laceration" which represents a significant variance from the expected increase in per cent change of 195. Table 4.52 showed an increase in per cent change of 197 for the type of injury "fracture" which was close to the expected per cent change increase of 195.

Discussion of Feelings Not Supported by the Data

The facilities for snowmobilers are inadequate. There are too many snowmobilers for the limited number of trials and open areas. Many of the trails are poorly marked which may be a contributing factor to the number of

accidents reported due to unfamiliarity of terrain. Another indication of the inadequacy is the number of snowmobile accidents involving collision with a fixed or hidden object.

The enforcement of snowmobile regulations needs to be improved. If violators were cited for infractions of the regulations, a greater reduction of on-road snowmobile accidents would be evident. At the same time, the information revealed in the accident reports should be used to direct the emphasis of snowmobile enforcement activities.

The number of snowmobiles involved in accidents on-road while participating in a sporting event would indicate that the handling of snowmobile sporting events should receive closer scrutiny by the regulatory agencies.

Recommendations

1. That an effort be made to investigate snowmobile accidents in depth, not just report them. The team approach should be used so that injury severity and cause of injury, cause of accident, and what could have been done to prevent the accident may be ascertained.

2. That law enforcemment personnel responsible for snowmobile accident investigation be trained in accident investigation and be knowledgeable about snowmobiles.

3. That a greater effort be made by law enforcement personnel in citing violators of the Harris Bill.

4. That the accident report needs to include the information regarding the nature and region of the injury for both fatal and nonfatal injuries of both the operator and the passengers and needs to include lake or pond in the section on type of terrain.

5. That the states use snowmobiles registration monies for: Improving and increasing off-road areas and trails, providing adequate signing of off-road areas and trails, providing publication of safety information, and providing manpower for enforcement of the snowmobile laws.

6. That snow-belt states develop a uniform snowmobile accident report form and share the data it provides before the next snowmobiling season.

7. That snowmobile education programs be evaluated for content and method, further that education programs be reasonably available to anyone.

8. That snowmobile education programs include the most up-to-date accident statistics, snowmobile law information, maintenance practices, safe operation procedures, and actual on-vehicle practice.

9. That vehicle, equipment, and emissions standards be established for snowmobiles to protect operators,

passengers, spectators, and other winter sport participants.

10. That states require dealers to provide sales records to the respective state licensing agency to assist in efforts to register snowmobiles.

11. That public information programs be established for the non-snowmobiling public to make tham aware of snowmobile interaction with other vehicular traffic.

Recommendations for Further Study

1. A longitudinal study on snowmobile accident involvement in New York state following the Harris Bill.

2. A study of how and where monies accrued through snowmobile registrations are spent.

3. A study of the effectiveness of the snowmobile education programs.

4. A study of the effectiveness of the public information program.

5. A study of the effectiveness of law enforcement agencies in the amelioration of the snowmobile program.

6. A study of what the snowmobile industry is doing and why it has not done more to improve the vehicle from the standpoints of stability, steering, visibility, braking, lighting, passenger and operator

support and protection, sonic and atmospheric pollution, and positive release throttle.

7. A study of injuries incurred through the use of snowmobiles when not involved in an accident, while just riding along, such as back injuries.

8. A study to determine the nature and region of injuries of the passengers involved in snowmobile accidents.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Baker, Stannard J., and Stebbins, William R., Jr. Dictionary of Highway Traffic. Evanston, Ill.: Northwestern University, 1960.

Campbell, Donald T., and Stanley, Julian C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally and Company, 1963, Fourth Printing, 1969.

Malo, John W. Snowmobiling--The Guide. New York: The Macmillan Company, 1971.

Tuite, James J. Snowmobiles and Snowmobiling. New York: Cowles Book Company, 1969.

Turabian, Kate L. Student's Guide for Writing College Papers. 3rd ed. Chicago: The University of Chicago Press, 1972.

Publications of the Government and Other Organizations

Briggs, Stephen A., II. "Snowmobile History." National Safety Congress Proceedings, 26:40, 1965.

Carlson, W., and Compton, M. "Snowmobile Crash Analysis." Highway Safety Research Institute. Ann Arbor, Michigan, March, 1971.

Harris, J. L., et al. "An Act to Amend the Vehicle and Traffic Law and Conversation Law in Relation to Registration, Operation, and Control of Snowmobiles." The Assembly of the State of New York, No. 4862-A, February, 1970.

National Safety Council. "Manual on Classification of Motor Vehicle Accidents." National Safety Council, Chicago, Illinois, 1962.

Negri, Barry D. Snowmobile Accidents--A Detailed Investigation. Albany: New York Department of Motor Vehicles, Division of Research and Development, December, 1970.

Negri, D. B. Accidents Involving Snowmobiles--A Preliminary Review. Albany: New York State Department of Motor Vehicles, Division of Research and Development, No. 1970-1, February, 1970.

O'Dell, Raymond T. "Report on Oversnow Vehicles." United States Department of the Interior, National Park Service, June, 1968.

Ontario Department of Transport. "Snowmobile Collisions on Highways and Roads in Ontario." Toronto, Ontario: The Department of Research Section, February, 1970.

"Snowmobile Accidents in Canada Winter of 1969-1970." Ottawa: Canada Safety Council, October, 1970.

"Snowmobile Accident Summary 1969-1970 Winter Season." Chicago, Ill.: Public Safety Department, National Safety Council, August, 1970.

"Snowmobile Survey." Chicago, Ill.: Research Committee, Public Utilities Section, National Safety Council, August, 1969.

Sturgis, R. C., et al. "Ergonomic Study of Snowmobiles." A study made at the Highway Safety Research Institute, Ann Arbor, Mich.: Supported in part by an Exploratory Research Grant from the National Safety Council, Chicago, Illinois, June 30, 1970.

United States Department of Interior, Bureau of Outdoor Recreation. "Proceedings of the International Snowmobile Conference." Duluth, Minnesota, February, 1970.

United States Department of Interior, Bureau of Outdoor Recreation. "Proceedings of the International Snowmobile Conference. New York State Conservation Commission, May, 1969.

United States Department of Interior, Bureau of Outdoor Recreation. "Proceedings of the International Snowmobile Congress." Portland, Maine, October, 1970.

"Vehicle and Traffic Law." Albany: New York Department of Motor Vehicles, September, 1969.

Periodicals

Aubin, Pierre. "Snowmobile Country--The U.S." Foreign Trade, Vol, 134 (November 7, 1970), 14-17.

Bell, D. "The Move to Harness the Snowmobiliacs." Maclean's, Vol. 80:4 (April, 1967), 3.

Castor, William, and McIntyre, Hugh. "Snowmobile Accidents." Canadian Medical Association Journal, Vol. 102:421 (February 28, 1970), 421.

Chism, Stanley E., and Soule, A. Bradley. "Snowmobile Injuries: Hazards From a Popular New Winter Sport." Journal of American Medical Association, Vol. 209, No. 11 (September 15, 1969), 1672-74.

Colby, C. B. "Getting the Picture." Outdoor Life (November, 1969), 2-10.

"Cool, Fast Fun--and Trouble, Too." Life, Vol. 70, No. 7 (February 26, 1971), 20-25.

Dominici, R. H., and Drake, E. H. "Speed on Snow--The Motorized Sled." The American Journal of Surgery, Vol. 119 (April, 1970) 483-85.

Garrison, C. E. "Maine Safety Report." Recreational Industry (November, 1969), 13.

Humphreys, Richard N. "Those Snowmobiles: Bane or Boon?" Vermont Life, Vol. 26, No. 2 (Winter, 1971), 10.

Layne, Elizabeth N. "Abominable Snowmen." American Heratige, Vol. 21:113 (February, 1970), 113.

Martyn, J. W. "Snowmobile Accidents." Canadian Medical Association Journal, Vol. 101:770-72 (September 15, 1969), 35-37.

Olson, Jack. "Bad Snow Out in the Cold Snow." Sports Illustrated, Vol. 32:11 (March 17, 1970), 28-35.

Snook, P. A. "Snowmobiling." National Wildlife, Vol. 7 (December-January, 1969), 42-46.

"Snow Vehicles." Machine Design, 38:138 (January, 1966) 138-43.

"The First Snowmobiles." Yankee (January, 1971), 74-79.

"What You Should Know About Your Snowmobile and the Law." Snowmobile Handbook, Popular Science (1972), 42-43.

"Winter's Horseless Sleigh" New State Law--Proposed Local Regulations of Snowmobiles." Municipality, Vol. 65:30 (February, 1970), 30-43.

Withington, R. L., and Hall, L. W. "Snowmobile Accidents: A Review of Injuries Sustained in the Use of Snowmobiles in Northern New England During the 1967-1967 Season." Journal of Trauma, Vol. 10 (September, 1970), 760-63.

Unpublished Materials

Hinckley, Theodore E. "Analysis of Snowmobile Accidents Involving Young Operators in the State of New York." Unpublished Ph.D. dissertation, Michigan State University, 1971.

Howe, H. K. "Snowmobile Industry Sales." International Snowmobile Industry Association, Washington, D.C., June, 1970.

King, Alfred S. "A Study of Selected Factors Related to Snowmobile Traffic Accidents in the State of Michigan." Unpublished Ph.D. dissertation, Michigan State University, 1971.

Newspapers

Giniger, Henry. "Scooters, (Snowmobiles, That Is) Hit the Alps." The New York Times, Vol. 121, No. 41, 636, January 22, 1972, p. 8.

Lansing, Diane. "Snowmobiles Push Farther Afield." Christian Science Monitor, November 25, 1969, p. 6.

APPENDICES

APPENDIX A

MALCOLM BALDWIN'S MODEL LAW

MALCOLM BALDWIN'S MODEL LAW

The difficulty with any model law is that it does not fully suit existing situations in any one State. Sometimes all it can do is to indicate appropriate elements to consider when new legislation is desired. The model below may serve to stimulate the development of specific legislation and regulations not only responding to, but directing the proper use of, the off-road vehicle.

FINDINGS OF FACT

The legislature finds that:

(1) off-road vehicles have become popular forms of recreation;

(2) the design, propulsion and capabilities of off-road vehicles continue to change and become more versatile;

(3) the full recreational potential of off-road vehicles may require operation on or across public property, rights-of-way, or highways;

(4) unsafe operation of off-road vehicles is already a matter of public record and concern;

(5) fish and wildlife in the State, and its habitat on public lands, has been adversely affected by imporper use of off-road vehicles;

(6) the use of off-road vehicles on public lands which have important natural, wild forest or wilderness values, is destructive to and incompatible with such values;

(7) the use of off-road vehicles can infringe on the enjoyment by the people of other forms of recreation.

Therefore, in order to promote the safe use and enjoyment of off-road vehicles, to protect the fish, wildlife, and other natural resources of the State, to guarantee the availability of various forms of recreation to all citizens in an environment of diversity and quality, the following law is enacted.

1: DEFINITIONS

Off-road vehicle: An off-road vehicle is any motorized vehicle designed for cross-country travel on or immediately over land, water, snow, ice, marsh, swampland or other natural terrain. It includes, but is not limited to, four-wheel drive or low pressure tire vehicles, motorcycles and related two-wheel vehicles, amphibious machines, ground effect or air cushion vehicles, and any other means of transportation deriving motive power from any source other than muscle or wind; except that such term shall not include a registered motorboat, farm vehicle, or any military or law enforcement vehicle.

Snowmobile: A snowmobile is any off-road vehicle that is less than 40" wide and no heavier than 500 pounds and is capable of travel over snow or ice.

2: REGISTRATION

All off-road vehicles operated within the State, and not registered under the motor vehicles law, shall be registered with the State Department of Motor Vehicles after (date). Registration shall be for a period of three years. Registration certificates and numbers shall be provided to the applicant for a fee. The fee for registration of a snowmobile shall be $30 for three years.

3: VEHICLE IDENTIFICATION

Every off-road vehicle operated within the State after (date) shall display its registration number in plainly distinguishable characters no less than three inches high. The method of identification display for various types of off-road vehicles shall be determined by appropriate regulations of the Department of Motor Vehicles and the Department of (Conservation, Natural Resources).

(It is suggested that appropriate regulations for snowmobiles require painted characters on each side of the front cowling.)

4: LICENSING

No person shall operate an off-road vehicle on, across, or within 10 feet of any public road, street or highway unless licensed to operate a motor vehicle in this State. Any non-resident of this State who is duly licensed to operate a motor vehicle in the State of his residence may operate an

off-road vehicle in this State provided he meets the other requirements of this act.

5: NON RESIDENTS

Registration of an off-road vehicle in any other State or Province is valid in this State for a period of 20 days from the time of arrival into this State, provided that vehicle identification meets the requirements of section 3 of this act.

6: TEMPORARY PERMITS

In lieu of permanent registration, non-resident owners of off-road vehicles may secure temporary permits and vehicle identification numbers for 15 days upon application to an off-road vehicle dealer registered in the state and licensed by the state to issue permits. The fee for temporary permits shall be $5.

7: TAXATION

Off-road vehicles shall not be taxed as motor vehicles.

8: DEALERS

All dealers of off-road vehicles shall be registered annually with the State Department of Motor Vehicles. Registration certificates shall be made available to a dealer for the fee of $25 for one year.

A dealer shall maintain his off-road vehicles in a safe condition. No dealer shall lease or otherwise make available for use an off-road vehicle to a person whom he has reason to believe is incompetent to run such vehicle in a lawful manner.

All dealers shall carry liability insurance or have proof that the user of his off-road vehicle has vehicle liability insurance of at least _____ (depending on State law).

All off-road vehicles provided for temporary use by a dealer shall be identified in accordance with regulations issued under section 3.

9: OWNERSHIP TRANSFER

Within 15 days of the transfer of ownership, or part ownership, other than a security interest, or the destruction or abandonment of an off-road vehicle, written notice shall be given to the Department of Motor Vehicles in such form as the Department shall prescribe.

10: NOISE AND EXHAUST

No off-road vehicle may be operated in this State if it makes unusual or excessive noise or if it emits obnoxious exhaust fumes.

An off-road vehicle that produces a sound level of _____ decibels or more on the A scale at _____ feet shall be deemed to make an unusual or excessive noise. (No attempt has been made to detail the provisions of this section. See notes and appendix for material relevant to this section.)

11: OPERATING RESTRICTIONS

No off-road vehicle shall be operated at any time:

(1) unless equipped with working headlights, tail-lights, brakes and proper mufflers;

(2) in a reckless or careless manner;

(3) in a manner dangerous to person or property;

(4) while the operator is under the intoxicating influence of drugs or beverages;

(5) in any manner intended or reasonably to be expected to harass, drive or pursue any wildlife;

(6) on any private property without permission of the owner of the land or his agent;

(7) in a nursery or planting area;

(8) during the hours from one-half hour after sunset to one-half hour before sunrise without displaying a lighted headlight and lighted tail-light.

12: SANITATION

No person shall litter or dispose of trash or garbage on public land or rights-of-way.

13: HUNTING AND USE OF FIREARMS

Firearms or other instruments used to hunt shall not be carried on any off-road vehicle in other than an unloaded and enclosed condition.

14: LIABILITY

(1) The provisions of the State Motor Vehicle Financial Responsibility Act shall apply to off-road vehicles and their operation, and the application of such laws shall not be restricted to public roads, but shall be of general application.

(2) The operator and owner of an off-road vehicle shall be responsible and held accountable to the owner of any lands where trees, shrubs, crops, or other property have been damaged as a result of travel over their premises.

15: ACCIDENTS

Any accident involving an off-road vehicle that results in personal injury or death or property damage over _____ shall be reported to the Department of Motor Vehicles in a manner determined by regulations of the Department.

16: SNOWMOBILE HIGHWAY USE

Snowmobiles shall not be operated on public roads and highways, except that:

(1) Unplowed town and county roads:

Snowmobiles may be permitted to operate on unplowed town and country roads.

(2) Crossings:

Snowmobiles meeting the requirements of this act may cross public highways, roads, and streets, as directly as possible, preferably at right angles. Snowmobiles shall not cross

limited access highways. All crossings permitted must be made in safety and in a manner that does not interfere with motor vehicle traffic.

(3) Unloading:

Snowmobiles may operate off and alongside a public highway, road or street for limited distances from the point of unloading from a motorized conveyance to the point at which the snowmobile is intended and permitted to be operated, whenever it is otherwise impractical to reach such an area.

17: ZONES OF USE

Off-road vehicles shall be restricted in the same manner as motor vehicles in a State park or wildlife refuge, except that snowmobiles may use trails specifically designated for snowmobiles by the State. Snowmobile trails shall be so designated only when the State Department of (Conservation, Natural Resources) determines that natural, fish and wildlife, and other recreational, aesthetic and public values will not be adversely affected thereby.

No off-road vehicle shall operate on any State land unless on trails specifically designated by the State. Trails for off-road vehicles shall be designated only when the State Department of (Conservation, Natural Resources) determines that natural, fish and wildlife and other recreational, aesthetic and public values will not be adversely affected thereby.

The Department of (Conservation, Natural Resources) shall specify by regulation the weather and trail conditions which will permit proper use of such trails by off-road vehicles and snowmobiles.

18. MUNICIPALITIES

Incorporated towns and municipalities shall have the authority to establish time periods for off-road vehicle use and to designate places of off-road vehicle operation not inconsistent with State laws and regulations.

19: PENALTIES

Violation of any section of this act shall be considered a misdemeanor punishable by a fine of $10 to $100 and/or imprisonment up to 90 days.

20: ENFORCEMENT

Any law enforcement officer of the State, including State foresters and fish and game officials, shall be authorized to enforce the provisions of this act.

APPENDIX B

MOTOR VEHICLE ACCIDENT REPORT

FORM MV-104

MV-104 (11/68) STATE OF NEW YORK DEPARTMENT OF MOTOR VEHICLES

REPORT OF MOTOR VEHICLE ACCIDENT

PRINT OR TYPE ALL INFORMATION

MAKE NO ENTRIES IN SPACES BELOW - FOR OFFICE USE ONLY

LOCATION CODE

ROUTE NO.

SEQUENCE CODE

1. TIME OF ACC. | DATE: MONTH DAY YEAR | DAY OF WEEK | HOUR OF DAY O'CLOCK AM PM (ABOVE SPACE FOR CASE NUMBER AND OFFICE USE ONLY)

2. LIGHT CONDITION ☐ 1. DAYLIGHT ☐ 2. DAWN ☐ 3. DUSK ☐ 4. DARK ROAD LIGHTED ☐ 5. DARK ROAD UNLIGHTED

3. ACCIDENT INVOLVED: NO. KILLED | NO. INJURED | NO. OF VEHICLES | PROPERTY DAMAGE ONLY ☐

LOCATION OF ACCIDENT

4. COUNTY | INSIDE CITY OR VILLAGE LIMITS - CITY OF | OR VILLAGE OF | DEPT. OF TRANSPORTATION REFERENCE MARKER

IN TOWN OF | COMMUNITY

ON ROUTE NO. OR STREET NAME | AT INTERSECTION WITH | ROUTE NO. OR STREET NAME

NOT AT INTERSECTION: ☐ MILES OR ☐ FEET ☐ N ☐ E ☐ S ☐ W OF | NEAREST CROSSROAD, INTERSECTION, OR LANDMARK

5. YOUR VEHICLE NO. 1

DRIVER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | MOTORIST IDENT. NO. EXACTLY AS PRINTED ON LICENSE

NUMBER AND STREET | DATE OF BIRTH MO DAY YEAR | SEX ☐ MALE ☐ FEMALE

CITY | STATE | ZIP CODE | STATE OF LICENSE ☐ NEW YORK GIVE STATE IF OTHER

☐ UNLICENSED ☐ N.Y. LEARNER'S PERMIT ☐ N.Y. INTERIM PERMIT

OWNER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | APPARENT CONDITION OF DRIVER

☐ NORMAL ☐ ILL ☐ PHYSICAL DEFECT ☐ FELL ASLEEP ☐ HAD BEEN DRINKING

NUMBER AND STREET | SEAT BELTS INSTALLED? ☐ YES ☐ FRONT ☐ REAR ☐ NOT INSTALLED

CITY | STATE | ZIP CODE | CIRCLE POSITIONS OF UNINJURED WEARING SEAT BELTS: 7 4 1 / 8 5 2 / 9 6 3 | CIRCLE POSITIONS UNINJURED NOT WEARING SEAT BELTS: 7 4 1 / 8 5 2 / 9 6 3

HAS DRIVER COMPLETED NEW YORK DRIVER EDUCATION COURSE? ☐ YES ☐ NO

VEHICLE MAKE AND YEAR | BODY TYPE | VEHICLE IDENT. NO | PLATE NO | STATE OF REGISTRATION | EXPIRATION MONTH YEAR

DESCRIBE DAMAGE TO VEHICLE | ESTIMATED COST OF REPAIRS

6. OTHER VEHICLE NO. 2

DRIVER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | MOTORIST IDENT. NO. EXACTLY AS PRINTED ON LICENSE

NUMBER AND STREET | DATE OF BIRTH MO DAY YEAR | SEX ☐ MALE ☐ FEMALE

CITY | STATE | ZIP CODE | STATE OF LICENSE ☐ NEW YORK GIVE STATE IF OTHER

☐ UNLICENSED ☐ N.Y. LEARNER'S PERMIT ☐ N.Y. INTERIM PERMIT

OWNER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | APPARENT CONDITION OF DRIVER

☐ NORMAL ☐ ILL ☐ PHYSICAL DEFECT ☐ FELL ASLEEP ☐ HAD BEEN DRINKING

NUMBER AND STREET | DESCRIBE DAMAGE TO VEHICLE

CITY | STATE | ZIP CODE | ESTIMATED COST OF REPAIRS

VEHICLE MAKE AND YEAR | BODY TYPE | VEHICLE IDENT. NO | PLATE NO | STATE OF REGISTRATION | EXPIRATION MONTH YEAR

7. OTHER VEHICLE NO. 3

DRIVER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | MOTORIST IDENT. NO. EXACTLY AS PRINTED ON LICENSE

NUMBER AND STREET | DATE OF BIRTH MO DAY YEAR | SEX ☐ MALE ☐ FEMALE

CITY | STATE | ZIP CODE | STATE OF LICENSE ☐ NEW YORK GIVE STATE IF OTHER

☐ UNLICENSED ☐ N.Y. LEARNER'S PERMIT ☐ N.Y. INTERIM PERMIT

OWNER'S FIRST NAME | MIDDLE INITIAL | LAST NAME | APPARENT CONDITION OF DRIVER

☐ NORMAL ☐ ILL ☐ PHYSICAL DEFECT ☐ FELL ASLEEP ☐ HAD BEEN DRINKING

NUMBER AND STREET | DESCRIBE DAMAGE TO VEHICLE

CITY | STATE | ZIP CODE | ESTIMATED COST OF REPAIRS

VEHICLE MAKE AND YEAR | BODY TYPE | VEHICLE IDENT. NO | PLATE NO | STATE OF REGISTRATION | EXPIRATION MONTH YEAR

8. IDENTIFICATION OF DAMAGED PROPERTY OTHER THAN VEHICLE | ESTIMATED COST OF REPAIRS | FILM SERIAL NUMBER - DEPARTMENT USE ONLY

OWNER'S NAME AND ADDRESS

INSTRUCTIONS - COMPLETE ENTIRE REPORT ENTER "UNKNOWN" WHERE INFORMATION NOT AVAILABLE.

1. AN ACCIDENT IN NEW YORK STATE CAUSING DEATH, PERSONAL INJURY OR DAMAGE OVER $150 TO THE PROPERTY OF ANY ONE PERSON MUST BE REPORTED WITHIN 10 DAYS. FAILURE TO REPORT WITHIN 10 DAYS IS A MISDEMEANOR AND SUBJECTS LICENSE AND/OR REGISTRATION TO SUSPENSION UNTIL REPORT IS FILED.
2. REPORT MUST BE SIGNED ON REVERSE, DATED AND SUBMITTED IN DUPLICATE TO COMMISSIONER OF MOTOR VEHICLES, 504 CENTRAL AVENUE, ALBANY, N.Y. 12206
3. IF MORE THAN 3 VEHICLES WERE INVOLVED OR MORE THAN 4 PERSONS INJURED, ATTACH ADDITIONAL REPORTS IN DUPLICATE. IF INJURIES RESULTED IN DEATH AFTER FILING THIS REPORT, NOTIFY THE COMMISSIONER IN WRITING IMMEDIATELY.
4. IN ADDITION TO FILING THIS REPORT, YOU SHOULD ALSO REPORT ACCIDENT TO YOUR INSURANCE REPRESENTATIVE. FAILURE TO DO SO MAY JEOPARDIZE YOUR AUTOMOBILE LIABILITY INSURANCE

MV 104 (11/68)

9. KILLED OR INJURED IN ACCIDENT — CIRCLE POSITION IN VEHICLE — CHECK COLUMN THAT APPLIES TO INJURED PERSON

		K	A	B	C
		KILLED	BLEEDING WOUND DISTORTED MEMBER. CARRIED FROM SCENE OR UNCONSCIOUSNESS	OTHER VISIBLE INJURY	NO VISIBLE INJURY BUT COMPLAINT OF PAIN OR SHOCK
1	NAME; WEARING SEAT BELTS ☐ YES ☐ NO; AGE; SEX; STREET ADDRESS; DATE OF DEATH; IN VEHICLE NUMBER; CITY AND STATE; ZIP CODE; WAS PERSON EJECTED ☐ YES ☐ NO; ☐ PEDESTRIAN ☐ BICYCLIST ☐ MOTORCYCLIST; DESCRIBE INJURIES	☐	☐	☐	☐
2	NAME; WEARING SEAT BELTS ☐ YES ☐ NO; AGE; SEX; STREET ADDRESS; DATE OF DEATH; IN VEHICLE NUMBER; CITY AND STATE; ZIP CODE; WAS PERSON EJECTED ☐ YES ☐ NO; ☐ PEDESTRIAN ☐ BICYCLIST ☐ MOTORCYCLIST; DESCRIBE INJURIES	☐	☐	☐	☐
3	NAME; WEARING SEAT BELTS ☐ YES ☐ NO; AGE; SEX; STREET ADDRESS; DATE OF DEATH; IN VEHICLE NUMBER; CITY AND STATE; ZIP CODE; WAS PERSON EJECTED ☐ YES ☐ NO; ☐ PEDESTRIAN ☐ BICYCLIST ☐ MOTORCYCLIST; DESCRIBE INJURIES	☐	☐	☐	☐
4	NAME; WEARING SEAT BELTS ☐ YES ☐ NO; AGE; SEX; STREET ADDRESS; DATE OF DEATH; IN VEHICLE NUMBER; CITY AND STATE; ZIP CODE; WAS PERSON EJECTED ☐ YES ☐ NO; ☐ PEDESTRIAN ☐ BICYCLIST ☐ MOTORCYCLIST; DESCRIBE INJURIES	☐	☐	☐	☐

TO COMPLETE QUESTIONS 10-18, ENTER THE APPLICABLE ITEM NUMBER IN THE BOX PROVIDED FOR EACH QUESTION

10. TYPE OF ACCIDENT — COLLISION WITH:
- PEDESTRIAN 1
- OTHER MTR. VEH. 2
- OTHER MTR. VEH. AND PEDESTRIAN 3
- RAILROAD TRAIN 4
- ANIMAL/ANIMAL DRAWN VEHICLE 5
- FIXED OBJECT 6
- BICYCLE 7
- OTHER OBJECT 8
- MOTORCYCLE 9

NON-COLLISION
- OVERTURNED IN ROAD 10
- RAN OFF ROAD 11
- OTHER 12

11. TRAFFIC CONTROL
- NONE 0
- POLICE OFFICER 1
- SIGNAL LIGHT IN OPERATION 2
- SIGNAL LIGHT NOT IN OPERATION 3
- FLASHING LIGHT 4
- STOP SIGN 5
- WARNING SIGN 6
- YIELD SIGN 7
- OTHER (INCLUDES RR CROSSING) 8
- UNKNOWN 9
- SCHOOL CROSSING GUARD 10

12. WEATHER & ROAD CONDITIONS
- CLEAR - DRY 1
- CLEAR - WET 2
- CLEAR - ICE/SNOW 3
- RAIN - WET 4
- RAIN - ICE/SNOW 5
- SNOW - WET 6
- SNOW - ICE/SNOW 7
- FOG - DRY 8
- UNKNOWN 9
- FOG - WET 10
- FOG - ICE/SNOW 11
- FREEZING RAIN - ICE OR SNOW 12

13. ROAD CHARACTER
- STRAIGHT & LEVEL 1
- STRAIGHT/GRADE 2
- STRAIGHT AT HILLCREST 3
- CURVE AND LEVEL 4
- CURVE WITH GRADE 5
- CURVE AT HILLCREST 6

14. ROAD SURFACE
- CONCRETE 1
- BLACKTOP 2
- BRICK/BLOCK 3
- GRAVEL 4
- DIRT AND SAND 5
- OTHER MATERIAL 6

15. CONDITION OF PEDESTRIAN - IF INVOLVED
- NORMAL 1
- HAD BEEN DRINKING 2
- PHYSICAL DEFECT 3
- CONFUSED BY TRAFFIC 4
- VIEW OBSTRUCTED 5

16. ROAD TYPE CHECK ITEM (S)
- ONE WAY STREET
- TWO WAY STREET
- INDICATE NO. OF LANES

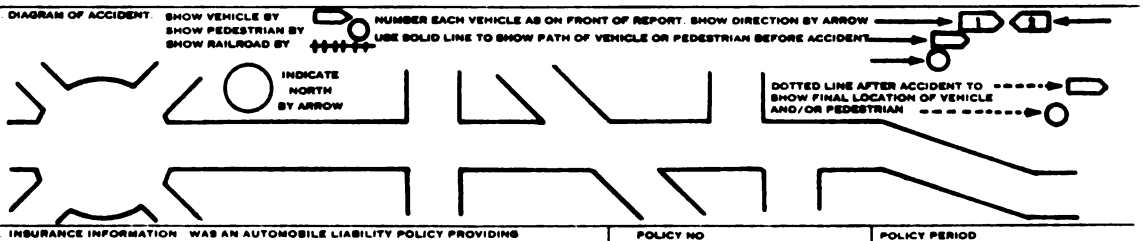
WERE LANES SEPARATED BY:
- CURB
- MALL
- PAVEMENT MARKINGS
- NOT SEPARATED

17. ACTIONS OF VEHICLE BEFORE ACCIDENT (CHECK ONE BOX FOR EACH VEHICLE)

	VEHICLE 1	VEHICLE 2	VEHICLE 3
1 GOING STRAIGHT AHEAD	☐	☐	☐
2 OVERTAKING	☐	☐	☐
3 MAKING RIGHT TURN	☐	☐	☐
4 MAKING LEFT TURN	☐	☐	☐
5 MAKING A "U" TURN	☐	☐	☐
6 BACKING	☐	☐	☐
7 STARTING IN TRAF. LANE	☐	☐	☐
8 STOPPED IN TRAF. LANE	☐	☐	☐
9 STARTING FROM PARKING	☐	☐	☐
10 SLOWING OR STOPPING	☐	☐	☐
11 SKIDDING	☐	☐	☐
12 PARKED	☐	☐	☐

18. DESCRIPTION AND APPARENT CAUSE OF ACCIDENT

19. DIAGRAM OF ACCIDENT. SHOW VEHICLE BY; SHOW PEDESTRIAN BY; SHOW RAILROAD BY; NUMBER EACH VEHICLE AS ON FRONT OF REPORT. SHOW DIRECTION BY ARROW; USE SOLID LINE TO SHOW PATH OF VEHICLE OR PEDESTRIAN BEFORE ACCIDENT; INDICATE NORTH BY ARROW; DOTTED LINE AFTER ACCIDENT TO SHOW FINAL LOCATION OF VEHICLE AND/OR PEDESTRIAN



20. INSURANCE INFORMATION. WAS AN AUTOMOBILE LIABILITY POLICY PROVIDING YOU AT LEAST $10,000/20,000 BODILY INJURY AND $5,000 PROPERTY DAMAGE LIABILITY INSURANCE IN EFFECT ON THE DATE OF THE ACCIDENT? ☐ YES ☐ NO; POLICY NO; POLICY PERIOD FROM TO

NAME OF INSURANCE COMPANY WHICH ISSUED POLICY; NAME OF AGENT

NAME AND ADDRESS OF POLICYHOLDER

WAS VEHICLE OPERATED UNDER PERMIT OR ICC? IF SO, GIVE NO; NAME AND ADDRESS OF PERMIT HOLDER

IS FORM SR 23 (FLEET COVERAGE) ON FILE WITH THE COMMISSIONER? IF SELF INSURED GIVE CERT. NO; AND STATE

21. DID POLICE INVESTIGATE ACCIDENT ☐ YES ☐ NO; NAME AND RANK OF OFFICER; DEPT.

DATE FILED; SIGNATURE OF DRIVER OF VEHICLE NO. 1; IF SIGNED BY PERSON OTHER THAN DRIVER, GIVE REASON AND INDICATE IF PARTICIPANT WAS IN ACCIDENT OR OWNER OF VEHICLE

APPENDIX C

OFFICE OF PARKS AND RECREATION ACCIDENT REPORT FORM MRV-202S

MRV-202S (10/70)

NEW YORK STATE EXECUTIVE DEPARTMENT - - PARKS AND RECREATION
DIVISION OF MARINE & RECREATIONAL VEHICLES
ALBANY, NEW YORK 12226

DATE OF THIS REPORT

REGISTRATION NUMBER OF REPORTING SNOWMOBILE

SNOWMOBILE ACCIDENT REPORT

Pursuant to the provisions of Section 8-0309 of the New York State Snowmobile Law, the operator of a snowmobile involved in an accident resulting in death, personal injury or damage to property of $100.00 or more must report the accident to the Office of Parks and Recreation, Division of Marine and Recreational Vehicles within 7 days. If the operator is physically incapable of making such report, and there is another participant in the accident, then such participant shall make the report. In cases where the operator and the participants are physically incapable of making such reports, then the owner shall make the report. Failure to comply with these requirements shall constitute an offense punishable by a fine of not less than five dollars nor more than one hundred dollars.

1. TIME AND PLACE OF ACCIDENT

A. Date of Accident	B. Time AM PM	C. State	D. Nearest City, Town, Etc.	E. County

F. Exact Location *(Name of trail or area, fix location precisely)*

G. Type of Terrain: 1. Woods; 2. Field; 3. Trail; 4. Roadway

2. DATA *(Check all appropriate items in box to left of number or fill in)*

A. Name & Address of Operator

B. Operator's Age

C. Operator's Experience: 1. Less than 20 hours; 2. 20 to 100 hours; 3. 100 to 500 hours; 4. Over 500 hours

D. Name & Address of Owner

5. Have you had formal instruction in snowmobiling?

6. Operator's Certificate No.

E. Snowmobile Track: 1. Rubber; 2. Rubber & Steel Cleats; 3. Bogie Wheels; 4. Slide Suspension; 5. Width of Track

F. Snowmobile		G. Propulsion		
Make	1. Length Ft.	1. 1 Cylinder	4. Other	6. Total Horsepower
Weight	2. Width Ft.	2. 2 Cylinders	5. C.C.	
Model	3. Year Built	3. 3 Cylinders		

3. WEATHER AND SNOW CONDITIONS *(Check all appropriate items in box to left of number)*

A. Weather		B. Visibility	C. Snow	D. Wind	
1. Clear	4. Snow	1. Good	1. Smooth	1. None	4. Strong
2. Fog	5. Other *(Specify)*	2. Fair	2. Rough	2. Light	5. Storm
3. Rain		3. Poor	3. None	3. Moderate	

4. OPERATION AT TIME OF ACCIDENT *(Check all appropriate items in box to left of number or fill in)*

A. Underway			B. Not Underway		C. Number of Persons on Snowmobile *(Specify)*
1. Cruising	3. Towing Sled	6. Racing	1. Attended	4. Other *(Specify)*	
2. Maneuvering	4. Towing *(Other)*	7. Other *(Specify)*	2. Parked		
	5. Being Towed		3. Fueling		

5. TYPE, NATURE OR CLASSIFICATION OF ACCIDENT *(Check all appropriate items in box to left of number or fill in)*

SNOWMOBILE CASUALTY

1. Overturning	2. Collision with Person	5. Fire or Explosion (Fuel)	7. Collision with Another Snowmobile	9. Struck Hidden Object in Snow	11. Other *(Specify)*
2. Skidding	4. Collision with Motor Vehicle	6. Fire or Explosion (Other than Fuel)	8. Collision with a fixed object	10. Disappearance of Snowmobile	

B. Deaths		C. Personal Injuries				D. Property Damage		
No.	Cause	No.	Cause	No.	Cause	Item Damaged	This Vessel	Other Vessels
	1.		1. Fell Off		5. Struck by other snowmobile	1. Snowmobile	$	$
	2.		2. Track Injury		6. Other *(Specify)*	2. Accessory Equipment	$	$
	3.		3. Burns or Scalds			3. Damage to Other Property *(Describe on reverse)*		$
			4. Crushed or Pinched					

GIVE A BRIEF BUT CLEAR DESCRIPTION OF THE ACCIDENT, USE ADDITIONAL SHEETS IF NECESSARY

NOTE- COMPLETE TWO COPIES OF THIS FORM
SEND ONE COPY TO THE DIVISION OF MARINE & RECREATIONAL VEHICLES
SEND ONE COPY TO SHERIFF OF COUNTY IN WHICH ACCIDENT OCCURRED

CONTINUED ON REVERSE SIDE

What, in your opinion, caused the accident?

7. LIVES LOST	8. PERSONS INJURED
A. List Names & Addresses	A. List Names, Addresses, Nature and Extent of Injury

9. PROPERTY DAMAGE

Describe Property Damaged, Include Name & Address of Owner:

10. WITNESSES	11. ASSISTANCE FURNISHED
A. List Names & Addresses of All Known Witnesses	A. List Known Police, Fire Dept., Rescue Squads, Etc.

12. PERSONS ON SNOWMOBILE *(Other than operator)*

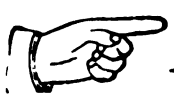
NAME	ADDRESS	AGE
NAME	ADDRESS	AGE
NAME	ADDRESS	AGE

13. REMARKS: *(Include opinion how similar accidents can be prevented or avoided in the future.)*

14. NAME, ADDRESS OF OPERATOR AND REGISTRATION NUMBER OF OTHER VEHICLES INVOLVED.

I declare under the penalties of perjury that to the best of my knowledge and belief, the description and statements made herein are true and correct.

OPERATOR'S SIGNATURE	Telephone Number



(COMPLETE ALL APPLICABLE SECTIONS OR FORMS WILL BE RETURNED)

APPENDIX D

VEHICLE AND TRAFFIC LAWS RELATIVE TO SNOWMOBILES IN EFFECT DURING WINTER SEASON 1969-1970

VEHICLE AND TRAFFIC LAWS RELATIVE TO SNOWMOBILES IN EFFECT DURING WINTER SEASON 1969-1970

375-a. Equipment for snowmobiles and snow travellers. It shall be unlawful to operate on any public highway in this state any snowmobile or snow traveller unless it is equipped with a suitable braking device or system, a suitable horn or other device for signaling, a red reflector approved by the commissioner attached to the rear, and if operated on a public highway during the period from one-half hour after sunset to one-half hour before sunrise, one white or amber lighted lamp approved by the commissioner in front, one lighted red lamp on the rear and a light illuminating the number plate carried on the rear.

410. Registration of motorcycles, snowmobiles and snow travellers; fees; renewals. No motorcycles, snowmobiles or snow travellers shall be operated or driven upon the public highways of this state without first being registered in accordance with provisions of this article, except as otherwise expressly provided in this chapter.

Every owner of a motorcycle, snowmobile or snow traveller which shall be operated or driven upon the public highways of this state shall, except as otherwise expressly provided, cause to be filed, by mail or otherwise, in the office or a branch office of the commissioner, or with an agent of the commissioner, constituted as provided in this chapter, an application for registration, addressed to the commissioner, and on a blank to be prepared under the direction of and furnished by the commissioner for that purpose, containing: (a) a brief description of the motorcycle to be registered, including the name of the manufacturer and factory number of such vehicle; (b) the name, residence, including county and business address of the owner of such motorcycle, snowmobile or snow traveller.

2. Registration record. Upon the receipt of a sufficient application for registeration, as provided in this article, the commissioner or agent receiving it shall register such motorcycle, snowmobile or snow traveller, and maintain a record of the registration of such motorcycle, snowmobile or snow traveller under the distinctive number assigned to such motorcycle, snowmobile or snow traveller, as provided in this section, and the information in such record may be obtained upon payment of the fees specified in section two hundred two of this chapter.

3. Certificate of registration. Upon the filing of such application and the payment of the fee hereinafter provided, the commissioner shall assign to such motorcycle, snowmobile or snow traveller, a distinctive number and, without expense to the applicant, issue and deliver in such manner as the commissioner may select to the owner a certificate of registration in such form as the commissioner may prescribe, and a number plate at a place within the state of New York named by the applicant in his application. A certificate of registration shall not be valid unless it is signed by the person who signed the application for registration. In the event of the loss, mutilation or destruction of any certificate of registration or number plate, the owner of a registered vehicle may file such statement and proof of the facts as the commissioner shall require, with a fee of one dollar, in the office of the commissioner, or, unless and until the commissioner shall otherwise direct, in the office of the agent who issued the certificate or plate and the commissioner or his agent, as the case may be, shall issue a duplicate or substitute.

4. Times for registration and reregistration. Registration applied for and certificates issued under any application shall expire on a date determined by the commissioner. Registration shall be renewed periodically in the same manner and upon payment of the same annual fee as provided in this section for registration, to take

effect and to expire on dates to be determined by the commissioner. Provided, however, that the commissioner shall have authority to fix the length of time for which any such vehicle which is registered without fee shall be registered. Provided further, however, that renewal of a registration may be used during the thirty day period immediately preceding the expiration date of such registration including such expiration date. Provided, however, that when a registration or renewal thereof is made for a period of more or less than one calendar year, the annual fees as provided in this section shall be increased or reduced proportionately on a monthly computation basis.

5. Registration fees. The following fees shall be paid to the commissioner or agent upon the registration or reregistration of a motorcycle, or snowmobile or snow traveller in accordance with the provisions of this article: If the weight of the motorcycle, snowmobile or snow traveller fully equipped be two hundred pounds or less, two dollars, if such weight be more than two hundred pounds, and not more than five hundred fifty pounds, five dollars and if such weight be more than five hundred fifty pounds, one dollar for each one hundred pounds or major fraction thereof.

9. "Snowmobile" and "snow traveller" as used in this section shall mean a vehicle designed for travel over snow or ice, supported by skis or runners and propelled by a traction wheel or belt.

APPENDIX E

THE HARRIS BILL (4862-A) RELATIVE TO SNOWMOBILE IN EFFECT DURING WINTER SEASON 1970-1971

THE HARRIS BILL (4862-A) RELATIVE TO SNOWMOBILE

IN EFFECT DURING WINTER SEASON 1970-1971

Section 1. Section one hundred twenty-five of the vehicle and traffic law, as last amended by chapter seven hundred six of the laws of nineteen hundred sixty-seven, is hereby amended to read as follows:

125. Motor Vehicles. Every vehicle operated or driven upon a public highway which is propelled by any power other than muscular power, except (a) electrically-driven invalid chairs being operated or driven by an invalid, (b) vehicles which run only upon rails or tracks, and (c) snowmobiles as defined and regulated in article eight of the conservation law. For the purposes of title four, the term motor vehicle shall exclude fire and police vehicles. For the purposes of titles four and five the term motor vehicle shall exclude farm type tractors used exclusively for agricultural purposes, or for snow plowing, other than for hire, farm equipment, including self-propelled machines used exclusively in growing, harvesting or handling farm produce, and self-propelled caterpillar or crawler-type equipment while being operated on the contract site.

2. Subdivision thirty-three of section three hundred seventy-five of such law, as added by chapter six hundred eight of the laws of nineteen hundred sixty and, as last amended by chapter three hundred fifty-nine of the laws of nineteen hundred sixty-seven, is hereby amended to read as follows:

33. The provisions of this section shall not apply to fire and police vehicles, self-propelled combines, self-propelled corn and hay harvesting machines, farm type tractors used exclusively for agricultural purposes or for snow plowing other than for hire, and self-propelled caterpillar or crawler-type equipment while being operated on the contract site except when reference is specifically made to such vehicle.

3. Section three hundred seventy-five-a of such law is hereby repealed.

4. Section four hundred ten of such law, such section having been amended by chapter nine hundred seventy-four of the laws of nineteen hundred sixty-six, subdivision two thereof having been last amended by chapter eighty of the laws of nineteen hundred sixty-seven, subdivisions four

and five thereof having been last amended by chapter one hundred seventeen of the laws of nineteen hundred sixty-seven is hereby amended to read as follows:

410. Registration of motorcycles; fees; renewals. 1. Registration by owners. No motorcycles shall be operated or driven upon the public highways of this state without first being registered in accordance with the provisions of this article, except as otherwise expressly provided in this chapter.

Every owner of a motorcycle which shall be operated or driven upon the public highways of this state shall, except as otherwise expressly provided, cause to be filed, by mail or otherwise, in the office or a branch office of the commissioner, or with an agent of the commissioner, constituted as provided in this chapter, an application for registration, addressed to the commissioner, and on a blank to be prepared under the direction of and furnished by the commissioner for that purpose, containing: (a) A brief description of the motorcycle to be registered, including the name of the manufacturer and factory number of such vehicle; (b) the name, residence, including county and business address of the owner of such motorcycle.

2. Registration record. Upon the receipt of a sufficient application for registration, as provided in this article, the commissioner or agent receiving it shall register such motorcycle, and maintain a record of the registration of such motorcycle under the distinctive number assigned to such motorcycle, as provided in this section, and the information in such record may be obtained upon payment of the fees specified in section two hundred two of this chapter.

3. Certificate of registration. Upon the filing of such application and the payment of the fee hereinafter provided, the commissioner shall assign to such motorcycle, a distinctive number and, without expense to the applicant, issue and deliver in such manner as the commissioner may select to the owner a certificate of registration, in such form as the commissioner may prescribe, and a number plate at a place within the state of New York named by the applicant in his application. A certificate of registration shall not be valid unless it is signed by the person who signed the application for registration. In the event of the loss, mutilation or destruction of any certificate of registration or number plate, the owner of a registered vehicle may file such statement and proof of the facts as the commissioner shall require, with a fee or one dollar, in the office of the commissioner, or, unless and until the commissioner shall otherwise direct, in the office of the agent who issued the certificate or plate and the commissioner or his agent, as the case may be, shall issue a duplicate or substitute.

4. Times for registration and reregistration. Registration applied for and certificates issued under any application shall expire on a date determined by the commissioner. Registration shall be renewed periodically in the same manner and upon payment of the same annual fee as provided in this section for registration, to take effect and to expire on dates to be determined by the commissioner. Provided, however, that the commissioner shall have authority to fix the length of time for which any such vehicle which is registered without fee shall be registered. Provided further, however, that renewal of a registration may be used during the thirty day period immediately preceding the expiration date of such registration including such expiration date. Provided, however, that when a registration or renewal thereof is made for a period of more or less than one calendar year, the annual fees as provided in this section shall be increased or reduced proportionately on a monthly computation basis.

5. Registration fees. The following fees shall be paid to the commissioner or agent upon the registration or reregistration of a motorcycle in accordance with the provisions of this article: If the weight of the motorcycle fully equipped be two hundred pounds or less, two dollars, if such weight be more than two hundred pounds and not more than five hundred fifty pounds, five dollars and if such weight be more than five hundred fifty pounds, one dollar for each one hundred pounds or major fraction thereof. The provisions hereof with respect to the payment of registration fees shall not apply to motorcycles owned or controlled by the state, a city, county, village or town or any of the departments thereof, or any school district or county extension service association, but in other respects shall be applicable.

6. Fees in lieu of taxes. The registration fees imposed by this article upon such vehicles shall be in lieu of all taxes, general or local, to which motorcycles may be subject.

7. "Motorcycle" as used in this section shall mean a motorcycle as defined by section one hundred twenty-three of this chapter.

5. The conservation law is hereby amended by adding thereto a new article to be article eight thereof, to read as follows:

ARTICLE 8

SNOWMOBILES

TITLE 1. GENERAL PROVISIONS.

2. REGISTRATION AND NUMBERING.

3. CONTROL PROVISIONS.

4. ENFORCEMENT.

5. MISCELLANEOUS.

TITLE 1

GENERAL PROVISIONS

8-0101. Legislative purpose.

It is the intent of this article to promote the safe and proper use of snowmobiles for recreation and commerce in this state by encouraging their use and development and minimizing detrimental effects of such use upon the environment.

8-0103. Jurisdiction of Conservation Department.

The registration and the control and supervision of the use of snowmobiles shall be under the jurisdiction of the Conservation Department and may be administered by such division thereof as the Commissioner shall determine.

8-0105. Definitions.

1. For the purposes of this article the terms defined herein shall have the meaning ascribed to them.

2. "Person" includes an individual, partnership, corporation, the state and its agencies and subdivisions, and any body of persons, whether incorporated or not.

3. "Snowmobiles" means a self-propelled vehicle designed for travel on snow or ice steered by skis or runners, and supported in part by skis, belts or cleats.

4. "Owner" means a person other than a lien holder, having the property in or title to a snowmobile.

5. "Operate" means to ride in or on, other than as a passenger, use or control the operation of a snowmobile in any manner, whether or not said snowmobile is under way.

6. "Operator" means every person who operates or is in actual physical control of a snowmobile.

7. "Register" means the act of assigning a registration number to a snowmobile.

8. "Commissioner" means the Conservation Commissioner acting directly or through his authorized agent.

9. "Department" means the Conservation Department.

10. "Public Way" means any highway, road, street, avenue, alley, public place or public driveway.

11. "Roadway" means that portion of a highway improved, designed, or ordinarily used for vehicular travel.

12. "Street or Highway" means the entire width between boundary lines of any way or place when any part thereof is open to the use of the public, as a matter of right for the purpose of vehicular traffic.

13. "Cowling" means the forward portion of the snowmobile usually of fiberglass, or similar material, surrounding the motor and clutch assembly.

14. "Dealer" means a person, partnership, or corporation engaged in the business of selling snowmobiles at wholesale or retail.

15. "Special Event" means rallies, races, demonstrations, exhibits or organized events conducted under written authorization of the Commissioner.

16. A "Snowmobile Operator's Certificate" means a certificate issued by the Commissioner evidencing that the holder thereof has successfully completed an approved course of instruction in snowmobile operation and safety as hereinafter provided.

8-0107. Powers and Duties.

For the purpose of carrying out the provisions of this aritcle, the Department shall have the power, duty and authority, to administer and enforce all statutes, rules and regulations, except as otherwise provided by statute, relating to the operation and use of snowmobiles within the state, including but not limited to the following:

1. Registration, identification, numbering, classification and control;

2. Equipment;

3. Standards of safety;

4. Use on state lands and waters;

5. Educational programs;

6. State aid to localities;

7. Promulgate rules and regulations to effectuate the purposes of this article.

TITLE 2

REGISTRATION AND NUMBERING

8-0201. Registration.

1. Except as hereinafter provided, no person shall after January 1, 1971 operate any snowmobile within the state unless such snowmobile has been registered and numbered in accordance with the provisions of this article. Notwithstanding the mandatory registration of snowmobiles, effective January 1, 1971, the Department is nevertheless authorized to assign identification numbers and register snowmobiles on and after October 1, 1970.

2. After January 1, 1971, no person shall operate or permit the operation of any such snowmobile within the state unless it is registered and numbered in accordance with the provisions of this article and the registration number for such snowmobile is in full force and effect and displayed as hereinafter provided.

3. The Commissioner or his duly authorized representative is authorized to register a snowmobile, issue a registration certificate, and assign a registration number to such snowmobile. All such registrations shall be valid for a period of one year unless, prior to expiration of the one year period it is surrendered, cancelled, revoked or suspended pursuant to the provisions of this article.

4. A number once assigned under this section shall remain with the registered snowmobile until the snowmobile is destroyed, abandoned or permanently removed from the

state, or until changed or terminated by the Commissioner.

5. Fees for registration of snowmobiles, to be collected by the Commissioner under this article are as follows:

a. A fee of five dollars for each individual resident registration.

b. A fee of five dollars for each indvidual non-resident registration.

c. A fee of twenty-five dollars for each dealer registration.

d. A fee of one dollar for replacement of loss, mutilated or destroyed certificate.

6. The owner of each snowmobile requiring registry under this section shall present to the Commissioner, an application for registration, on a blank to be prepared and furnished by the Commissioner for that purpose. The said application shall contain or be accompanied by such evidence of the ownership of the snowmobile described in the application as may be required by the Commissioner.

7. Any person who is in the business of selling snowmobiles shall register as a dealer. The Commissioner, upon receipt of application and the required fee, shall assign a distinguishing dealer registration number to the registrant and issue appropriate registration certificate to him. Dealer registrations are not transferrable.

8. Renewal. Every owner of a snowmobile and dealers shall renew his registration in such manner as the Commissioner shall prescribe, upon payment of the same registration fees provided in subdivision five hereof.

9. Validating date tag. At the time of the original registration and at the time of each annual renewal thereof, the Commissioner shall also issue to said registrant a date tag or tags indicating the validity of the current registration and the expiration date thereof, which validating date tag or tags shall be affixed to the snowmobile in such manner as the Commissioner may prescribe.

Notwithstanding the fact that a snowmobile has been assigned an identifying number, it shall not be considered as validly registered within the meaning of this section unless a validating date tag and current registration certificate has been issued.

10. Denial of current registration. In the event that a snowmobile sought to be registered or reregistered does not, after inspection and testing, comply with the provisions respecting equipment established by Section 8-0305 or by the regulations of the Department, the Commissioner may deny the issuance of a validating date tag and current certificate of registration.

11. Snowmobiles owned by state or political subdivision. A registration number shall be assigned, without the payment of a fee, for snowmobiles owned by the State of New York or a political subdivision thereof or snowmobiles owned by volunteer organizations and used exclusively for emergency purposes, upon application therefor, provided however that each such snowmobile shall display the proper registration number assigned to it.

12. Exemptions. No registration shall be required by the following described snowmobiles:

a. Snowmobiles owned and used by the United States, another state, or a political subdivision thereof, but such snowmobiles shall display the name of the owner on the cowling thereof.

b. Snowmobiles covered by a valid registration or license of another state, province or country.

13. Out of State Snowmobile Registration. The registration provisions of this article shall not apply to nonresident owners who have complied with the registration and licensing laws of the state, province, district or country of residence, provided that the snowmobile is appropriately identified in accordance with the laws of the state of residence. Nothing in this subdivision shall be construed to authorize the operation of any snowmobile contrary to the provisions of this article.

8-0203. Display of Registration Numbers.

1. The registration numbers assigned to a snowmobile shall be displayed on the vehicle at all times in such manner as the Commissioner may, by regulation, prescribe. No number other than the number assigned to a snowmobile by the Commissioner or the identification number of the registration in another state, shall be painted, attached or otherwise displayed on either side of the cowling except that racing numbers on a snowmobile being operated in prearranged organized special events may be temporarily displayed for the duration of the race.

2. Dealer registration numbers shall conform to the requirements set forth in dubdivision (1) of this Section

with the exception that the numbers assigned may be printed upon or attached to a removable plaque or plaques to be temporarily but firmly affixed to the snowmobile being demonstrated or tested.

3. Numbers issued to dealers and manufacturers for the purpose of demonstration or testing, shall be used exclusively for these purposes and no other use is permitted.

8-0205. Registration Record.

Upon receipt of a sufficient application for registration of a snowmobile, as provided in this article, the Commissioner, or his agent receiving it, shall enter upon the records of the Department the registration of such vehicle under the distinctive number assigned to such snowmobile as provided in the Section.

8-0207. Certificate of Registration.

1. Certificate. Upon the filing of such application and payment of the fee as provided in this section, the Commissioner, or his agent, shall assign to such snowmobile a distinctive number and, without expense to the applicant, issue and deliver in such manner as the Commissioner may select to the owner a certificate of registration, in such form as the Commissioner shall prescribe. A certificate of registration shall not be valid unless it is signed by the person who signed the application for registration. In the event of the loss, mutilation or destruction of any certificate of registration the owner of the registered snowmobile may file such statement and proof of the facts as the Commissioner shall require, with a fee of one dollar, to the Department, for the issuance of a duplicate or substitute.

2. Carrying Certificate. Every person operating a snowmobile registered or transferred in accordance with any of the provisions of this article shall upon demand of any magistrate, Conservation Enforcement Officer or other representative of the Department, police officer or State policeman or any peace officer, produce for inspection the certificate of registration for such snowmobile and shall furnish to such officer any information necessary for the identification of such snowmobile and its owner. The failure to produce the certificate of registration as provided herein shall be presumptive evidence in any court of competent jurisdiction of operating a snowmobile which is not registered as required by this article.

3. Change of Residence. It shall be the duty of every owner holding a certificate of registration to notify the Department, in writing, of any change of residence of such person within fifteen days after such change occurs, and to

inscribe on such certificate, in the place provided, a record of such change of residence.

4. Change of Ownership. Whenever the ownership of a snowmobile is transferred or the use of a snowmobile for which a registration certificate has already been issued is discontinued, the old registration certificate shall be properly signed and executed by the owner showing that the ownership of the snowmobile has been transferred or its use discontinued and returned to the Department within fifteen days after transfer or discontinuance. If there is a change of ownership of a snowmobile for which a registration certificate has previously been issued, the new owner shall apply for a new certificate. He shall set forth the original number issued in the application accompanied by the old registration properly signed by the previous owner and with the required fee of five dollars submit to the Department, for registration. In the event that such snowmobile was purchased through a bona fide dealer, then said application must be accompanied by a dealer's form, as prescribed by the Commissioner, numbered, completed and signed by the dealer, or his agent and signed by the new owner.

5. Destruction, Theft or Removal from State. It shall be the duty of every owner of a snowmobile registered pursuant to the provisions of this article to notify the Department, in writing, of the destruction, theft or permanent removal of such snowmobile from the state, within fifteen days thereafter; and in the event of the destruction or theft of such, shall surrender the certificate of registration with such notice.

8-0209. Licensing by Political Subdivisions.

No political subdivision of the state shall require licensing or registration of snowmobiles which are covered by the provisions of this article; nor shall they require possession of a valid motor vehicle operator's license as a condition to permissable operation of a snowmobile on lands owned or controlled by such subdivision.

Nothing herein shall however prohibit the requirement of a permit by state or local parks for use of snowmobiles on park lands. No charge for such use may be made, except the usual charge, if any, for admission to such park or parking privileges.

TITLE 3

CONTROL PROVISIONS

8-0301. Rules and Regulations.

With a view of achieving maximum use of snowmobiles and minimizing the detrimental effect thereof upon the environment, the Conservation Commissioner shall adopt rules and regulations relating to and including, but not limited to the following:

1. Registration of snowmobiles and display of registration numbers.

2. Use of snowmobiles insofar as fish and wildlife resources are affected.

3. Use of snowmobiles on public lands and waters under the jurisdiction of the Conservation Department.

4. Uniform signs to be used by state, counties, towns, cities, and villages, which are necessary or desirable to control direct, or regulate the operation and use of snowmobiles. Such signs as may be designated for use on public highways shall also be approved by the Commissioner of Transportation.

5. Specifications relating to equipment required for safety as provided in Section 8-0305.

6. Specifications relating to snowmobile mufflers and the limitations on decibels of sound emitted by snowmobiles.

7. Requirements for the protection of private property or interests therein occasioned by the use of snowmobiles.

8. Establishment of a comprehensive snowmobile information and safety education and training program, including provision for issuance of snowmobile safety certificates for operation of snowmobiles by youthful operators.

9. The regulations pertaining to and the granting of permits for the conduct of all pre-arranged special events as provided in subdivision three of section 8-0303.

8-0303. Operation of Snowmobiles.

1. Operation generally. It shall be unlawful for any person to drive or operate any snowmobile in the following unsafe or harassing ways:

a. Imprudent Speed. At a rate of speed greater than reasonable or proper under the surrounding circumstances;

b. Reckless operation. In a careless, reckless or negligent manner so as to create an actual risk to the person or property of another or to cause injury or damage thereto;

c. Intoxication and drugs. In the course of any operation other than property owned or leased by the owner or operator or a club or association of which he is a member or guest, while in an intoxicated condition or under the influence of narcotics or drugs as defined by Section 114-a of the Vehicle and Traffic Law;

d. Lights. Between sunset and sunrise or when required for safety without displaying at least one lighted headlight and lighted tail-light.

e. Railroad Tracks. On the tracks of an operating railroad.

f. Plantings. In any tree nursery or planting in a manner which damages or destroys growing stock, or create a substantial risk thereto.

g. On Lands of Another. On private property, without the consent of the owner or lessor thereof. Any person operating a snowmobile upon lands of another shall stop and identify himself upon the request of the landowner or his duly authorized representatives, and, if requested to do so by said landowner shall promptly remove said snowmobile from the premises.

2. Operation on Streets and Highways. It shall be unlawful for any person to drive or operate any snowmobile on public streets or highways other than in the following cases and no other:

a. On the State Thruway, interstate highways and limited-acess state highways. Snowmobiles shall not be operated on the State Thruway, or interstate and limited-access state highways except for emergency travel only,

during the period of time when, and at locations where permitted by the Thruway Authority or the Commissioner of Transportation.

b. On other public streets and highways. On state highways other than the Thruway, interstate highways and limited-acess highways and on county, town, city and village streets, roadways and highways, snowmobiles may take a direct crossing at any time of the day provided:

(1) The crossing is made at an angle of approximately ninety degrees to the direction of the highway and at a place where no obstruction prevents a quick and safe crossing; and

(2) The snowmobile is brought to a complete stop before crossing the shoulder or main traveled way of the highway, and

(3) The driver yields the right of way to all oncoming traffic which constitutes an immediate hazard; and

(4) If the crossing is made between the hours of sunset and sunrise or in conditions of reduced visability, only if both front and rear lights are on.

c. Other than as provided in clause a and b above, snowmobiles may be operated on public streets and highways in the following cases and no other:

(1) Emergencies. In an emergency, as so declared by the appropriate chief executive officer, and for the purpose of emergency travel only, on any public highway, during the period of time when and at locations where snow upon the roadway renders travel by automobile impracticable;

(2) Culverts and Bridges. On state highways other than the Thruway, interstate and limited-acess highways, and on county, town, city or village streets and roads, when necessary to cross a bridge or culvert.

(3) Uncongested highways designated by municipality. On the shoulders of county, town, city or village streets or roads or portions thereof, which have been designated by appropriate law or ordinance by the municipality charged with the responsibility therefor, as uncongested and safe for snowmobile travel, a copy of which law or ordinance shall be filed with the Commissioner;

(4) Unplowed roads. On county, town, city or village streets or roads during the periods when and at locations where the road is customarily unplowed and unused during the winter months for automobile travel;

(5) Outside slopes. On state roads, other than the Thruway and interstate and limited-access highways, and on county, town, city and village roads and streets, on the slopes or area outside the guard rails, if any, and on the back side of any snow embankment at least fifteen feet from the outside edge of the shoulder of the road; and

(6) Access areas. On state roads, other than the Thruway and interstate and limited-access highways, and on county, town, city and village roads and streets, whenever it is otherwise impossible to gain immediate access to an area adjacent to such public highway where a snowmobile is to be operated, parallel to the highway and for a distance of not to exceed five hundred yards for the purpose of gaining access to and from the area of operation, provided however, that the portion of the highway right of way so to be used is adequately marked and identified as such snowmobile access area.

(7) Streets or highways or portions thereof upon which snowmobiles travel is permitted as provided in paragraphs (3) and (6) of this clause c of subdivision two, and in clause a of subdivision four of this section, shall be so designated, in the case of state roads by the State Superintendent of Transportation, and in the case of other roads or streets by the appropriate county, town, city or village boards, and shall be identified by road markers in such manner as may be provided by rules and regulations of the Commissioner. All signs or road markers shall be in conformity with the Manual of Uniform Traffic Control Devices, and shall be erected at the expense of the municipality having jurisdiction of said highway, provided however, that such municipality may accept funds or contributions therefor from private persons, clubs or associations interested in the promotion of snowmobiling.

d. No person shall operate a snowmobile within the street or highway right of way of any county, town, village or city, or on any state highway when otherwise permitted between sunset and sunrise except on the right side of such right of way and in the same direction as the highway traffic or the nearest lane of the roadway adjacent thereto.

e. When operated on a public highway, snowmobiles shall travel in single file and shall not ride tandem or abreast each other except in overtaking another snowmobile.

d. Special Events. The Commissioner may authorize the holding of rallies, exhibitions, races and organized snowmobile events within the State of New York. He shall adopt and may, from time to time, amend regulations concerning the equipment necessary for safe operation of snowmobiles and

for the safety of operators, participants, and observers in such special events. Whenever such special event is proposed to be held in the State of New York, the person in charge thereof shall, at least fifteen days prior thereof, file an application with the Commissioner to hold such special event. The application shall set forth the date of and location where it is proposed to hold such rally, race, exhibition, or organized event, and such other information as the Commissioner may require, and it shall not be conducted without written authorization of the Commissioner. Copies of such regulations shall be furnished by the Department to any person making an application therefor.

Any person sponsoring the event who shall violate any regulation adopted pursuant to this subdivision three shall for every such violation be subject to a fine of not to exceed two hundred fifty dollars.

4. Regulations by Political Subdivisions. a. In addition to the permissible use of public highways specified in clause c above, a county legislature or a town, city or village board, may be resolution, law or ordinance, permit the operation of snowmobiles on the roadway, shoulder or inside bank of any county, town, city or village highway or street, in case the outside bank or slope is impassable. Copies of such law, ordinance or regulation shall be filed with the Department and said highway or street shall be identified by road markers in such manner as may be provided by rules and regulation of the Commissioner.

b. Any county, city or village or town may regulate the operation of snowmobiles on public lands, waters, and property under its jurisdiction and on streets and highways within its boundaries by law, resolution or ordinance of the governing body, provided such regulations are not inconsistent with the provisions of this article and rules and regulations promulgated thereunder. The law, ordinance or regulation of such governmental unit may provide that in the operation of a snowmobile upon such public lands, waters, property and roads, proof of financial security of the owner of the snowmobile may be required, but such law, ordinance or regulation may not require the operator of the snowmobile to possess a motor vehicle operator's license, and may not impose a fee for the use of public lands or waters or the access thereto owned or under the jurisdiction of the Conservation Department or any other agency or municipal subdivision of the state. Copies of such law, regulation or ordinance shall be filed with the Department.

5. Snowmobiles operated at special events. Snowmobiles operated at special events shall be exempt from the provisions of this article concerning registration, mufflers

and lights during the time of such operation, including all pre-race practice at the location of said meet.

6. Snowmobile Not a Motor Vehicle. Notwithstanding its limited use on the public highways, a snowmobile shall not be deemed a motor vehicle within the meaning of Section 125 of the Vehicle and Traffic Law and Sections 10.00 and 165.05 of the Penal Law, or any other successor statutes.

8-0305. Equipment.

1. All snowmobiles operating within the State of New York shall be equipped with:

a. Head-lights. At least one white or amber head-lamp having a minimum candlepower of sufficient intensity to reveal persons and vehicles at a distance of at least one hundred feet ahead during hours of darkness under normal atmospheric conditions.

b. Tail-light. At least one red tail-lamp having a minimum candlepower of sufficient intensity to exhibit a red light plainly visable from a distance of five hundred feet to the rear during hours of darkness under normal atmospheric conditions.

c. Brakes. A brake system in good mechanical condition.

d. Reflector material. Reflector material of a minimum area of 16 square inches mounted on each side of the cowling. Registration numbers or other decorative material, may be included in computing the required sixteen square inch area.

e. Mufflers. An adequate muffler system in good working condition. From and after June 1, 1972, no snowmobile manufactured after June 1, 1972, shall be sold or offered for sale, unless it is equipped with a muffler that limits engine noise to not more than eighty-two decibels as measured on the "A" scale at fifty feet. From and after June 1, 1974, no such snowmobile manufactured after June 1, 1974 shall be sold or offered for sale unless such muffler system limits engine noise to not more than seventy-three decibels.

2. Inspection and Testing. The Commissioner may adopt rules and regulations with respect to the inspection of snowmobiles and the testing of snowmobile mufflers.

3. No person shall have for sale, sell, or offer for sale in this state any snowmobile which fails to comply with the provisions of subdivision one, or which does not comply with the specifications for such equipment required

by the rules and regulations of the Commissioner after the effective date of such rules and regulations.

8-0307. Operation by Youthful Operators.

1. Age of operator. No person under the age of ten years shall operate a snowmobile except upon lands owned or leased by his parent or guardian, unless he is accompanied by a person over eighteen years of age or a person over fourteen years of age who hold a snowmobile safety certificate. "Leased lands" as herein used shall not include lands leased by an organization of which said operator or his parent or guardian is a member.

2. Snowmobile safety certificate. On and after October 1, 1971, except as provided in subdivision one herein, no person ten years and over and who has not reached his sixteenth birthday shall operate a snowmobile in the state, except upon lands of his parent or guardian unless and until he has received safety training as prescribed by the Commissioner and has received the appropriate snowmobile safety certificate issued by the Commissioner.

3. Exhibition of certificate. The failure of such a youthful operator to exhibit a snowmobile safety certificate upon demand to any magistrate, or any other officer having authority to enforce the provisions of this article, shall be presumptive evidence that such person is not the holder of such certificate.

4. After October 1, 1971, no owner of a snowmobile shall authorize or permit the operation thereof within the state by any person under the age of sixteen years unless the operator is the holder of a valid snowmobile safety certificate or except as authorized by subdivision one hereof.

8-0309. Accidents; Reports.

1. The operator of any snowmobile involved in any accident resulting in injuries to or death of any person or property damage to the estimated amount of one hundred dollars or more is sustained, shall within seven days after such accident report the matter in writing to the Department, with a copy thereof to the sheriff of the county in which said accident occurred. If such operator is physically incapable of making such report and there is another participant in the accident not so incapacitated, such participant shall make the report within the allotted time after such accident. In the event that there is no other participant and the operator is other than the owner, then the owner shall within the prescribed period of time, after

learning of the facts of such accident, report the matter to the Department, together with such information as may have come to his knowledge relating to such accident. Every such operator of a snowmobile, or surviving participant of any such accident, or the owner of the snowmobile involved in any such accident, shall make such other and additional reports as the Commissioner shall require.

2. Whenever any snowmobile meets with an accident involving a loss of life, personal injury or damage to property and the operator thereof has knowledge of such accident, he shall stop and give his name and address, the name and address of the owner thereof and the registration number assigned to said snowmobile to the injured person or the person sustaining the damage, or to a police officer, or in case no police officer nor the person sustaining the damage is present at the place where the damage occurred the same to the nearest law enforcement agency.

3. A police, sheriff, judicial officer or state police who investigates or receives infomation of an accident involving a snowmobile shall make a written report of the investigation or information received, and such additional facts relating to the accident as may come to his knowledge and mail the same within forty-eight hours to the Department and keep a record thereof in his office.

4. Failure of such persons to give notice of any accident requiring notice shall be prima facie evidence that such accident was not reported.

8-0311. Liability for Negligence.

Negligence in the use or operation of a snowmobile is attributable to the owner. Every owner of a snowmobile used or operated in this state shall be liable and responsible for death or injury to person or damage to property resulting from negligence in the use or operation of such snowmobile by any person using or operating the same with the permission, express or implied, of such owner, provided, however, that such operator's negligence shall not be attributed to the owner as to any claim or cause of action accruing to the operator or his legal representative for such injuries or death.

TITLE 4

ENFORCEMENT

8-0401. Enforcement.

Every law enforcement officer in the state, including Conservation Law Officers, forest rangers and state park police and other designated officers and employees of the Conservation Department shall enforce this article.

8-0403. Uniform Summons and Complaint.

1. The Commissioner shall be authorized to prescribe the form of summons and/or complaint on all cases involving a violation of any provision of this article or of any ordinance, rule or regulation relating to snowmobiles, or of any class or category of such cases, and to establish procedures for proper administrative controls over the disposition thereof.

2. The chief executive officer of each local police force including county, town, city and village police departments, sheriffs, and the Superintendent of State Police shall prepare or cause to be prepared such records and reports as may be prescribed hereunder.

3. The Commissioner shall have the power to adopt such rules and regulations as may be deemed necessary to accomplish the purposes and enforce the provisions of this section including requirements for reporting by trial courts having jurisdiction over snowmobile violations.

4. Any person who disposes of any uniform snowmobile summons and/or complaint in any other manner than that prescribed by law, rule or regulation shall be guilty of a misdemeanor.

8-0405. Affirmation of Complaint.

When a snowmobile summons has been served by a peace officer in cases of violation of any provision of this article or of any ordinance, rule or regulation enacted pursuant thereto or pursuant to any other law relating to snowmobiles, any chief, deputy-chief, captain, lieutenant or acting lieutenant, sergeant, or acting sergeant of a police department, or any sheriff, undersheriff, chief deputy, deputy sergeant or deputy in charge of snowmobiles

maintained by any sheriff in any county to whom the service of the snowmobile summons is reported, is hereby authorized to administer to such peace officer all necessary oaths in connection with the execution of the complaint to be presented in court by such peace officer in the prosecution of such offense, but a complaint need not be verified provided it shall be affirmed under penalty of perjury.

8-0407. Collection of Penalties.

1. An action to recover any penalty imposed under the provisions of this article may be brought in any court of competent jurisdiction in this State on order of the Conservation Commissioner and in the name of the people of the State of New York. In any such action all penalties incurred up to the time of commencing the action may be sued for and recovered therein and the commencement of an action to recover any such penalty shall not be, or be held to be, a waiver of the right to recover any other penalty. In case of recovery of any amount in an action brought to recover any such penalty the people shall be entitled to recover full costs, of course, and at the rates provided for civil actions.

2. Judgments recovered may be enforced by contempt. A person taken into custody shall be confined for not less than one day, and at the rate of one day for each dollar of the amount of the judgement recovered. No person shall be imprisoned more than once, or for more than six months on the same judgment. Imprisonment shall not operate to satisfy a judgement in a civil suit.

3. No person shall be excused from testifying or producing any books, papers or other documents in any civil action to recover any such penalty, upon the ground that his testimony might tend to convict him of a crime, or to subject him to a penalty or forfeiture. But no person shall be prosecuted, punished or subjected to any penalty of forfeiture for or on account of any such act, transaction, matter or thing concerning which he shall, under oath, have testified or produced documentary evidence and no testimony so given or produced shall be received against him upon any criminal investigation or proceeding; provided, however, that no person so testifying shall be exempt from prosecution or punishment for any perjury committed by him in his testimony. Nothing herein contained is intended to give, or shall be construed as in any manner giving, unto any corporation, immunity of any kind.

4. A defendant charged with a violation of any provision of this article may himself plead guilty to the charge in open court. He may also submit to the magistrate having jurisdiction, in person, by duly authorized agent,

or by registered mail, a statement (a) that he waives arraignment in open court and the aid of counsel, (b) that he pleads guilty to the offense as charges, (c) that he elects and requests that the charge be disposed of and the fine or penalty fixed by the court, (d) any explanation that he desires to make concerning the offense charged, and (e) that he makes all statements under penalty of perjury. Thereupon the magistrate may proceed as though the defendant had been convicted upon a plea of guilty in open court, provided however, that any imposition of fine or penalty hereunder shall be deemed tentative until such fine or penalty shall have been paid and discharged in full. If upon receipt of the aforesaid statement the magistrate shall deny the same, he shall thereupon notify the defendant of this fact, and that he is required to appear before the said magistrate at a stated time and place to answer the charge which shall thereafter be disposed of pursuant to the applicable provisions of law.

5. The court or justice before whom any person shall be tried, or the clerk of the court, if there be a clerk, shall at the termination of such trial or proceeding, forthwith mail or deliver to the Department at Albany, a certified statement of the disposition of the case or proceeding, giving the date thereof, the name of the defendant, the date and place of the violation, the name of each witness sworn in support of the charges and the amount of the fine or penalty paid.

6. The provisions of this section shall in no way prohibit the prosecution of violations of this article in any court of competent jurisdiction in the same manner as other offenses and crimes.

8-0409. Violations.

Any person who shall violate any provision of this article or any rule or regulation of the Department promulgated pursuant to Section 8-0301 shall be guilty of a violation and be punished by a fine of not less than five dollars nor more than one hundred dollars.

8-0411. Suspension and Revocation of Certificates and Permits.

The Commissioner may suspend or revoke a dealer's registration certificate issued pursuant to subdivision seven of Section 8-0201, a snowmobile safety certificate issued pursuant to section 8-0307 and permits for special events issued pursuant to subdivision three of Section 8-0303, upon satisfactory proof of violation of any provisions of this article or rules and regulations promulgated pursuant thereto. Upon said suspension or revocation all rights and

privileges accruing to such registrant, youthful operator or permittee shall terminate.

TITLE 5

MISCELLANEOUS PROVISIONS

8-0501. Disposition of Fees and Penalties.

1. On the first day of each month or within ten days thereafter, all fines and penalties collected for violations of this article under judgement of any court of justice, shall be paid over by such court or justice to the Comptroller of the state, with a statement accompanying the same, setting forth the action or proceeding in which such moneys were collected, the name and residence of the defendant, the nature of the offense, and the fines and penalty imposed.

2. The Conservation Commissioner shall deposit all moneys received by him from the registration of snowmobiles, the sale of snowmobile registration information, snowmobile publications and other services provided by the Department, all fines and penalties resulting from violations of this article in regard to the operation and use of snowmobiles and all fees collected by him under this article to the credit of the General Fund.

8-0503. State Aid to Municipalities.

1. Every county, city, town or village enforcing the provisions of this article shall be entitled to receive state aid as hereinafter provided. A county, city, town or village seeking reimbursement for expenditures incurred in enforcement of this article shall submit to the Commissioner by October first of each year an estimate of such expenditures for the current calendar year, in such form and containing such information as the Commissioner may require. Within one month after the close of the calendar year, each such county, city, town or village shall submit to the Commissioner a statement of authorized expenditures actually incurred, in such form and containing such information as he may require.

2. The amount of state aid to be allocated to counties, cities, towns or villages shall be determined by the Commissioner as hereinafter provided. The Commissioner

shall determine the percentage proportion which the authorized expenditures of each individual county, city, town or village, but not exceeding twenty-five thousand dollars for each county including the municipalities therein, shall bear to the total authorized expenditures of all the counties, cities, towns or village for enforcement of this article during the calendar year. Such percentage proportion shall then be applied against an amount equal to twenty-five per cent of the amount received by the Commissioner in fees received for registration of snowmobiles during such calendar year, to the extent only and not exceeding the sum of one hundred fifty thousand dollars.

The amount thus determined shall constitute the maxium amount of state aid to which each county, city, town or village shall be entitled; provided, however, that no county, city, town or village shall receive state aid in an amount in excess of one-half of its authorized expenditures as approved by the Commissioner for such calendar year.

The Commissioner shall certify to the Comptroller the amount thus determined for each county, city, town or village as the amount of state aid to be apportioned to such county, city, town or village.

8-0505. Application and Savings Clause.

Any work or proceeding initiated under any existing law which is repealed through the enactment of this article shall be continued legally to its termination and conclusion subject to the provisions of and in accordance with the procedure prescribed by such law.

All licenses hitherto issued by the Department of Motor Vehicles which have not expired shall continue to be effective until the expiration thereof and all rights accruing thereunder shall continue.

It is the intent that upon the enactment of this article into law all proceedings undertaken thereafter relative to the operation and use of snowmobiles in the State, as defined in the article, shall be administered under the authority of and by the provisions contained in this article. If any clause, sentence, paragraph or part of this article shall, for any reason be adjudged by any court of competent jurisdiction to be invalid, such judgement shall not affect, impair or invalidate the remainder thereof but shall be confined in its operation to the clause, sentence, paragraph or part thereof, directly involved in the controversy in which such judgment shall have been rendered.

6. This act shall take effect immediately.