REGIONAL VARIATION IN THE IMPORTANCE OF ICE HOCKEY IN NORTH AMERICA-1988

By

JERRY PETER HENZEL

Bachelor of Education

University of Manitoba

Winnipeg, Manitoba

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REGIONAL VARIATION IN THE IMPORTANCE OF ICE HOCKEY IN NORTH AMERICA-1988

Thesis Approved:

J. F. Rooney Jr.
Thesis Adviser

Jan Wells

Stephen W Tweedie

Norman N. Durham
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

The origin of ice hockey is shrouded in mystery. Scholars have traced forerunners of present-day hockey to the Dutch, Greeks, English, Scandinavians and early Americans. Canada did not invent hockey, but has laid claim to have "adopted the sport and eventually refined it to a game of strategy, organization, and somewhat less mayhem" (Ronberg, 1974, p. 14). Today, hockey has spread to exotic and far-flung areas of the globe. Australia, New Zealand and South Korea compete in the Group D World Ice Hockey Championships. The International Ice Hockey Federation (IIHF) even boasts such improbable nations as Kuwait, Mexico and Chinese Taipei (Taiwan) as members. The sport is growing and igniting the passions of both spectators and players worldwide.

Hockey is not just a sport--it is a cultural event that plays an important role in the lives of many people. Some people structure their lives around this sport. Businessmen buy tickets to entertain prospective clients. Hockey sometimes causes an intense lifelong addiction in its followers. This 'fever' is most evident in states like Minnesota where the Minnesota State High School Hockey

Tournament takes place annually. The Tournament is in its 45th year and considered to be the best in the country according to many hockey watchers. It has even warranted several Sports Illustrated articles. The St. Paul Civic Center is routinely filled during the three-day event. Furthermore, the entire tournament is broadcast on state-wide television. The State Tournament is more than just a high school hockey tournament--it is a culture-fest! Spectators, young and old, have an unparalleled loyalty to the Tournament. Fans have been known to plan their vacations so as not to miss the Tournament. They return year after year to witness the excitement, color and pageantry. To many "it takes its place in the passage of life as an important ritual...it is not something you get over " (Soucheray, 1989, p. 1).

Another intriguing example of how hockey 'fever' can grip people occurs in Canada. Canadians have the same zest for hockey as Minnesotans, only on a national scale. Canadians view their hockey heroes with the same reverence Americans give to a Walter Payton, Larry Bird or Nolan Ryan. Hockey's influence is so great that it is considered to be a "basic part of Canadian culture" (Conacher, 1970, p. 1).

Symbols of hockey's preeminent status in Canada's sport culture are everywhere. Canadians have created institutions that perpetuate hockey worship. A long-standing tradition in Canada is watching Hockey Night in Canada (HNIC) on Saturday nights. Saturday night hockey is

as traditional and meaningful as Sunday afternoon NFL football or Saturday afternoon college football in the United States. HNIC is Canada's longest-running TV sports show. It draws an average of 4 million viewers on an ordinary Saturday night and as many as 6 million during the playoffs. It must be remembered that Canada only has a population of about 25 million. (Escott, 1978, p.8) These games are all televised on regular broadcast television and are available to all Canadian viewers. Canadians with access to cable or satellite television can watch even more hockey. Games are routinely televised from October to the end of May. Coverage of hockey is so pervasive that one columnist recently wrote, only half-jokingly, that:

> If a Third World War broke out tomorrow, the Canadian Broadcasting Company (the network which carries HNIC) would halt its coverage of the end of the world to bring us the face-off in the big semi-quaterfinal game between the Leafs and the Flames. After all, folks, we're talking about Hockey Night in Canada (Dafoe, 1989, p. 22).

Hockey coverage does not end with the conclusion of the game. Its selling power is so great that many advertisers have chosen to associate themselves with the sport. Within 24 hours of the conclusion of the 1988-89 Stanley Cup Finals, the most valuable player in the finals was featured in a commercial promoting Disneyland. During the same playoffs a beer company boldly stated that its brand was to beer as the Stanley Cup is to hockey. Many others have used hockey stars to promote their products.

Advertisers see hockey as an effective vehicle on which to 'piggyback' their products.

The power of hockey can be most clearly seen on impressionable Canadian children. As hockey star Wayne Gretzky gained notoriety, more and more Canadian youngsters were seen mimicking his mannerisms. Gretzky has an unusual habit of tucking one corner of his sweater into his hockey pants instead of draping it on the outside as is customary. As Gretzky's popularity rose, so did the number of young hockey players who copied this and other distinctive Gretzky mannerisms.

Adults are not immune from the hockey hysteria that grips the country. In recent years Canadians have 'invented' the office hockey draft. An office hockey draft is a take off on the player draft most professional sports have and is a form of gambling. Colleagues assemble at the start of a season and draft players for their team. The 'owners' keep a very close watch on who scores points in each game. Updates are provided on a regular basis. The number of points scored by each player on each team is cumulated at the end of the season with the 'owner' with the highest total being declared the winner. Some major drafts have seen first prizes as high as $25,000.

The more athletically inclined Canadian may play in an adult recreational hockey league. Recreational, no contact, no slapshot leagues are located in most communities. The demand for ice time is so great that many recreational

leagues have to start games after 11 PM. Recreational play is fast becoming organized and serious. The author talked with a 45 year old teacher whose recreational league team was combining a European vacation with a three game hockey tour of Switzerland. Such activities were unknown 20 years ago.

Symbols of Canada's love of hockey are more numerous to mention than space here allows for. Hockey worship has reached a stage where Canadians believe they are the best hockey players in the world; A loss in international competition is not taken lightly. Outrage has sometimes taken curious forms. Conacher (1970) notes how the Canadian Amateur Hockey Association sent a team to investigate why Canada had lost three out of four world titles by 1963. In 1977, after several disastrous performances in a World Championship, McLeans's magazine (a Canadian equivalent of Time) portrayed the team as "Team Stupid, Team Anonymous, and Team Crybaby" (Miller, 1977, p. 65-66). There were demand by Canadian Members of Parliament for the team executive to "be brought before the bar of the House of Commons and made to give an accounting for the disaster" (Miller, 1977, p.66). More recently the Canadian Amateur Hockey Association has developed a Program of Excellence to help Canada regain its 'puck prestige' (Stewart, 1981, p. 69). Canadians take their hockey seriously!

No discussion of Canadian hockey would be complete without mention of the 1972 Soviet-Canadian Summit Series.

Canada had withdrawn from international competition in 1970 over the use of professional players in international competition. In the Canadian absence, the USSR dominated World and Olympic competition, a serious affront to Canadian hockey 'superiority'. A series between Canadian National Hockey League players and the Soviets ensued. The Canadian national psyche sank as the highly skilled and disciplined Soviets humbled the Canadian professionals 7-3 in game one. Canadian pride was barely restored with a goal in the final minute of the final game to win the series. "More Canadians watched Paul Henderson's winning goal for Team Canada in 1972 than watched Neal Armstrong's walk on the moon in 1969" (McLaughlin, 1980, p. 3). The 1972 series marked the first time that Canadians had to grudgingly admit that someone else could play their game as well as they could. In the following 19 years the NHL saw an infusion of talent from Sweden, Finland, Czechoslovakia and even the USSR. Many Europeans have proven that they can play on the same level as Canadians. Some, like Jari Kurri of the Edmonton Oilers, have become genuine superstars. Despite the overwhelming evidence, some Canadians still cling tenaciously to the belief that they are the best in the world (Appendix A). Canadians play great hockey but they are not the 'only kid on the block that can handle a puck!' International competition has proven that.

Hockey is a human social activity that stirs intense emotions in its players and spectators. To many it is a way

of life and is woven into their social fabric. They live and breathe hockey from birth to death. The author recalls attending a funeral where the deceased, a lifelong hockey fan, was eulogized as finally having reached his Stanley Cup. Any activity that stirs such passion must be studied.

Problem Statement

This study proposes to regionally analyze the sport of hockey, examine the spatial organization of hockey and explore the cultural roles of ice hockey. Specifically, regions which are producing hockey players will be identified, the spatial organization of hockey at the professional, college, and high school levels will be analyzed and an examination of the factors essential to the existence of hockey regions will be made.

Justification and Need

The field of sports geography is still in its infancy. It is as much involved in spatially describing observed phenomena as in theorizing about it. The journal Sport Place has significantly contributed to the expansion of geographical knowledge about sport. However, research on ice hockey or any other Canadian topic is conspicuously absent. Ojala and Kureth (1974), Russell (1974) and Rooney (1967) have completed the only works on North American hockey. The face of hockey has changed dramatically in the last 15 years. The sport community has seen the demise of

and integration into the National Hockey League (NHL) of the World Hockey Association (WHA), reorganization of the minor-professional system, the growth and increased popularity of American college and high school hockey and a greater emphasis on drafting American high school hockey players. Since research on these changes is lacking, the gaps in the relevant literature are very large. Many questions remain unanswered. For example: Which areas of the United States are producing hockey talent? Are traditional Canadian talent pools still dominant? Are European players making significant inroads into North American hockey? This study spatially analyzes ice hockey to determine which areas are currently producing hockey talent, where hockey programs are located, and why these hockey regions exist.

Significance

This study addresses several objectives. It formalizes patterns that many people assume exist. It confirms common knowledge or contradict it. Such knowledge will help recruiters and scouts evaluate their scouting patterns and perhaps make them more efficient. Although Russell (1974) clearly stated that "...recruiting can be more efficient and productive if player production regions are considered" (p. 36). Russell's work has not been revised in fifteen years. Research of this nature will also help small budget programs more effectively recruit athletes. The costs associated with scouting and recruiting can be very large. This study

will also give each program a formal yardstick for comparison with other programs. From a business perspective, it gives marketers of hockey equipment, souvenirs, etc., an increased knowledge of potential market areas. Furthermore, it helps marketers make use of an important new business tool in recreation--needs assessment. (Kahrs, 1980, p. 30). This work meets the criterion of assessing the current status of the game, thereby allowing marketers to better determine the needs of an area and how these needs can be met. Finally, the National Hockey League, which is currently working on long-range franchise expansion plans, should benefit from the work completed. President John Zeigler has stated that "all potential market sites will be thoroughly analyzed on everything" (Mackenzie, 1989, p. 7). This study should fill one small gap in such an analysis.

Scope and Limitations

This study attempts to be as comprehensive as is possible. Several different levels of the hockey hierarchy will be examined. An examination of hockey at the professional level will include every player who appeared in an NHL game in 1988-89, all players drafted in the first two rounds of the 1987 and 1988 Entry Drafts and other players on NHL Reserve Lists. The aforementioned includes players who are playing minor-professional hockey in the American or International Hockey Leagues. The data are contained in the

NHL Player Register.

The study of college hockey will examine the following: The Western Collegiate Hockey Association (WCHA), the Central Collegiate Hockey Association (CCHA), the Eastern Collegiate Hockey Association (ECAC), the Northern Collegiate Hockey Association (NCHA), the Minnesota Intercollegiate Athletic Conference (MIAC), and other schools, e.g., independents, listed as sponsors of men's intercollegiate hockey by the National Collegiate Athletic Association (NCAA). These data are available from the respective conference media guides and sports information directors. It must be noted that several teams only provided partial rosters as listed in the ECAC Media Guide. The author was also unable to obtain all rosters from the MIAC or from several NCAA independents.

There are several limitations of the study which must be identified. Professional player data are listed according to a player's birthplace, while college data generally lists the hometown of the player in question. In a few cases, players were brought up in different communities than actually listed. This situation frequently occurs in athletes whose parents were in the military. This results in several very unexpected places producing hockey talent. Such cases are anomalies. Another limiting factor was the cost of doing phone interviews. Approximately two hours of long distance phone interviews were completed, however, prohibitive costs prevented further interviews.

Finally, it must be noted that this study does not include Canadians playing in the Canadian college system. The Canadian college leagues were contacted for their rosters but failed to respond. Due to their lack of interest, players in the Canadian college system are not included in this study. There are 34 colleges in Canada with hockey programs. Since these teams are stocked almost exclusively with Canadian born players, Canadian provincial and census division location quotients are slightly underrepresented.

Organization of the Study

Data was collected from relevant sources with the listed players classified according to the appropriate county or Canadian census district. With the assistance of the Statistical Analysis System (SAS), a software system for data analysis provided by the SAS Institute, and Excel, a personal computer spreadsheet by Microsoft, the assembled data was sorted by county or census district.

Numerous location quotients were generated for professional hockey players. Location quotients, by county/census district and state/province were calculated for the total player population. National location quotients assisted in determining which areas in Canada and the United States were producing players with respect to their national averages. A North American (NA) location quotient aided in determining the relative strength of the United States to Canada in player production. Similar

calculations were performed on both professional and college player populations.

The data was then mapped on the MacIntosh computer system using the Mapmaker program. The analysis that followed helped to identify regions of relative production. Once regions of relative production were known they were analyzed for their characteristics. Phone interviews helped to further determine the characteristics of hockey regions.

CHAPTER II

LITERATURE REVIEW

The literature that explores the study of sport from a geographic perspective is still relatively young and immature. It can be separated into two very distinct categories. First, there is the literature that deals specifically with sports geography. Literature of this kind is still not plentiful but is growing in quantity and quality. A second common type of sports geography literature is that which contains geography but is written primarily for other fields. An excellent example is the publication Many Factors are Involved in Selecting the Right Site (The Eggers Group, 1980). While it contains geography, a portion of the publication was reprinted in the journal Athletic Purchasing and Facilities (1980). This type of literature is by far the most prevalent.

Considering that some academics still do not take sports geography seriously, some of the literature is devoted to the justification of studying sport from a geographic perspective. A Geography of American Sport, a pioneering work by Rooney (1974), cites the field of sport as being a very big and serious business. Furthermore, sport fulfills a "multiple set of needs" in society, that

is, since more jobs are non-physical, society puts more emphasis on recreation and its availability. Further justification is provided by Rooney (1978) in An Invitation to Geography and echoed by Bale (1981). Both see sport as having a major presence in our daily lives. The English language is filled with sports terms, e.g., game plan. Chubb and Chubb (1981) further justify the study of sport when they discuss the role politics has played in the Olympic Games. Endless examples of using Olympics for political purposes are cited, e.g., Berlin-1936, Mexico City-1968, Munich-1972, etc.. Chubb and Chubb further strengthen their argument when they support Vanderzwaag (1972) who suggested that sport can be a catalyst for change and has the ability to "cut across social bias" (p. 44). Finally, John Loy (Rooney, 1974) offered one of the most compelling reasons when he stated that "studying sport is often as much fun as playing sport and on occasion just as serious."

Theoretical frameworks must be developed to facilitate the scholarly study of sports geography. This particular area of the literature is somewhat lacking. Only Rooney and Bale have devoted serious efforts towards developing theory. A Geography of American Sport (Rooney 1974) was the first work that summarized the "major conceptual subdivisions of a geography of sport." These subdivisions are: Spatial variation in sport, spatial organization of sport at different competitive levels, the origins and diffusion of

sports and sportsmen, the social and symbolic impact of the spatial organization of sports, the effect of sport on the landscape and the relationship between sports and the national character. Bale (1982) elucidated on Rooney's origins and diffusion theory by more fully discussing the sports region. Rooney refined his original framework in Sport From a Geographical Perspective (1975). This work states that a geographer may take a region and study the sports within that region (regional approach), or take a sport and examine it throughout many regions (topical approach). The later was used by Bale in Sport and Place (1982) and Sport, Geography and Geographical Education (1981). The topical approach includes an examination of: The proto-type of a sport, the point of origin of a sport, the diffusion of a sport, the spatial organization and interaction, and the regionalization of the sport as viewed through a continuum of landscape and technological changes. The regional approach to sport is similar to the regional approach with other topics, e.g., manufacturing. A geographer would inventory the sports, rank by interest level and importance, analyze spatial interaction and variation including internal/external spatial interaction, assess the impact on the landscape and prescribe remedial actions (Rooney 1975).

The journal Sport Place International has contributed significantly to the body of sports geography literature. Recent articles have dealt with football, golf, rugby,

cricket, etc.. The prevailing emphasis, however, is on American sport. The articles in Sport Place are topically very diverse and have dealt with many of the subdivisions of sport advocated by Rooney in 1974. Adams (1987) looked at the regional variation of sport when he examined the differences between Scottish and American golf. Hawley (1987) examined how the spatial organization of a sport compares with cultural regions when he discussed cockfighting in the South. Manzo (1987) has done work on the origins and diffusion of soccer in the United States. Bale (1988), Price (1988), and Van Zuyle (1988) have provided a variety of examples of how sport affects the landscape. Roseman and Shelley (1988) explored functional sport regions with an article on the geography of college football radio broadcasting. Finally, Bale (1987) showed how sports and national identity are related in The Muscle Drain: Foreign Student Athletes in American Universities.

Work on ice hockey is not plentiful. Russell (1974) did some early work in Hockey and its Regions: A Spatial Analysis. This paper examined the regional variation in the production of college and professional players, the spatial organization and structure of the game, and the geographic aspects of the origin and diffusion of the game. Russell concluded that the hockey establishment does not pay sufficient attention to the geography of the game. Division rivalries, future expansion, etc., need more geographic enlightenment. Other researchers have not re-evaluated ice

hockey or the major changes it has undergone.

Many sports at many different levels still need to be dealt with in sports geography. The sports geography literature has cataloged and named some of its constituent elements. Much remains to be done. Australia, Canada, South Africa, India are all nations with vibrant sporting cultures. A quick scan of Sport Place reveals scant work on the aforementioned. Pillsbury (1988) calls "rationalization of the data", i.e., explaining of the patterns, the second phase of growth in a discipline. In his opinion, sports geographers have not completed enough of this type of work (Pillsbury, 1988, p. 3). Rooney has set an example of how sports geography data can be applied. He not only provided strong and comprehensive theoretical frameworks but has made extensive efforts to apply his work to the real world. Finally, Richard Pillsbury (1988), in a recent article in Sport Place, called for the exploration of "real sporting regions based on multi-dimensional factors" (p. 3). This study is an attempt to answer Pillsbury's challenge.

CHAPTER III

DATA COLLECTION AND METHODOLOGY

Data Collection

Previous work on hockey, i.e., Russell (1974) treated professional and college hockey as separate entities. This study does not completely observe this distinction. College and professional production will be combined to arrive at a total player production location quotient. Professional and college hockey will be analyzed as subsets of the above.

Professional player data were obtained from the NHL Player Register, in the National Hockey League Official Guide and Record Book, 1988-89. The criteria used to denote a 'professional player' is the same as the NHL uses for inclusion in the Player Register and is discussed elsewhere in this study. College player data were extracted from different conference media guides and college sports information directors. A list of schools sponsoring hockey furnished by the NCAA served as a guide. Ninety two percent of the schools on the list responded (Appendix B). To obtain a list of schools sponsoring hockey, the National Association of State High School Associations (HASHAA) was contacted. The NASHAA provided a list of state associations which coordinate hockey in their state. Individual

associations were then contacted and provided the study with a list of high schools sponsoring hockey in their state.

Methodology

Since analysis of the data would be difficult if players were categorized by birthplace or hometown, the county was chosen as the preferred spatial level of resolution. Previous work by Rooney (1974) served as a guide. Some difficulty was encountered in finding a Canadian equivalent to the US county. The study settled on using Canadian census divisions (CD's). Statistics Canada defines census division as a "general term applying to census divisions, counties, regional districts, regional municipalities and five other types of geographic areas made up of groups of census subdivisions." Census divisions are legal entities that exist in all provinces and territories; with exceptions in Alberta, Saskatchewan, Manitoba and Newfoundland, census divisions are analagous to actual, existing counties, municipalities, etc. In the aforementioned, they are legal creations which provide for an intermediate between a census subdivision and the province. Another reason for choosing the CD was the fact that CD's do not frequently change boundaries. Changes are denoted in a comprehensive form by Statistics Canada in order to facilitate longitudinal comparisons. For the purposes of this study, the terms county and census division will be used interchangeably.

As the data were collected, each professional player was allocated to the county or CD where he was born. Due to the fact that the college data obtained listed hometowns only, players were allocated into the appropriate county by their hometowns. The data were inputed into the Statistical Analysis System (SAS) and sorted by various criteria. SAS generated the total number, number of professional and number of college players originating from each county or census division and state or province. To facilitate meaningful comparisons, a location quotient was generated for each state/province and county/census division. State/provincial location quotients were arrived at by dividing the number of players in a state/province by the population of same. Then the quotient was taken and divided by the quotient of the number of players in the US/Canada divided by the total number of players in the country in question (Appendix C).

In order to compare the production of US states to that of Canadian provinces, a North American location quotient was generated. This was accomplished by changing the denominator in the above equation to the number of players produced in Canada and the US divided by the total populations of Canada and the United States (Appendix C). The above was calculated for professional, college, and total number of players produced by a state/province.

To obtain more detailed analysis, a county/census division location quotient was generated. This was

accomplished by obtaining a quotient for the number of players in a county/census division divided by the population of same. The above was then divided by the quotient of the number of players produced in the country divided by the country's population (Appendix C). A total North American location quotient was then calculated to facilitate comparisons. This was achieved in the manner previously described.

The reader must note that the production rates discussed and alluded to in this study are, unless stated, relative production rates. The location quotients presented are indicators of how one area is doing in comparison to another. Relative production must not be confused with absolute production; which only reveals the number of athletes produced in an area without regard to size.

The data were then transferred into an "Excel" spreadsheet on the MacIntosh computer system. After appropriate manipulations, the data were exported into "Mapmaker" to facilitate the production of maps.

After a preliminary analysis of the resultant data, the author contacted various people within the hockey and sport industries to obtain their opinions and comments on the results. The cost of this endeavor limited the number of telephone interviews to 9.

CHAPTER IV

ANALYSIS AND INTERPRETATION

In The Game (1984, p.232), Ken Dryden, a former professional hockey player turned lawyer, called hockey a "minor American sport with major regional appeal." Dryden could not have been more correct in his assessment of the state of hockey in the US. An analysis of this study clearly illustrates the aforementioned observation.

The discussion that follows shows the 'regionalized' nature of hockey in the US. It also shows that despite some recent blows to Canada's 'puck prestige', numerically, Canada is still the pre-eminent production region in the world. This analysis also locates specific Canadian production regions. Lastly, an attempt is made to isolate some of the reasons for a region having a certain type of production "personality".

Total Hockey Player Production

An examination of total hockey player production on a per capita basis reveals a very distinctive regional character in American hockey (Figure 1). Seven states: Alaska, Minnesota, Massachusetts, Vermont, Connecticut, New Hampshire and Rhode Island can be identified as belonging in

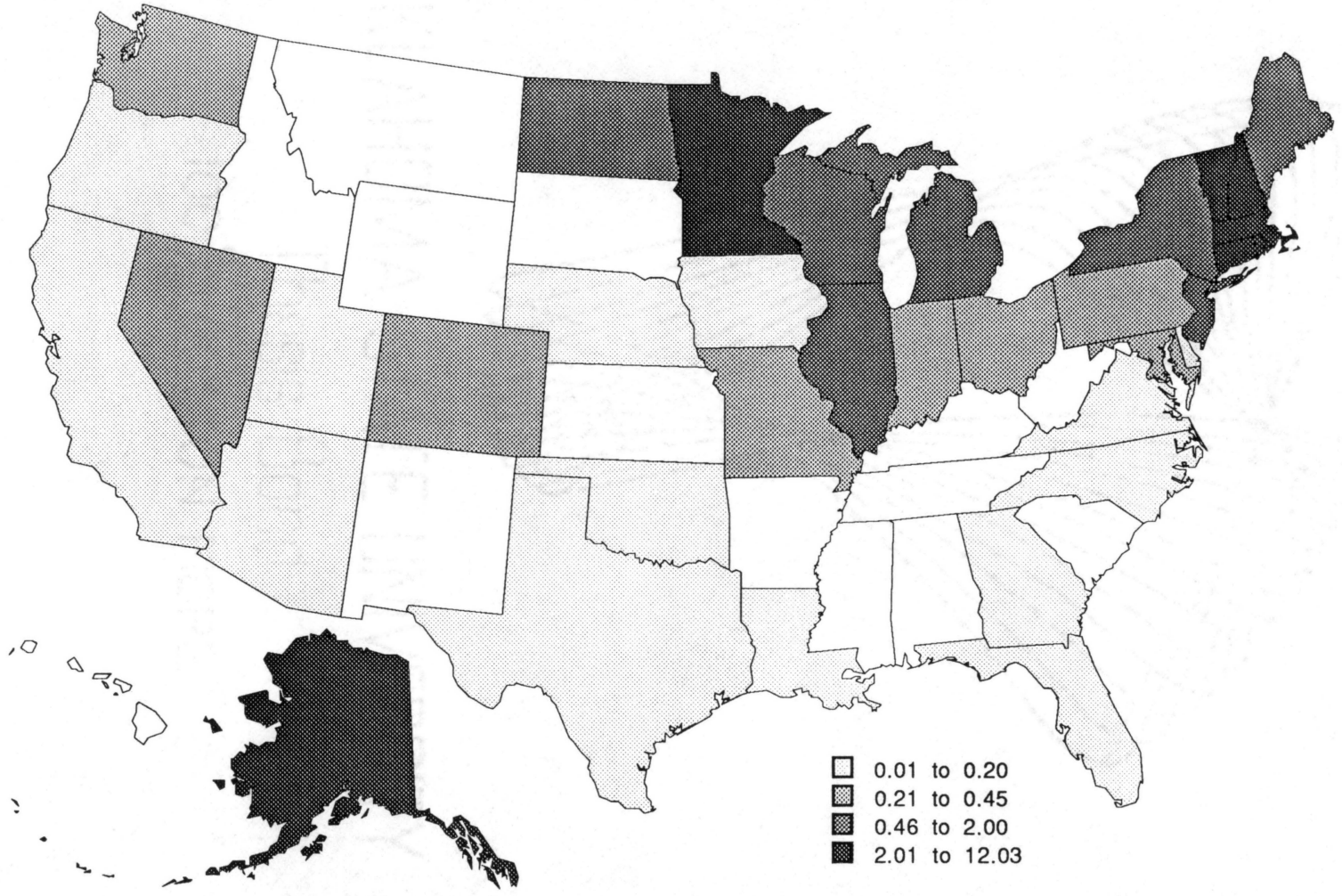

Figure 1. Total Hockey Player Production: US Location Quotients

the upper echelon of hockey player producing areas. Closer examination of the states in question points to an even greater concentration in three states: Minnesota, Massachusetts and Rhode Island (Table I). These states account for 52.7% of all American born players and have correspondingly high location quotients; a measure of an area's production compared to the national average. The remainder of upper echelon producers account for 6.6% of players. In total, this group supplies 59.3% of American born players. These states form a high intensity producing region. Table I further shows a group of lower producing states: North Dakota, Michigan, New York, Maine, Wisconsin, Illinois and New Jersey. These states produce at or above the national average and account for 32.2% of total US production. In combination, the high intensity and remaining producing states (28% of total US population) account for 91.5% of all American hockey player production. A third area of production can also be isolated. These are states which have some degree of hockey awareness and presently have, or have had professional, college, or Canadian Junior A League teams. These states include Maryland, Colorado, Pennsylvania, Washington, Missouri, Ohio and Indiana. The lower level of interest, awareness, and emphasis placed on the sport in these states may account for the loss of numerous franchises, i.e., the Denver Spurs (WHA & Central Hockey League), Rockies (NHL) and Rangers (International Hockey League); Cleveland Barons (NHL) and

TABLE I

TOTAL HOCKEY PLAYER PRODUCTION

STATE	TOTAL US LQ	TOTAL NA LQ	PLAYERS PRO	PLAYERS COLL	TOTAL PLAYERS
MA	**12.03**	**7.66**	103	513	616
MN	**11.85**	**7.55**	84	357	441
RI	**8.40**	**5.35**	14	58	72
NH	**4.25**	**2.71**	4	36	40
AK	**3.90**	**2.48**	6	13	19
VT	**3.75**	**2.39**	3	15	18
CT	**2.32**	**1.47**	6	59	65
ND	**1.98**	**1.26**	4	8	12
MI	**1.89**	**1.20**	39	113	152
NY	**1.89**	**1.20**	26	268	294
ME	**1.83**	**1.17**	2	17	19
WI	**1.47**	**0.94**	10	52	62
IL	**1.00**	**0.64**	23	78	101
NJ	**0.76**	**0.48**	7	44	51
MD	**0.35**	**0.22**	2	12	14
CO	**0.34**	**0.22**	1	9	10
PA	**0.32**	**0.20**	4	29	33
WA	**0.30**	**0.19**	2	10	12
MO	**0.29**	**0.19**	6	7	13
OH	**0.28**	**0.18**	7	19	26
IN	**0.23**	**0.14**	1	10	11
NV	**0.22**	**0.14**	0	2	2
IA	**0.20**	**0.13**	2	3	5
DC	**0.18**	**0.12**	0	1	1
DE	**0.18**	**0.11**	0	1	1
UT	**0.13**	**0.09**	0	2	2
CA	**0.11**	**0.07**	11	15	26
AZ	**0.10**	**0.06**	0	3	3
VA	**0.08**	**0.05**	2	2	4
NE	**0.07**	**0.05**	0	1	1
FL	**0.06**	**0.04**	2	4	6
OR	**0.04**	**0.03**	1	0	1
GA	**0.04**	**0.02**	0	2	2
OK	**0.03**	**0.02**	1	0	1
TX	**0.03**	**0.02**	2	3	5
LA	**0.02**	**0.02**	0	1	1
NC	**0.02**	**0.01**	0	1	1
TOTAL	**1.00**	**0.64**	**375**	**1768**	**2143**

Crusaders (WHA); Kansas City Scouts (NHL); Indianapolis Racers (WHA); and the Cincinnati Stingers (WHA). Some of them have minor-professional franchises today. Finally, an area which could best be considered a peripheral to production can be identified from Figure 1. These include all states with LQ's of .20 or less. Generally, these states fall in warm weather areas of the country where there is no hockey tradition. Meagre production rates, however, do indicate a small measure of hockey awareness in these states. In conclusion, the area stretching from eastern North Dakota and Minnesota through the Great Lakes to Maine and south to Connecticut and Rhode Island is the major hockey producing region in the US (Figure 2).

The US Core Hockey Region

A closer look at this distinctive area (Figure 3) indicates a very different pattern than revealed by analysis at the macro-level. At the macro-level, these states have high production rates; at the micro-level, even greater localization is found. Of the top 25 counties, 17 are found in either Minnesota or Massachusetts. The remainder are evenly distributed throughout the core area of US hockey production (Table II).

An area of abnormally high production is evident in the counties that encompass a line running from Roseau to Hibbing to Duluth in northern Minnesota (Appendix D and Figure 3). Six of the top ten producing counties in the US

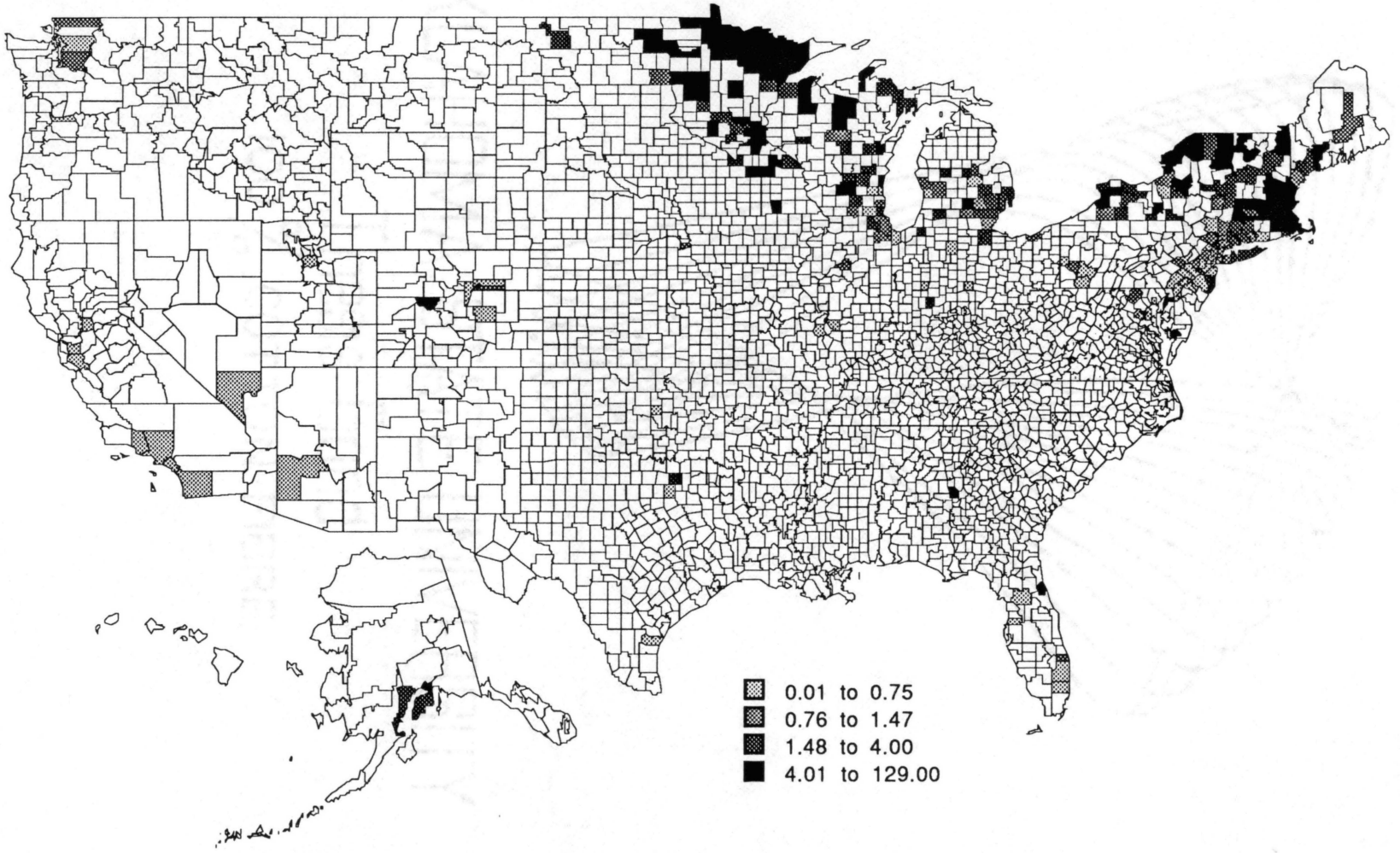

Figure 2. Total Player Production: US LQ by County

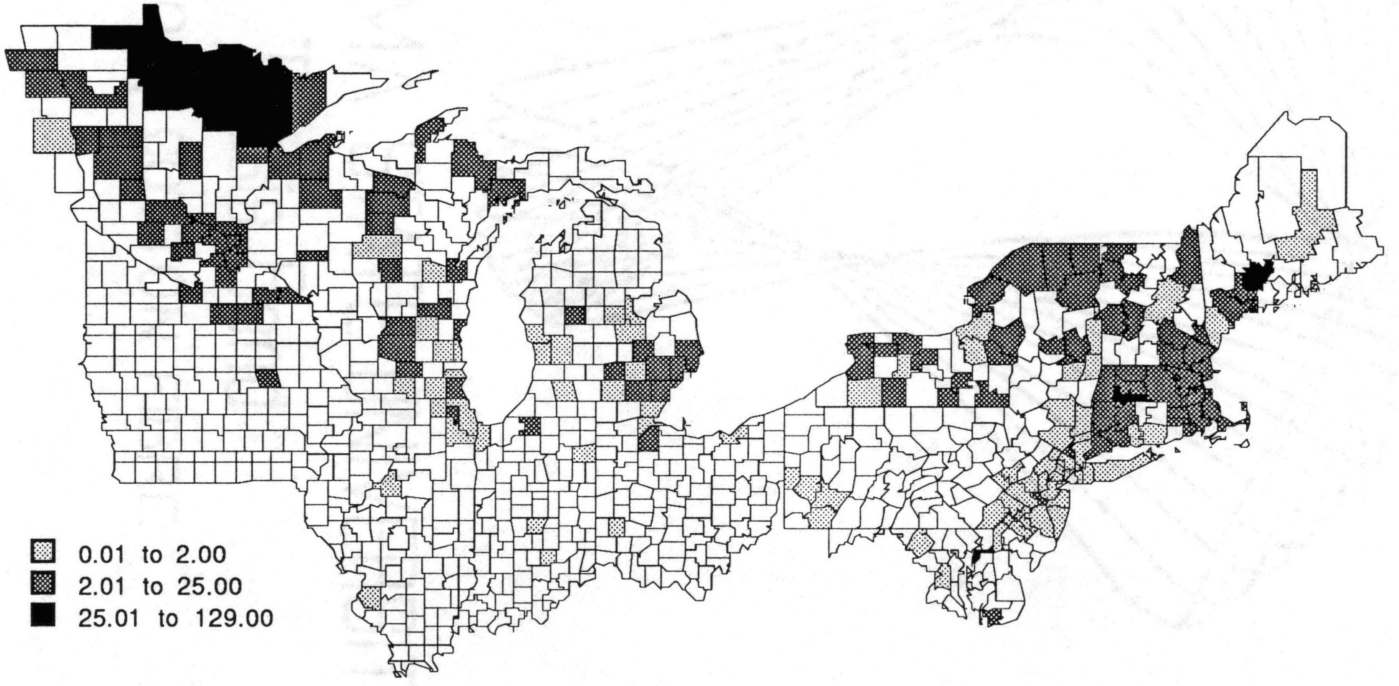

Figure 3. The Hockey Region: Combined US Location Quotients

TABLE II

TOP 25 PLAYER PRODUCTION BY COUNTY

RANK	COUNTY	TOTAL LQ'S		PLAYERS	
		US	NA	COLL	PRO
1	ROSEAU, MN	**128.55**	82.17	8	7
2	HAMPDEN, MA	**114.02**	72.88	19	6
3	KOOCHICHING, MN	**66.32**	42.39	7	2
4	KENT, MD	**53.82**	34.4	8	0
5	KENNEBEC, ME	**53.19**	34	6	0
6	ST. LOUIS, MN	**41.04**	26.23	62	10
7	ITASCA, MN	**39.48**	25.23	11	4
8	L WOODS, MN	**30.1**	19.24	1	0
9	BELTRAMI, MN	**27.19**	17.38	7	1
10	SAWYER, WI	**23.47**	15	2	1
11	ST. LAW , NY	**22.92**	14.65	23	0
12	DAKOTA, MN	**19.53**	12.48	34	7
13	NORFOLK, MA	**18.56**	11.86	89	9
14	MIDDLESEX, MA	**17.97**	11.48	183	32
15	RAMSEY, MN	**17.85**	11.41	53	21
16	COOS, NH	**14.89**	9.52	3	0
17	PLYMOUTH, MA	**14.83**	9.48	49	8
18	BARNSTABLE, MA	**14.69**	9.39	21	2
19	GRAND FORKS, ND	**14.35**	9.17	6	3
20	POLK, MN	**13.64**	8.72	3	1
21	KENT, RI	**13.43**	8.59	17	2
22	HENNEPIN, MN	**13.4**	8.56	95	21
23	FREEBORN, MN	**13.23**	8.46	4	0
24	OLMSTED, MN	**12.61**	8.06	9	2
25	ERIE, NY	**12.34**	7.89	97	7

are located in this area! The area also borders the highest producing census division in Canada, Rainy River in Ontario. Two areas of slightly lower but still significantly high production lie adjacent to this area. One extends into the 'Arrowhead' area of northern Minnesota and the other into the Wisconsin counties of Douglas, Bayfield, Vilas, Oneida and Sawyer. The second major concentration in Minnesota occurs around the metropolitan Minneapolis-St. Paul area where LQ values are in the mid to upper teens. A final area of concentration starts at Grand Forks, extends to Fargo and follows Interstate 94 to the Twin Cities before turning south on Interstate 35.

Obviously the climate in Minnesota, especially northern Minnesota, is very conducive to the sport of hockey. In areas where natural ice is available, young athletes have the chance to hone their skills on their own time in an unstructured setting after supper or on weekends. The added playing time, in addition to the organized program these areas have, produces highly skilled athletes. Craig Ramsey, the Director of Professional Evaluation and Development for the Buffalo Sabres stated in an interview

> we don't have the same access to ice as in Canada...we don't do outdoor rinks... if you can't rent ice indoors then there is very limited ice available--none in the whole area of Buffalo...you don't get kids to just go out and play on their own and improve their skills. (Personal Communication, January, 30, 1990)

While Ramsey was specifically referring to the situation in

state of New York, his observation is applicable to other areas in the US.

Natural ice plays another role in the development of hockey talent. It can help form a tradition or legacy for young hockey players to follow. Long before indoor rinks became fashionable, hockey was played outdoors on natural ice. Areas with natural ice obviously have a greater opportunity to flourish in the sport. These areas produced proficient athletes for children to emulate. The Warroad-Roseau area is especially noted for the Christian, Broten and Marvin family legacies. This translates into a strong commitment on the part of children, parents, schools and communities to follow the tradition. As indoor rinks came into vogue, priority was put on their development despite the high costs. This commitment to hockey propelled areas such as northern Minnesota into the top level of production. In the case of northern Minnesota, they

> view hockey as a very important part of their heritage. When the advent of indoor facilities came about, they put a priority on the development on indoor facilities. (Mike Schroeder, USA Hockey, Personal Communication, January 30, 1990)

This commitment also appears in the schools in the area. It is the rule in northern Minnesota for high schools to have hockey programs. These factors, in combination, give hockey a very solid foundation in the area.

The area is also subject to contagion diffusion from Manitoba. As a young child, the author remembers watching

the Warroad Lakers play Canadian competition. With Canada's strength and tradition in hockey, the level of play in Warroad had to improve to compete, and the Lakers were always a competitive franchise. Contagion diffusion also helps account for production in the northern part of Wisconsin and eastern North Dakota (Fargo and Grand Forks).

The other major concentration in Minnesota is the Twin Cities area. This area is subject to many of the same factors that affect the northern part of the state. It also helps illustrate a peculiarly American production phenomenon, the concentration of production around metro areas (Figure 4). Table IIA illustrates the urban nature of the sport clearly: A large number of producing counties are urban or near-urban. Of the 25 counties listed, only St. Louis, MN, Dane, WI and St. Lawrence, NY are rural counties. The remaining counties are urban or near urban, especially in the area around Boston. Unlike Canada, which has an abundance of widely dispersed facilities, arenas in the US are primarily located in and around urban areas. The distance decay between the northern part of the state and the Twin Cities helps account for the distribution that falls along the Interstates. It must be noted that 31 counties produced players in Minnesota (Figure 5). The lowest producing county had a LQ of 2.23, well above many other parts of the country.

The second highest producing county in the country is Hampden, Massachusetts at 114.02. This county is primarily

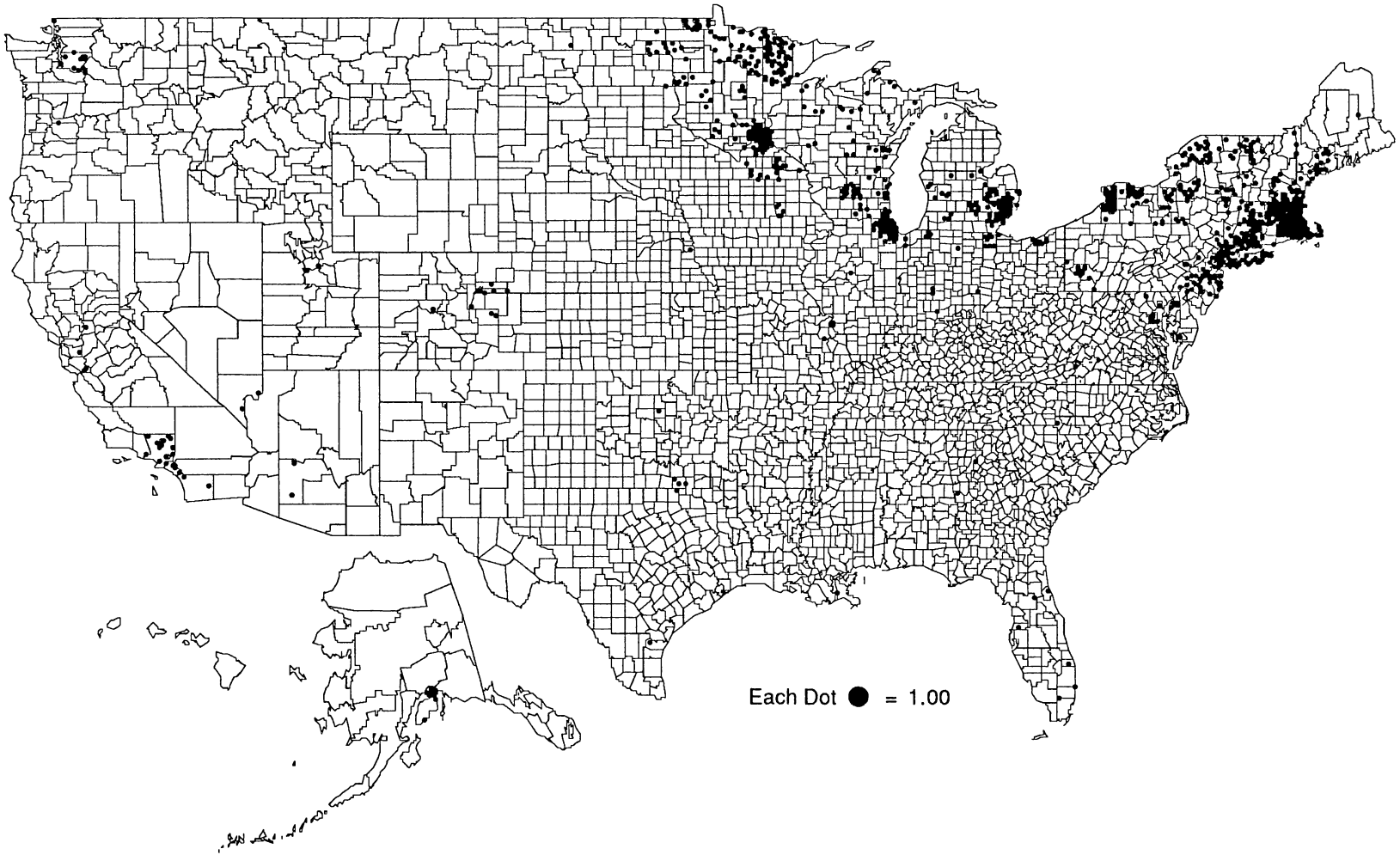

Figure 4. Total Player Production

TABLE II A

TOP 25 PLAYER PRODUCTION

RANK	COUNTY	TOTAL LQ'S		PLAYERS		TOT
		US	NA	COLL	PRO	
1	MIDDLESEX, MA	**17.97**	11.48	183	32	215
2	HENNEPIN, MN	**13.4**	8.56	95	21	116
3	ERIE, NY	**12.34**	7.89	97	7	104
4	NORFOLK, MA	**18.56**	11.86	89	9	98
5	RAMSEY, MN	**17.85**	11.41	53	21	74
6	ST. LOUIS, MN	**41.04**	26.23	62	10	72
7	ESSEX, MA	**11.08**	7.08	52	11	63
8	COOK, IL	**1.28**	0.82	41	18	59
9	PLYMOUTH, MA	**14.83**	9.48	49	8	57
10	SUFFOLK, MA	**9.66**	6.17	34	22	56
11	WAYNE, MI	**2.93**	1.87	33	22	55
12	PROVIDENCE, RI	**9.6**	6.14	38	11	49
9	WORCESTER, MA	**7.91**	5.05	35	11	46
10	DAKOTA, MN	**19.53**	12.48	34	7	41
11	NEW HAVEN, CT	**3.79**	2.42	25	1	26
12	HAMPDEN, MA	**114.02**	72.88	19	6	25
13	ST. LAW., NY	**22.92**	14.65	23	0	23
14	BARNSTABLE, MA	**14.69**	9.39	21	2	23
15	DANE, WI	**7.18**	4.59	17	5	22
16	OAKLAND, MI	**2.41**	1.54	15	7	22
17	BRISTOL, MA	**4.89**	3.12	20	1	21
18	SUFFOLK, NY	**1.79**	1.15	21	0	21
19	MACOMB, MI	**3.24**	2.07	16	4	20
20	KENT, RI	**13.43**	8.59	17	2	19
21	MONROE, NY	**3.07**	1.96	18	1	19
22	ANCHORAGE, AK	**8.28**	5.29	12	6	18
23	ANOKA, MN	**8.54**	5.46	15	2	17
24	HILLSBOROUGH, NH	**5.9**	3.77	15	2	17
25	FAIRFIELD, CT	**2.35**	1.5	16	1	17

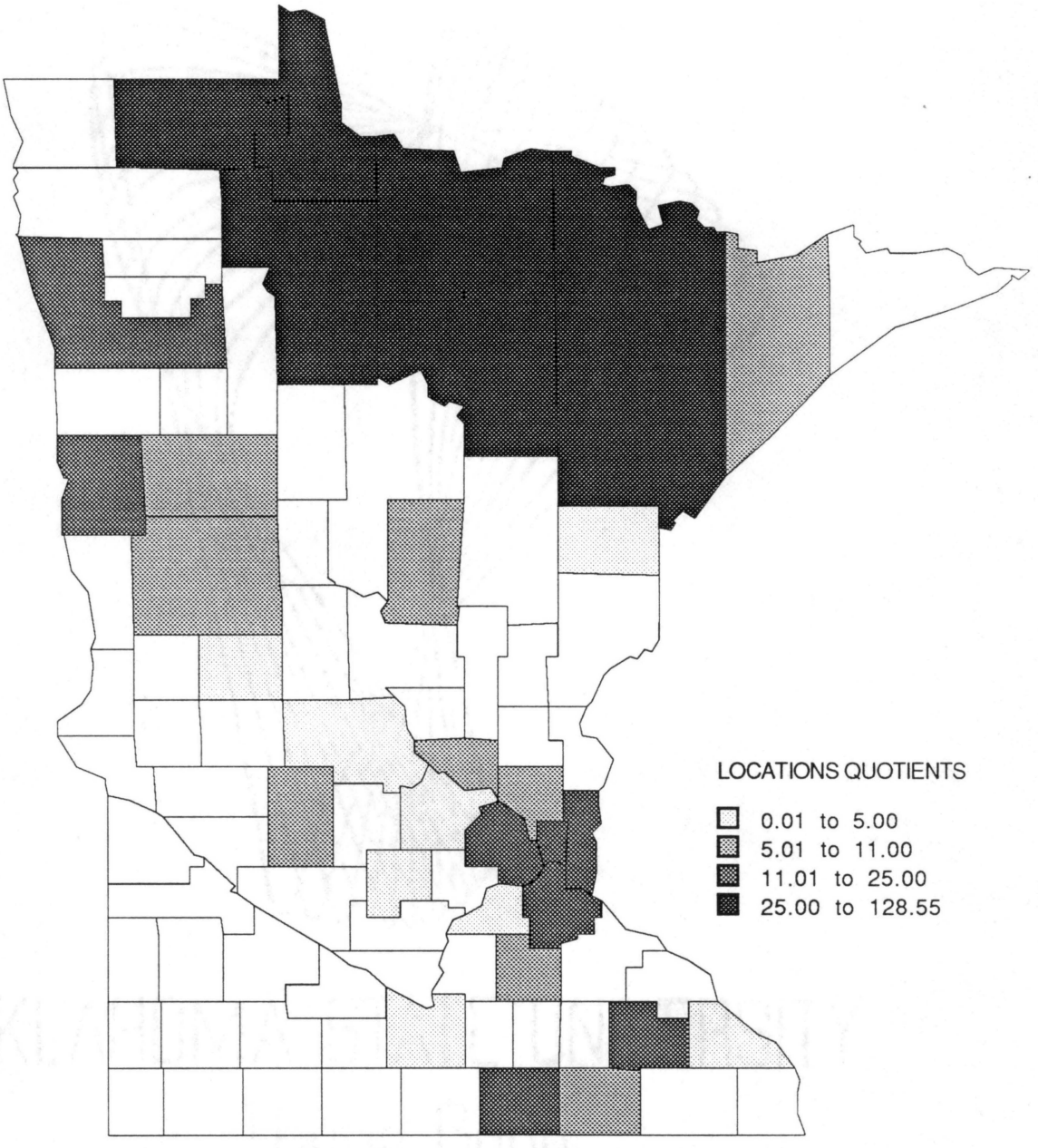

Figure 5. Total Player Production in Minnesota

located around the Springfield area. Despite lacking a major top-level college or prep program, Hampden illustrates the importance of commitment to hockey. Hampden's commitment comes in the form of the Springfield Development Program, a high quality program which has had, according to Assistant General Manager of the Hartford Whalers, Robert Crocker, "tremendous success and achievement by a fellow by the name of Gary Dineen who has singlehandedly promoted and financed this particular program. He's had extraordinary success!" (Personal Communication, January 30, 1990) While Hampden stands out particularly in the northeast, the entire Massachusetts, Connecticut and Rhode Island area is a significant production region. Of special note are the counties immediately surrounding the Boston area: Middlesex, Norfolk, Plymouth, etc. Combined with the Boston metro center, this area has a production quotient of between 10 and 20 times the national average (Figures 5A and 5B). Aside from the Boston Bruins NHL franchise, this area is home to high level competitive college programs like 1989 national champion Harvard, Boston College, Boston University and Northeastern. These "colleges have 80 kids actively drafted in the current 4 year period." (Crocker, Personal Communication, January 30, 1990)

The effect of colleges in an area is also seen in Rhode Island with Brown and Providence. Colleges not only help 'promote and culture' professional prospects, they also increase hockey interest in an area and provide facilities,

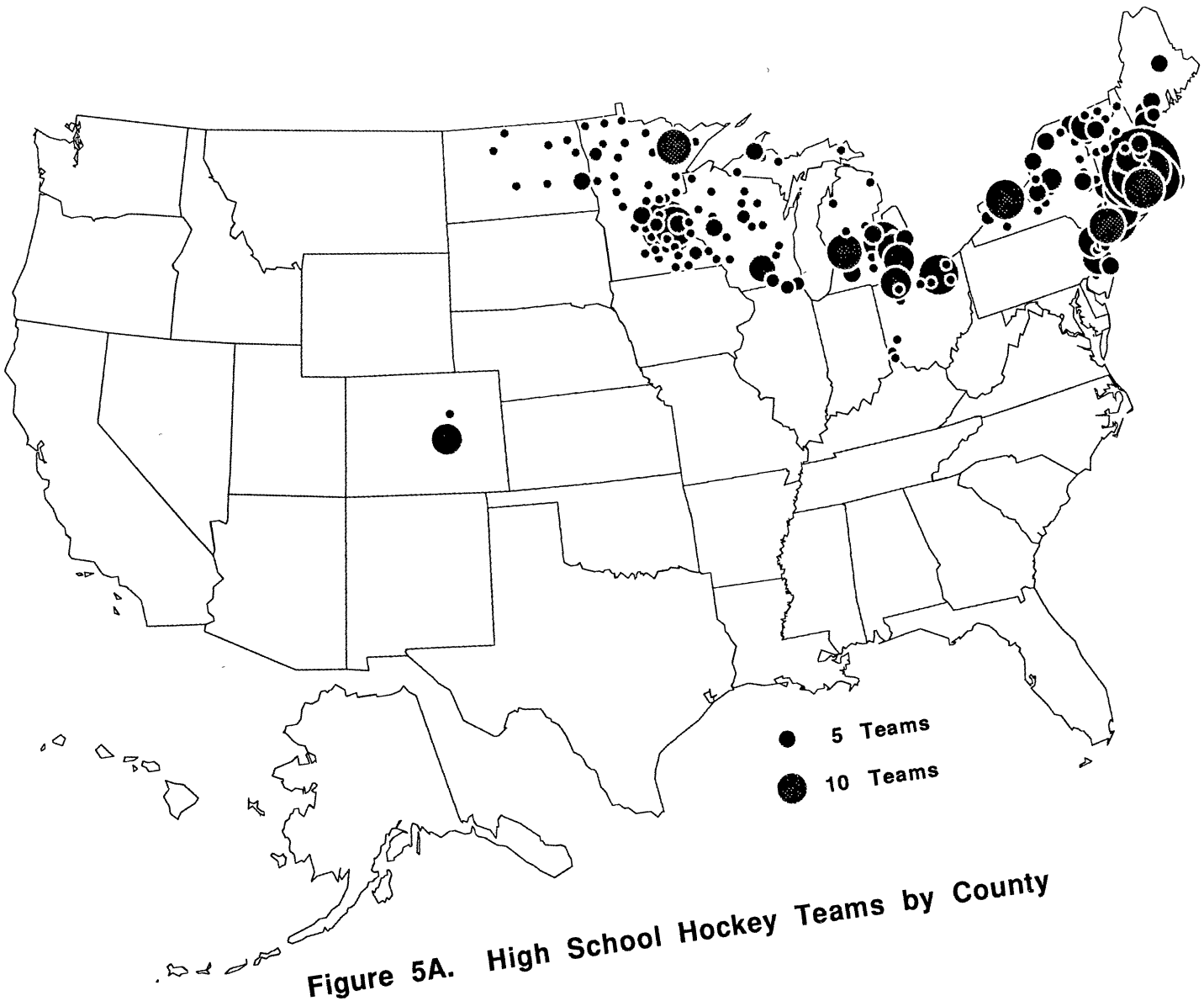

Figure 5A. High School Hockey Teams by County

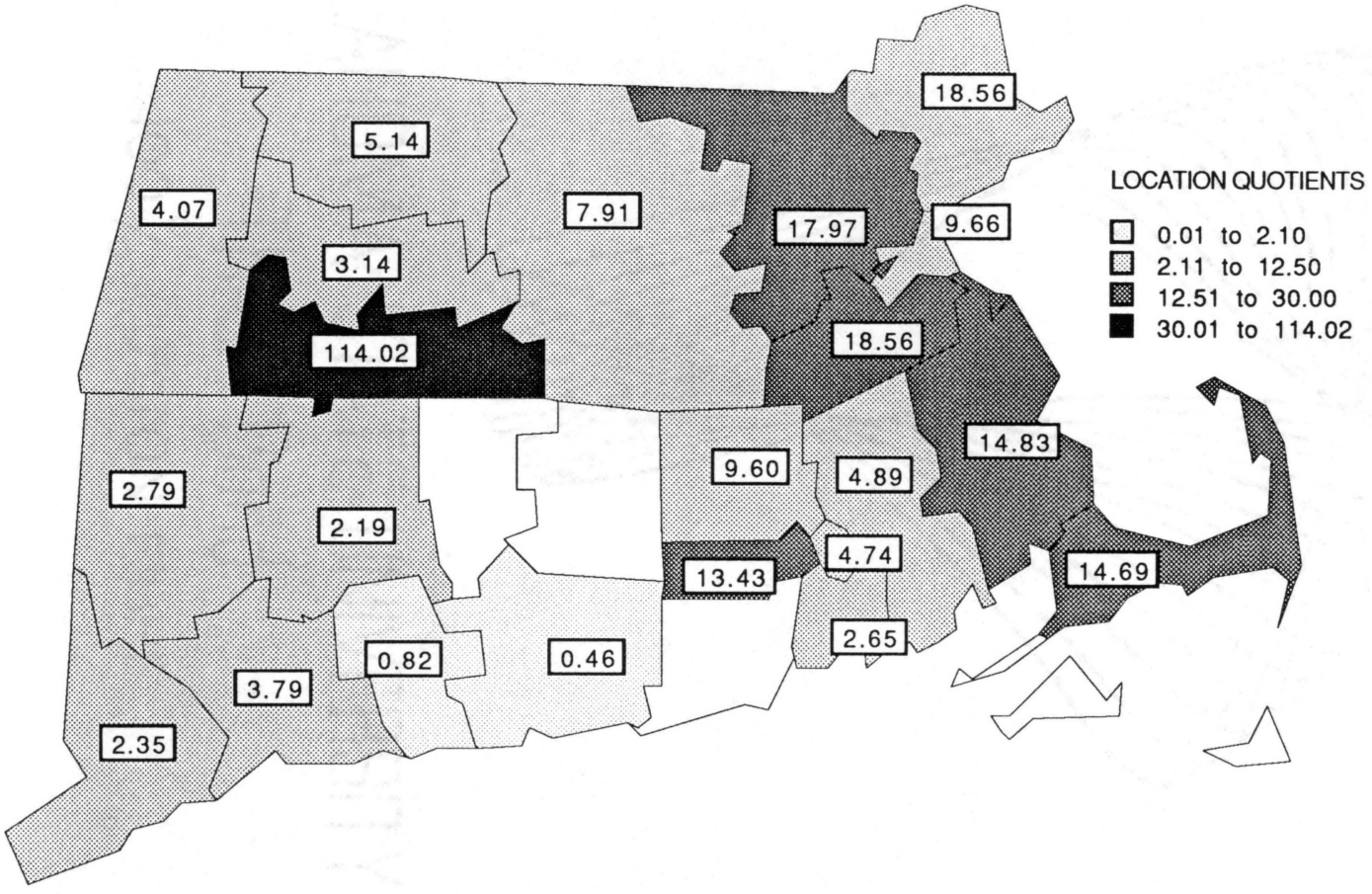

Figure 5B. Mass/Conn/RI County Production

both important prerequisites for strong production. Figures 6 and 2 show the correspondence between college locations and production. Further evidence for this theory is seen in New York State, which exhibits a very strong correlation between areas of high production and college location. Comparisons between Figures 7 and 8 elucidate the above, especially in upstate New York, Ithaca, Albany, etc. The phenomenon is also seen in other parts of New England, e.g., Vermont, New Hampshire and Maine, and in other sections of the core Hockey Region. Dane County in Wisconsin has the third highest production rate in the state and is the location of the University of Wisconsin at Madison. Doug Spencer, the Sports Information Director at Wisconsin, noted in an interview that the school has a "big impact" in the county and has a sellout ratio that exceeds basketball's (Personal Communication, January 30, 1990). In Indiana, St. Joseph has a LQ of 2.37 and is the home of Notre Dame. In Ohio, Dayton and Bowling Green are located in Montgomery and Wood counties respectively (Figures 9 and 10 and Figures 2 & 3).

Close proximity to the Boston area has also produced contagion diffusion (Russell, 1974), filtering hockey into Rhode Island. The effect of colleges and diffusion has propelled the state to a level of high production. Kent County is the most outstanding producer in the state at 13.43. It is also home to LaSalle Academy in Warwick. For some unknown reason, this county seems to produce an

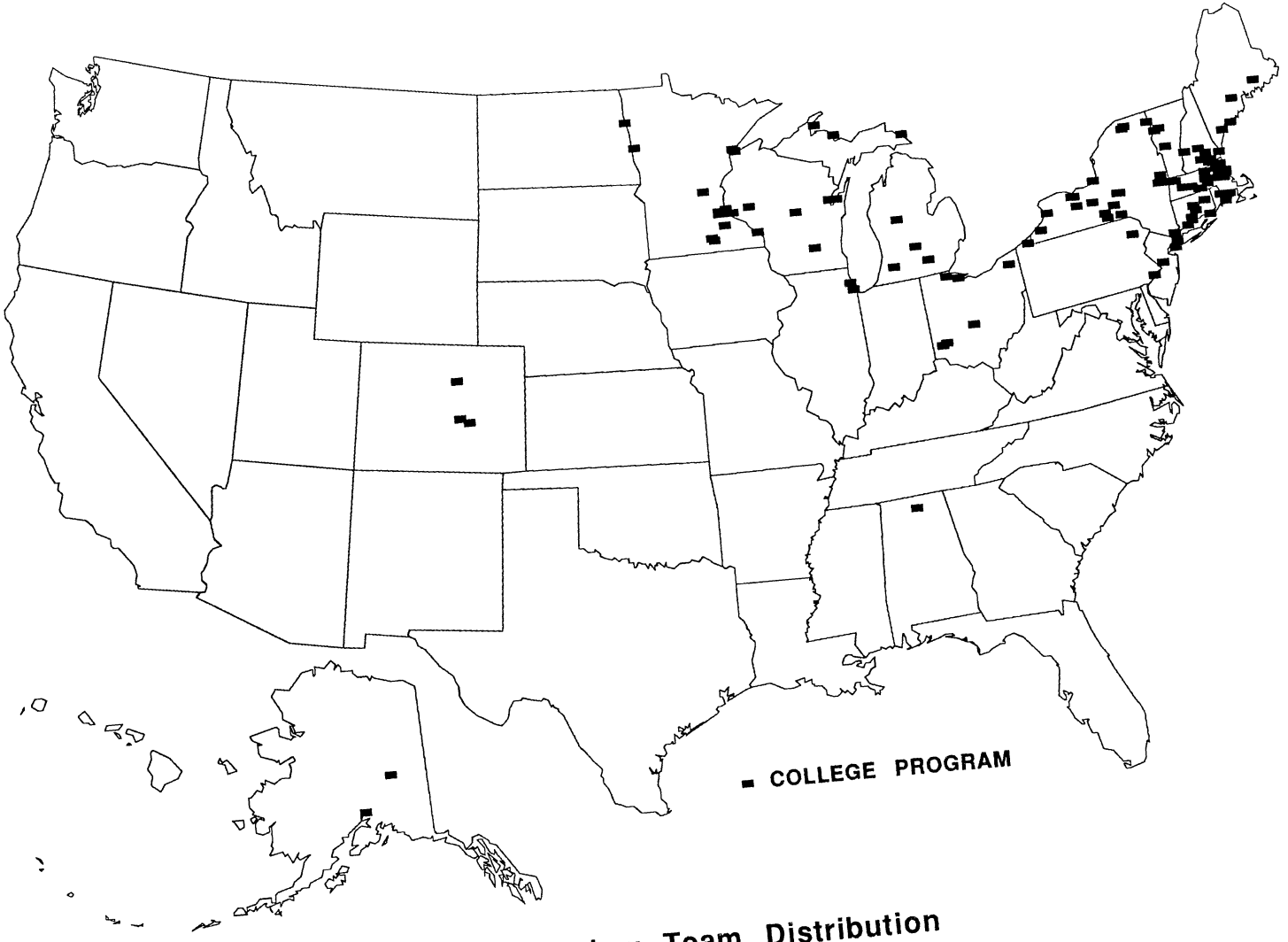

Figure 6. College Hockey Team Distribution

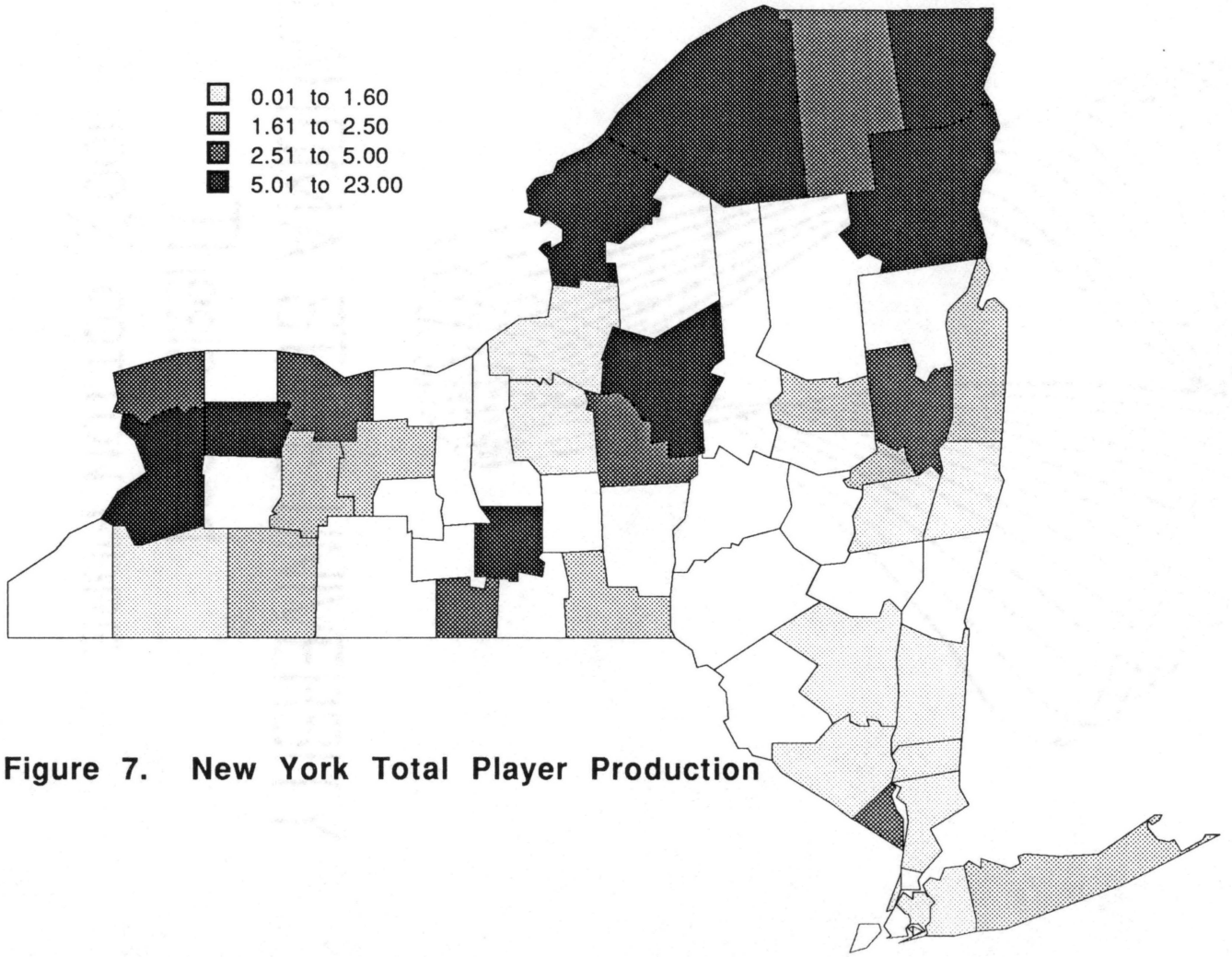

Figure 7. New York Total Player Production

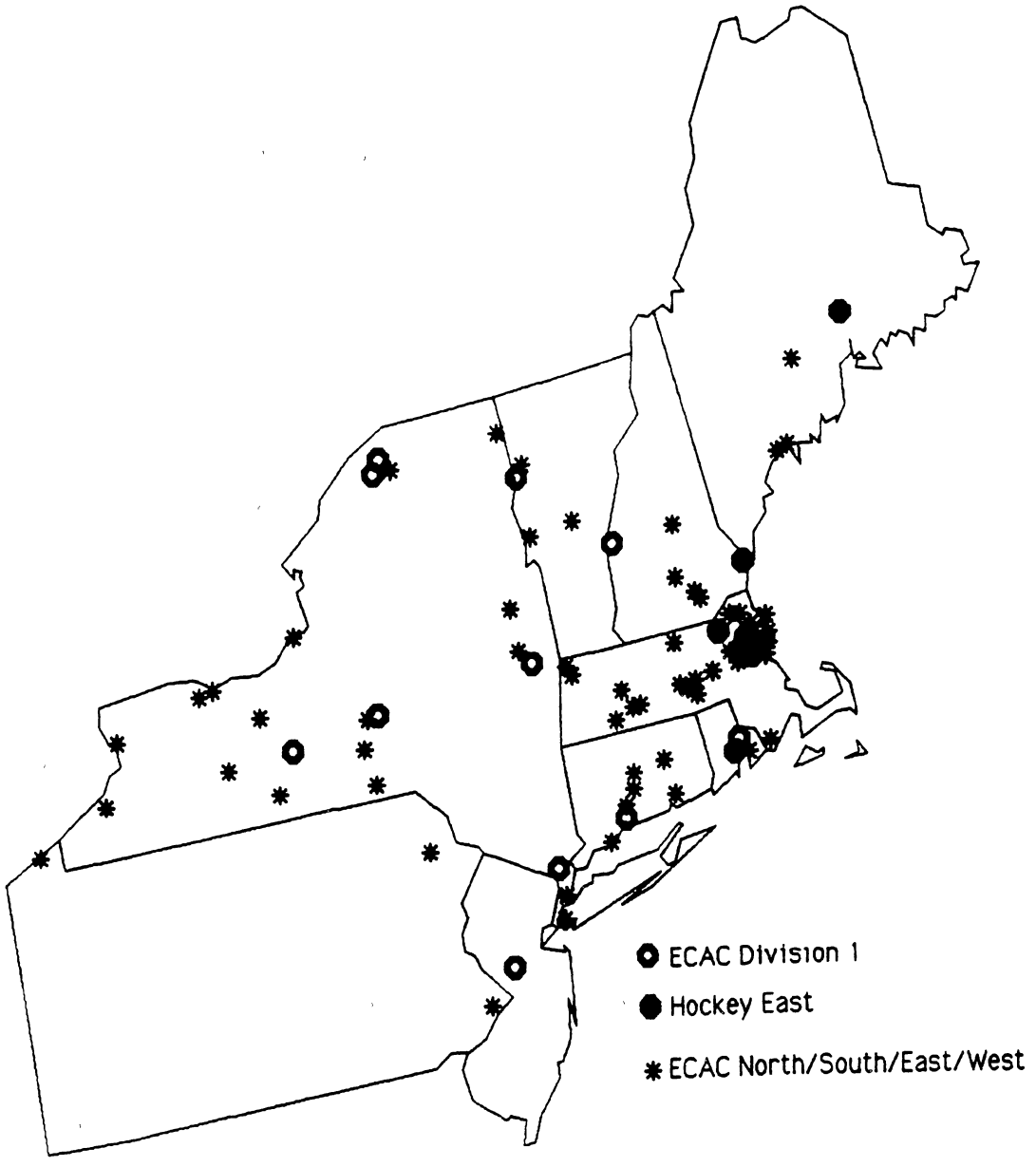

Figure 8. ECAC Team Distribution

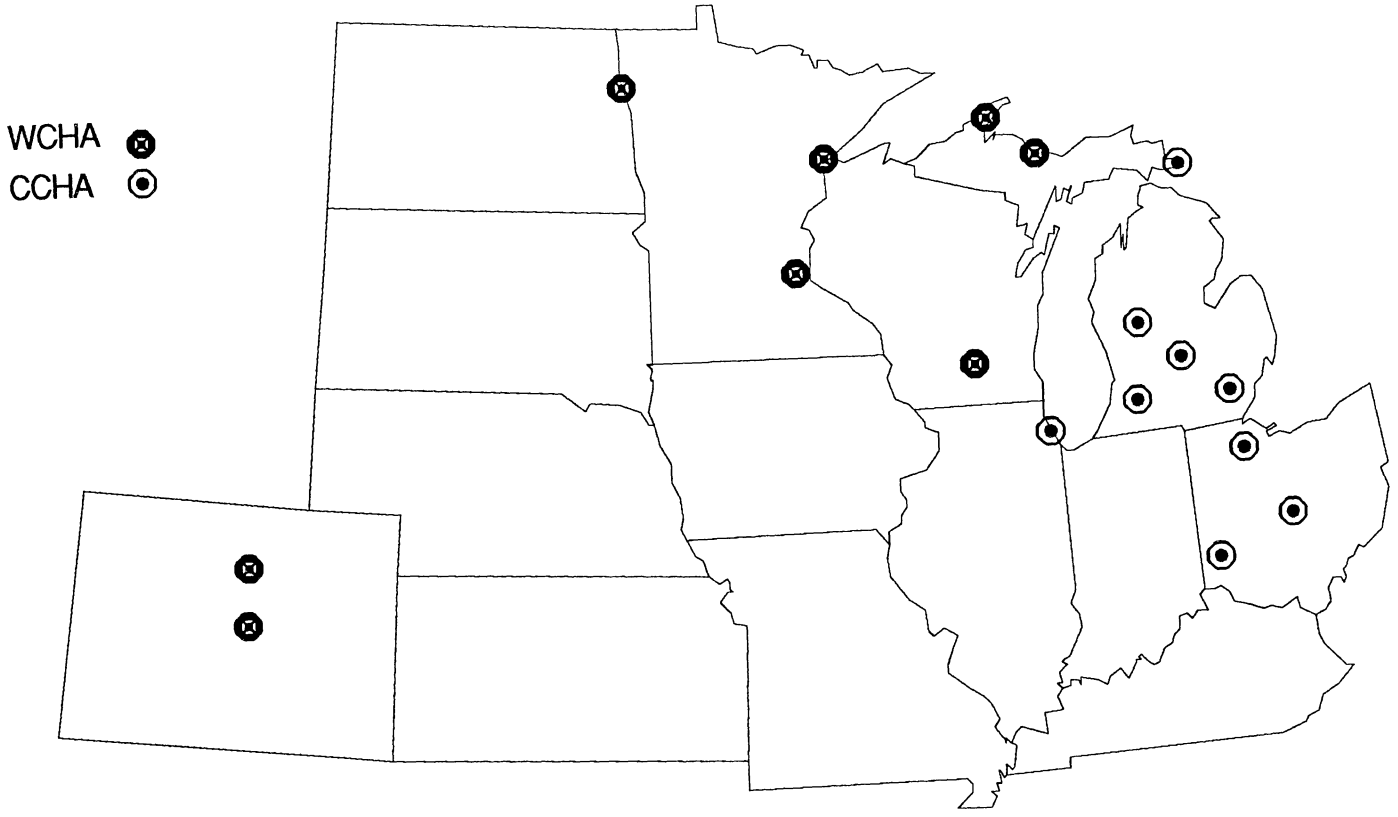

Figure 9. CCHA/WCHA Team Distribution

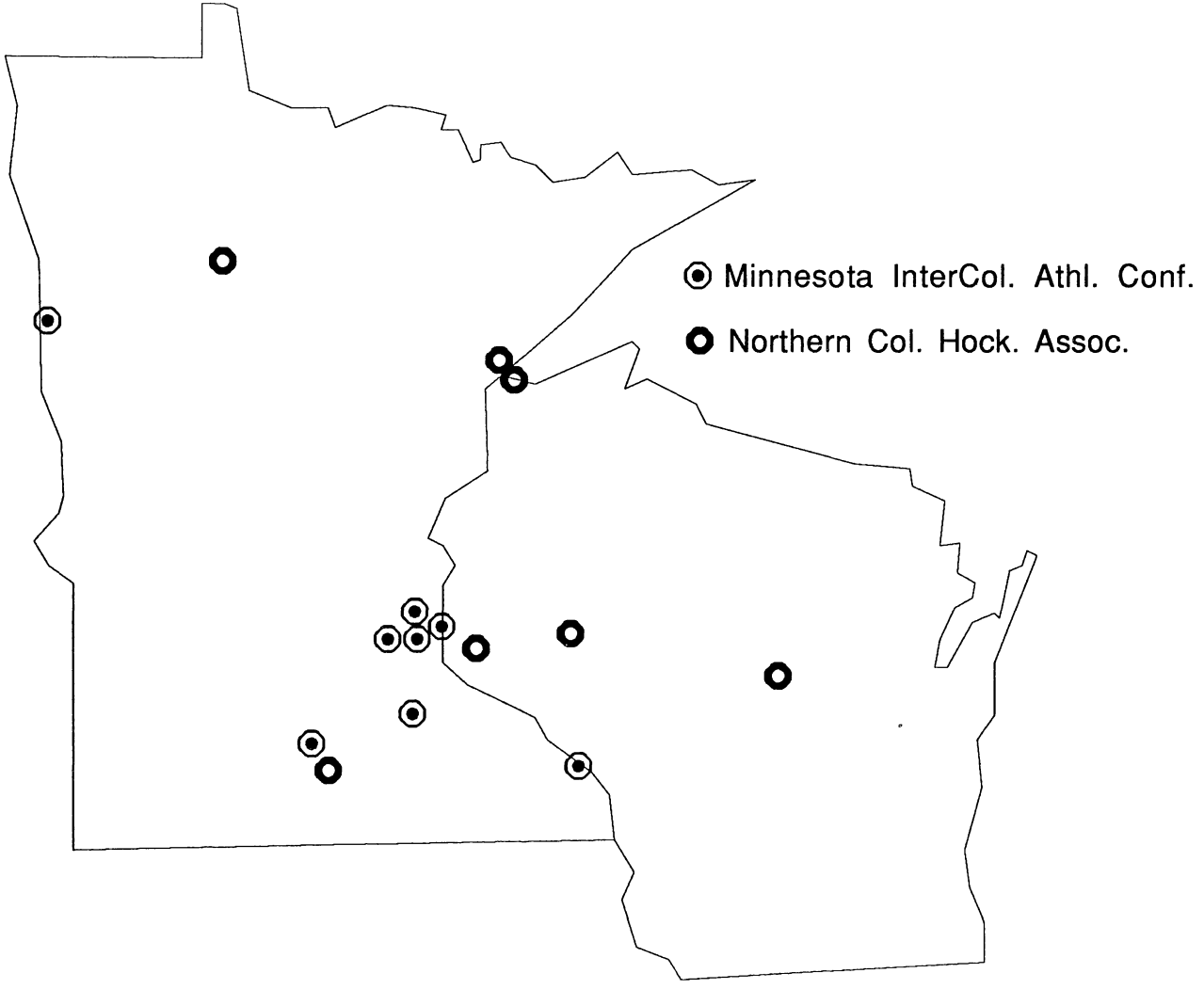

Figure 10. MIAC/NCHA Team Distributions

abnormally high number of goaltenders, of which LaSalle has appropriately contributed. Speculation suggests that the coaches in the area may be strong in the technical aspects of goaltending and having produced several, caused a successful chain reaction.

Commitment and support in the form of high school and prep programs is very important in the production success of an area. Figures 5A and 3 reveal the relationship between areas of relative production and the location of high school hockey programs. It is fundamental to hockey success to have some form of grassroots support for the sport. Areas without high school programs will have a more difficult time producing players. They do not have the needed commitment to the sport to breed success. It is not surprizing that many areas which support a large number of programs also have higher production rates. Such areas can provide the aspiring athlete with training, facilities, etc. For example, Figure 5B reveals that the eastern Connecticut counties of Tolland, Windham, Middlesex and New London are low in or devoid of production. Robert Crocker of the Hartford Whalers (January 30, 1990) notes in an interview how the area from Hartford to the New York state line has "outstanding prep schools in the US and (how) they all have really top notch hockey programs," while the eastern half of the state has none. Figure 5B shows the disparity between production in the eastern and western sections of the state. The Twin Cities, Roseau, and Boston all have highly

competitive high school programs and high production rates. Some schools are so competitive that it is not unusual for some athletes to be drafted directly from high school.

Figures 11 and 12 also show how production is influenced by professional and minor-professional team locations, in addition to college team location. The International Hockey League and the NHL account for five teams in Michigan: Red Wings, Kalamazoo, Muskegon, Saginaw and Flint. Counties in the immediate area of these teams are all producing, some at a very healthy rate. The Chicago area also illustrates this point very well. Figure 3 shows that the majority of production in Illinois is centered around the Chicago area. The influence of the Black Hawks NHL franchise is apparent in the state (Jack Ferreira, Personal Communication, January, 30, 1990). 'The Milwaukee area is similar in that it stimulates production with its IHL franchise' (Doug Spencer, Personal Communication, January 30, 1990) The important factor operating in these areas and many others is the access to facilities and programs that young athletes have. "The key to development is the creation of facilities...kids don't want to play outdoors" (Mike Schroeder, Personal Communication, January 30, 1990). These areas have the facilities; the results are reflected in production rates.

In conclusion, Robert Crocker, talking about the future of hockey in New England, made a statement that is applicable to many parts of The US Core Hockey Region:

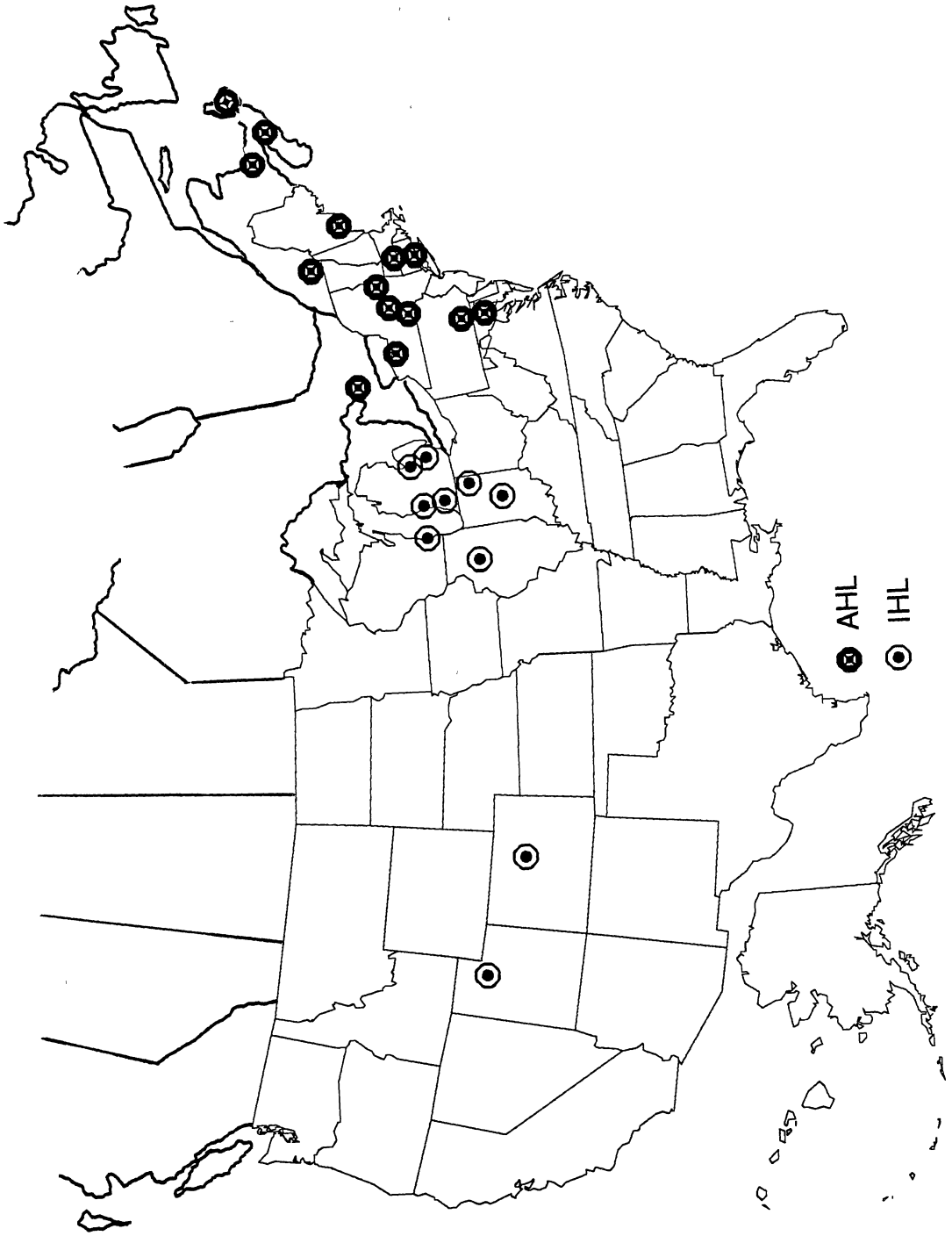

Figure 11. Minor-Professional Hockey Franchises

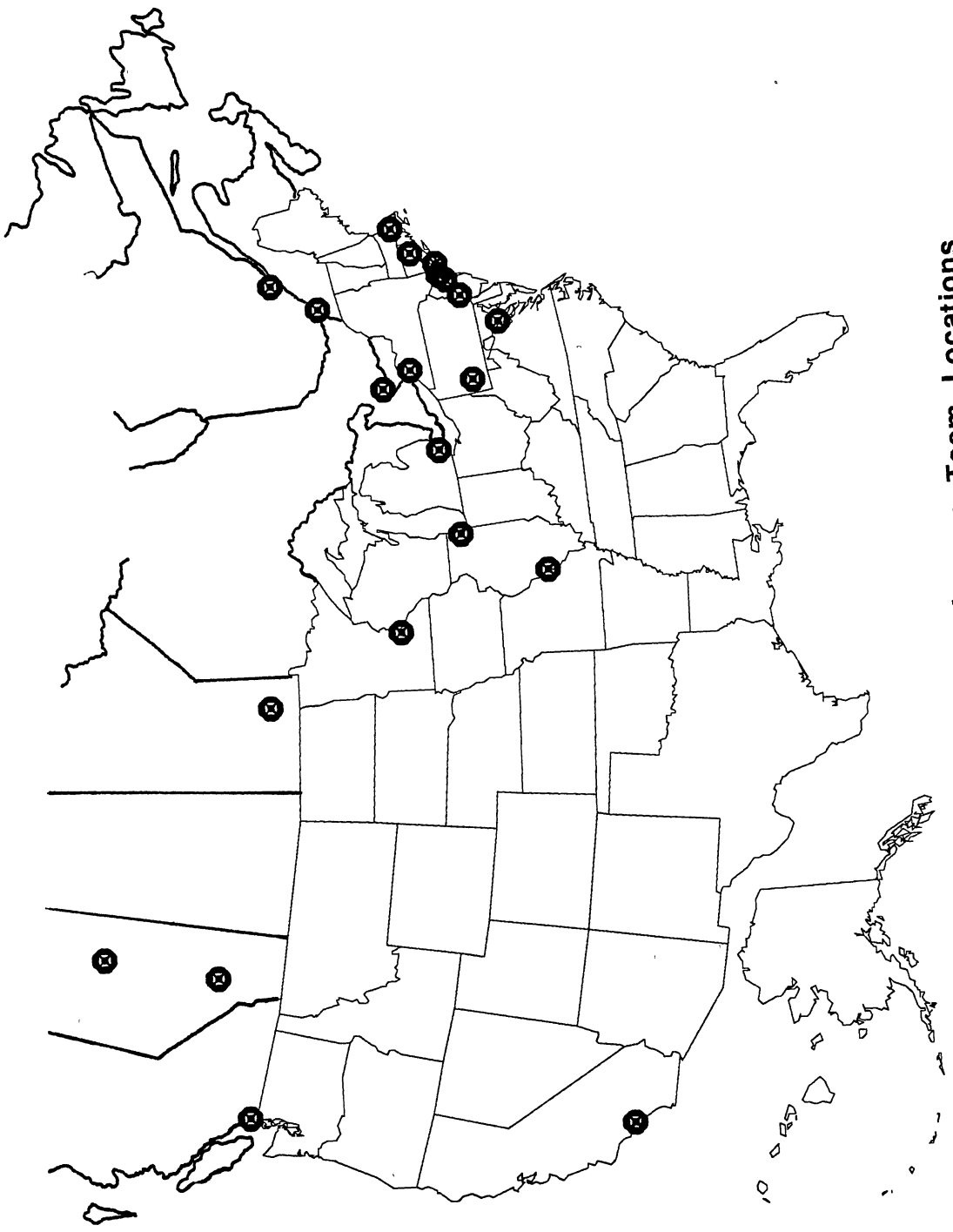

Figure 12. National Hockey League Team Locations

> It has always had a heritage and history and its become one of the mainstays of the secondary, high school, prep and college programs and they all seem to be very successful as far as attendance, support and interest and I think that it will continue that way" (Personal Communication, January 30, 1990).

Professional Hockey LQ's

Comparisons of combined player production (Figure 1) and professional player production (Figure 13 and 13A) reveal very few differences. Only 28 states produce athletes proficient enough to play professional hockey. Thirty seven states are listed as producers under total hockey production. Minnesota, Massachusetts, Rhode Island, Connecticut, Vermont, New Hampshire and Alaska, which combined produced 59.3% of professional and college players also accounted for 58.6% of professional players. Lower production rates in Connecticut and Vermont probably account for the slight decrease in the above percentage (Table III). The same trend is evident in the minor-professional producing areas (ND, MI, NY, ME, IL, NJ, WI). These states accounted for 32.2% of the total and 29.6% of professional production. Professional production rates are higher in North Dakota and Michigan and lower in New York and Maine. The college/junior production area accounts for 6.1% of professional production and 5.6% of total production. In conclusion, three state have significantly higher professional production rates, Alaska, North Dakota and

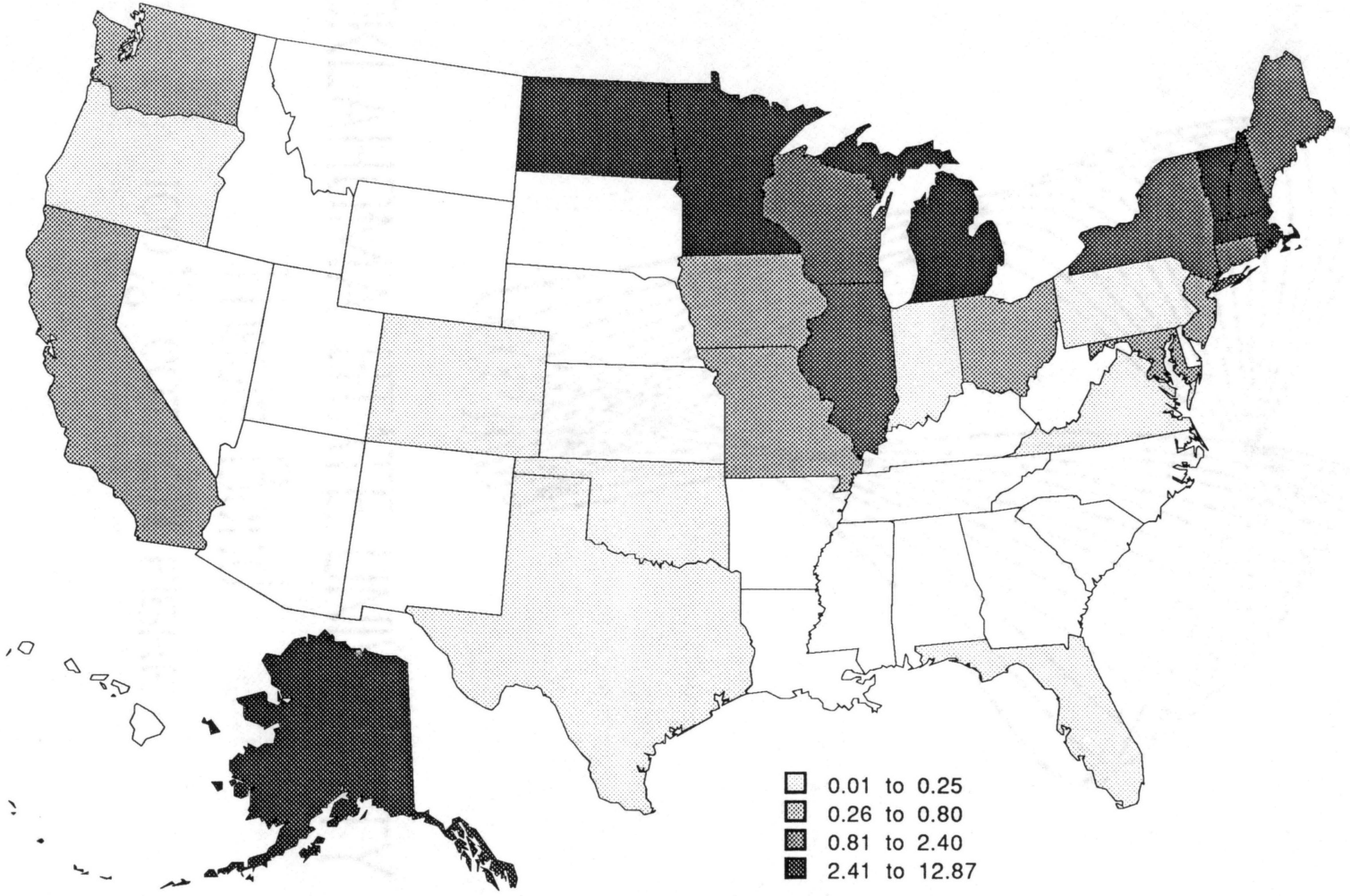

Figure 13. US Pro Hockey Location Quotients

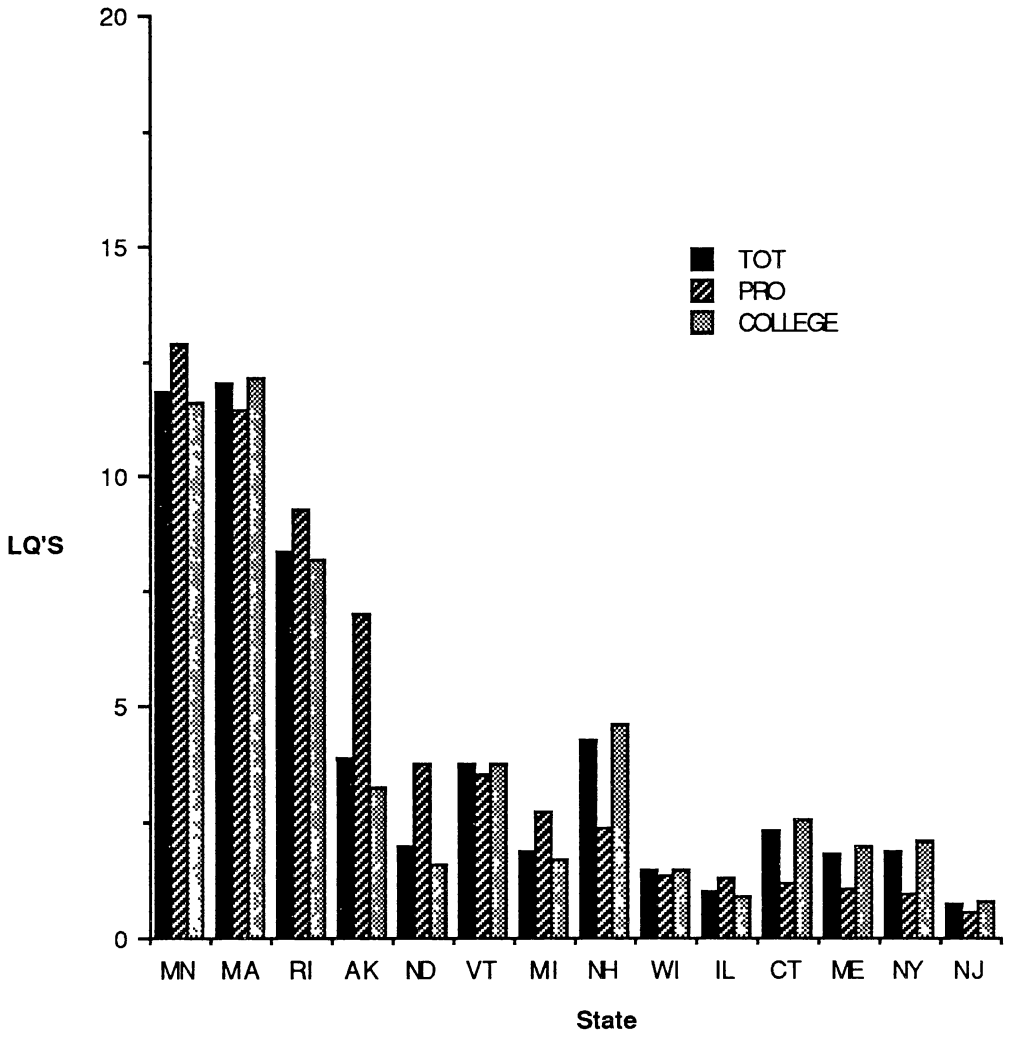

Figure 13A. Location Quotients by Category

TABLE III

US PROFESSIONAL LOCATION QUOTIENTS

STATE	LOCATION QUOTIENTS US	NA
MN	12.87	3.65
MA	11.47	3.25
RI	9.31	2.64
AK	7.01	1.99
ND	3.77	1.07
VT	3.56	1.01
MI	2.76	0.78
NH	2.42	0.69
WI	1.35	0.38
IL	1.3	0.37
CT	1.22	0.35
ME	1.1	0.31
NY	0.95	0.27
MO	0.77	0.22
NJ	0.59	0.17
IA	0.46	0.13
OH	0.43	0.12
MD	0.29	0.08
WA	0.29	0.08
CA	0.26	0.07
OR	0.24	0.07
PA	0.22	0.06
VA	0.22	0.06
OK	0.2	0.06
CO	0.19	0.05
IN	0.12	0.03
FL	0.11	0.03
TX	0.08	0.02

Michigan. Alaska produced professional players at a rate of 7.01 professional vs. 3.9 total, North Dakota 3.7 vs. 1.98 and Michigan 2.76 vs. 1.89. Combined, these states produced 13.1% of professional players but only 8.5% of all players. An explanation of this trend is difficult. Certainly these areas put strong emphasis on top quality competition. One can also theorize that these areas have some availability of natural ice which would help players hone their skills. The proximity of these areas to Canadian areas of above average production may also help account for the increased emphasis and proficiency in these areas.

College Hockey LQ's

After examining Figures 13A, 14 and Table IV, and comparing them to the respective graphics for total production, it becomes apparent that only minimal changes occur. As can be expected, Alaska, North Dakota and Michigan have lower rates. Surprisingly, New York produces college players at 2.08 times the national average and professional players at only .95
the average. Upstate New York's high college production rate is mainly due to the level of play and the location of the colleges in that area. You get into upstate New York and it excels:

> Because of the quality of collegiate programs, They are in Division 1 (and) they play as competitive programs as there are in the

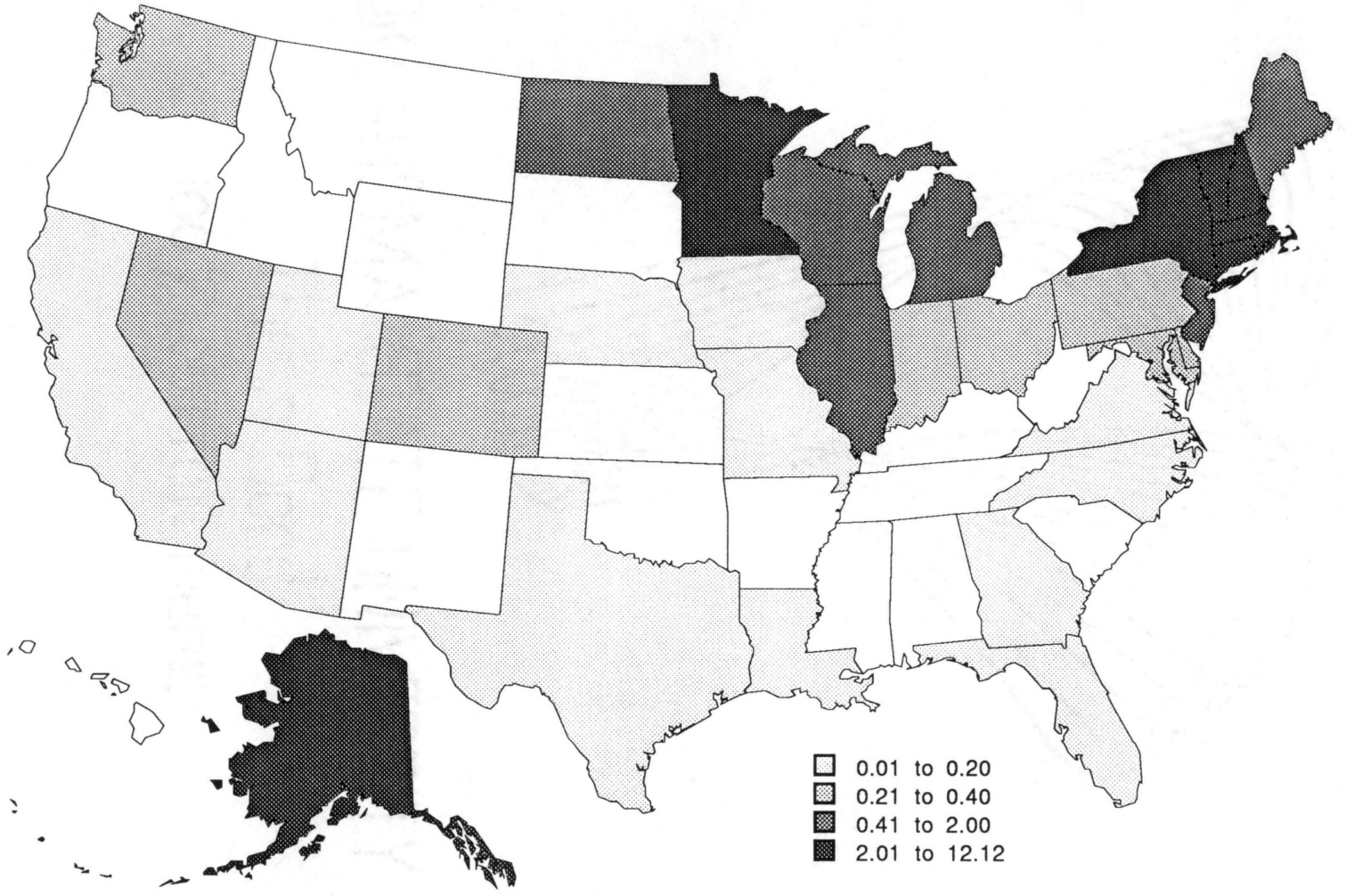

Figure 14. US College Hockey Location Quotients

TABLE IV

US COLLEGE LOCATION QUOTIENTS

STATE	LOCATION QUOTIENTS US	NA
MA	12.12	10.49
MN	11.6	10.04
RI	8.18	7.08
NH	4.62	4
VT	3.78	3.27
AK	3.22	2.79
CT	2.54	2.2
NY	2.08	1.8
ME	1.98	1.72
MI	1.69	1.47
ND	1.6	1.38
WI	1.49	1.29
IL	0.93	0.81
NJ	0.79	0.68
CO	0.37	0.32
MD	0.36	0.31
PA	0.34	0.29
WA	0.3	0.26
NV	0.27	0.23
OH	0.25	0.21
IN	0.25	0.22
DC	0.22	0.19
DE	0.21	0.19
MO	0.2	0.16
UT	0.16	0.14
IA	0.15	0.13
AZ	0.12	0.1
NE	0.09	0.07
CA	0.07	0.06
VA	0.05	0.04
FL	0.05	0.04
GA	0.04	0.04
LA	0.03	0.03
TX	0.02	0.02
NC	0.02	0.02
OR	0	0
OK	0	0

> country. (Crocker, Personal Communication, January 30, 1990)

While there is solid production of college players, it does not translate into elite professional production. This results from the lack of opportunity young athletes have to hone their skills on their own time; a general lack of quality and quantity ice time. Craig Ramsey (Personal Communication, January 30, 1990) also noted how a backlash against coaches is developing in some areas. Unless a child is in the top 7 or 8 on a team, he does not get much playing time. In his experience, the former NHL player and Director of Professional Evaluation for the Buffalo Sabres, found that the best players early on are not always the best later on. The drive to win today may be costing the state some potential NHL players. Children who sit on the bench do not develop hockey skills.

Growth and Spread of Hockey

In 1974, Russell found that the US only produced 72 professional players, 5.6% of all players in the NHL. Current figures indicate 375 American born players in the NHL which is 25.7% of total. Clearly Americans have made significant inroads into professional hockey. Russell (1974) also found 80.6% of production coming from three states: Minnesota (29 players), Massachusetts (14 players) and Michigan (15 players). These states currently produce 60.3% of US born players. Furthermore, Russell (1974) does

not even discuss states such as Rhode Island, Connecticut, Maine, etc.. While this study shows hockey to still be regionalized, the degree of concentration has lessened. A glance at the number of teams registered with USA Hockey (Figure 15) shows a slow and steady expansion of hockey in the US. Only 3802 teams were registered in 1968-69. Today 15,206 are registered--a 400% increase. The biggest growth occurred between 1968 and 1974. Team registrations have only increased 48% in the last fifteen years. Figures 16-16F indicate the extent of team registrations throughout the US. As expected, the highest registration LQ occurs in and around The US Core Hockey Region. On a positive note, for the hockey aficionado, Figure 16 does indicate the great extent to which teams exist. Figure 15 suggests that a comparable map produced 20 years ago would show team registrations to be of less intensity and less extent.

Figure 16A reveals a very unusual development in the >30 team registration division. In traditional hockey hotbeds such as Minnesota, Massachusetts, and Rhode Island, there is a very definite to sharp decline in the number of teams registered in this age group. Logic would dictate the opposite in these hockey-crazed areas: Participation in hockey should remain high even at older age levels. Age and changing family responsibilities may play a small role in this decline. More likely, the lack of opportunity, as in New England where the New England Semi-Professional League folded in the mid 80's due to finances, and the availability

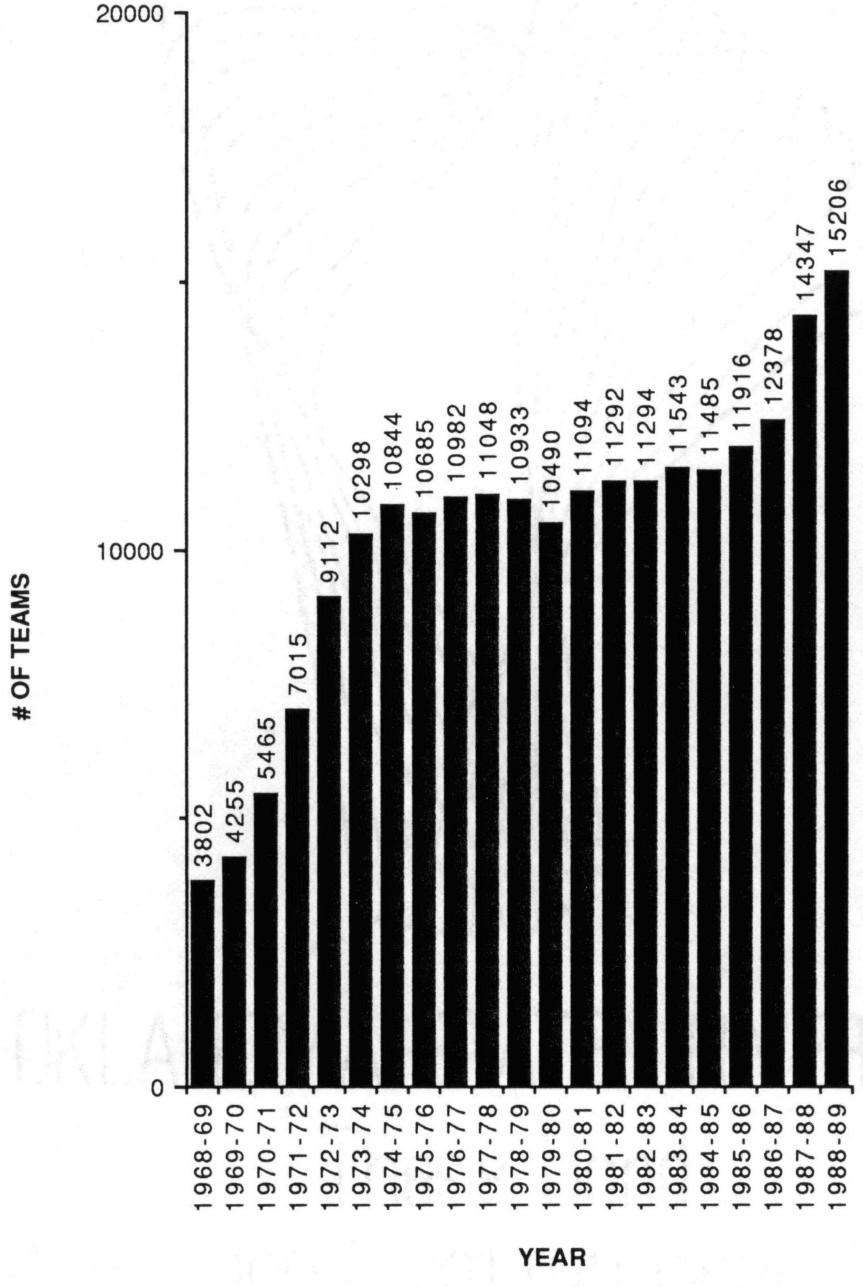

Figure 15. USA Hockey Team Registrations

Source: USA Hockey

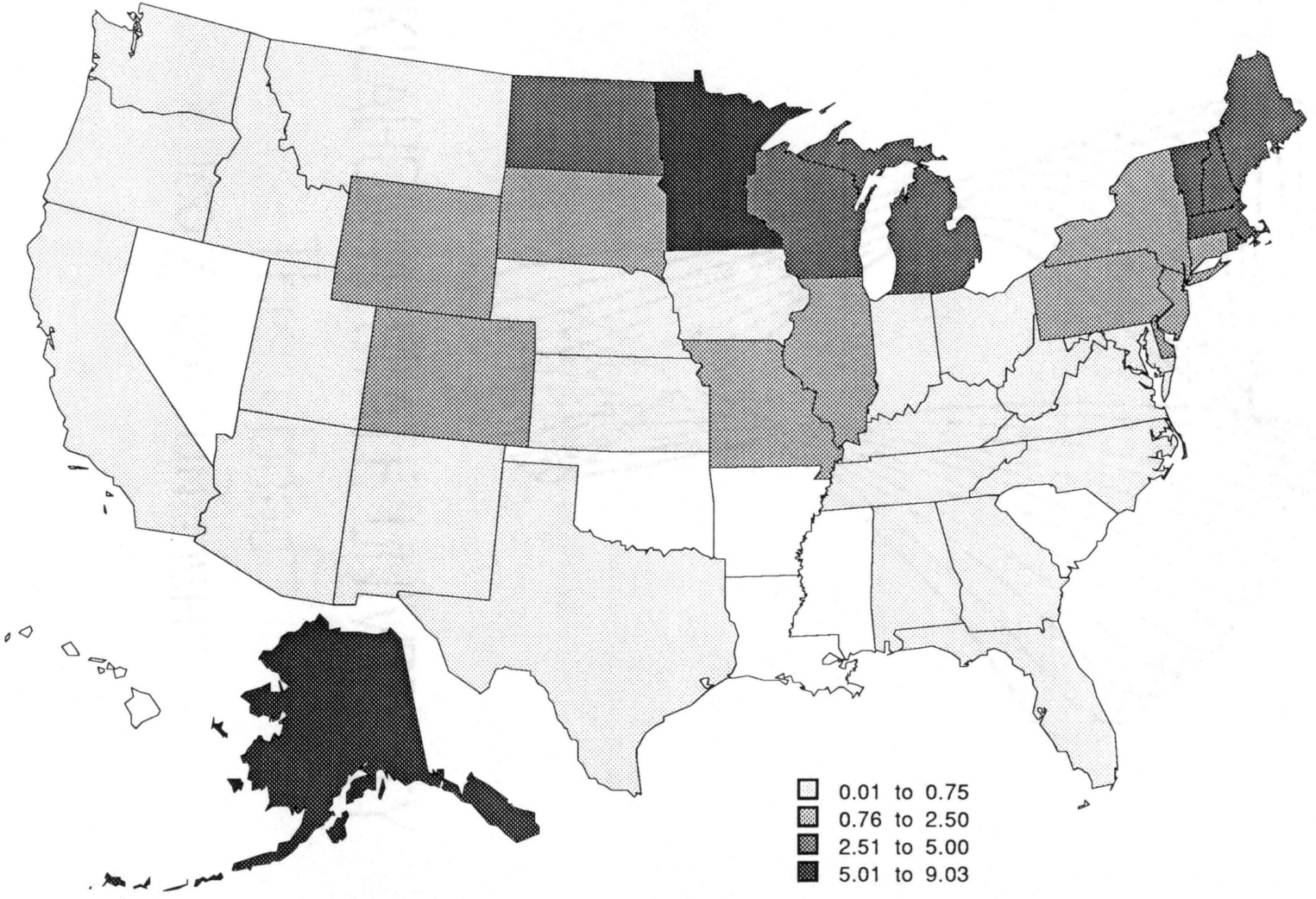

Figure 16. Team Registration Location Quotients

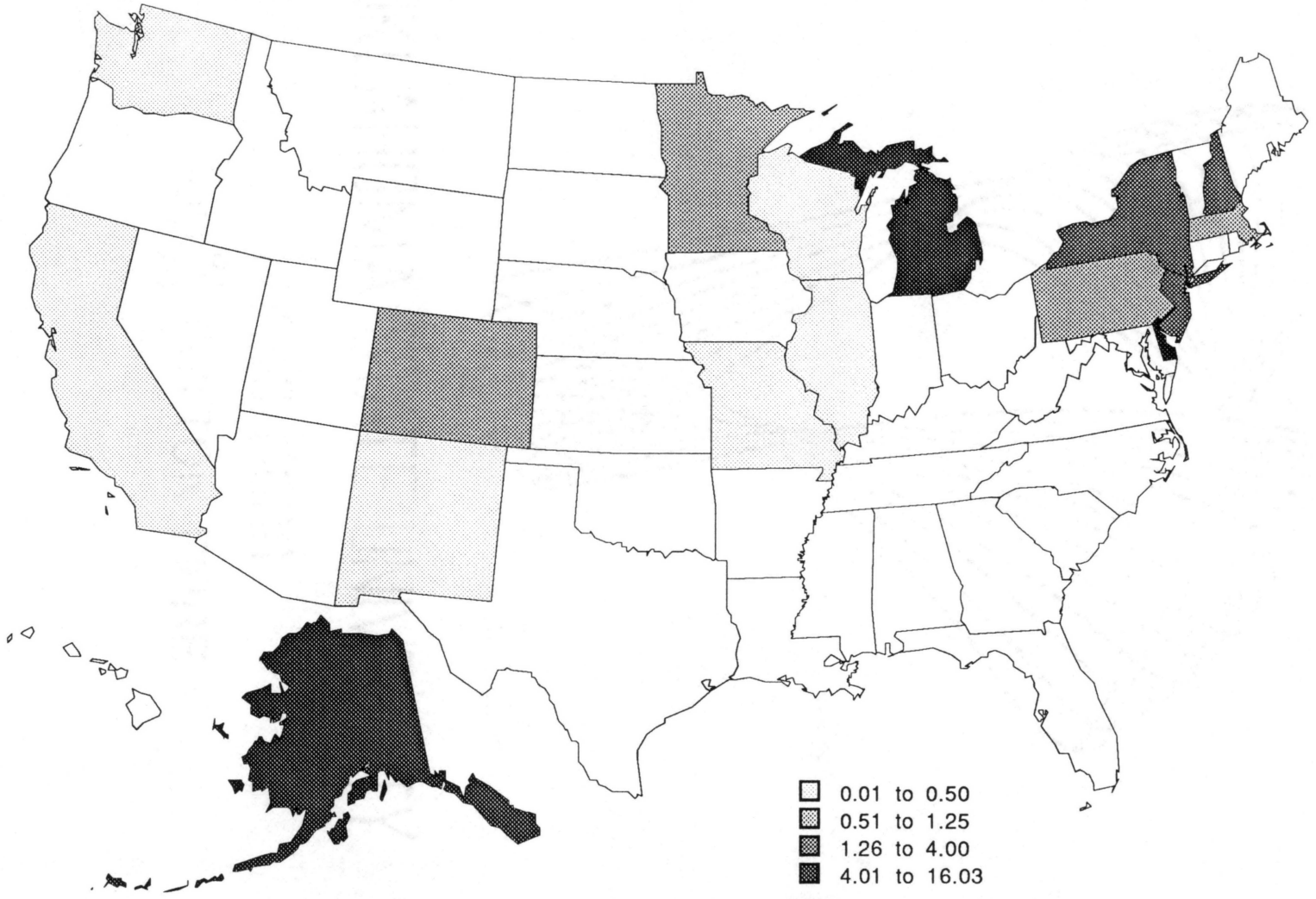

Figure 16A. Team Registration Location Quotients: >30 Division

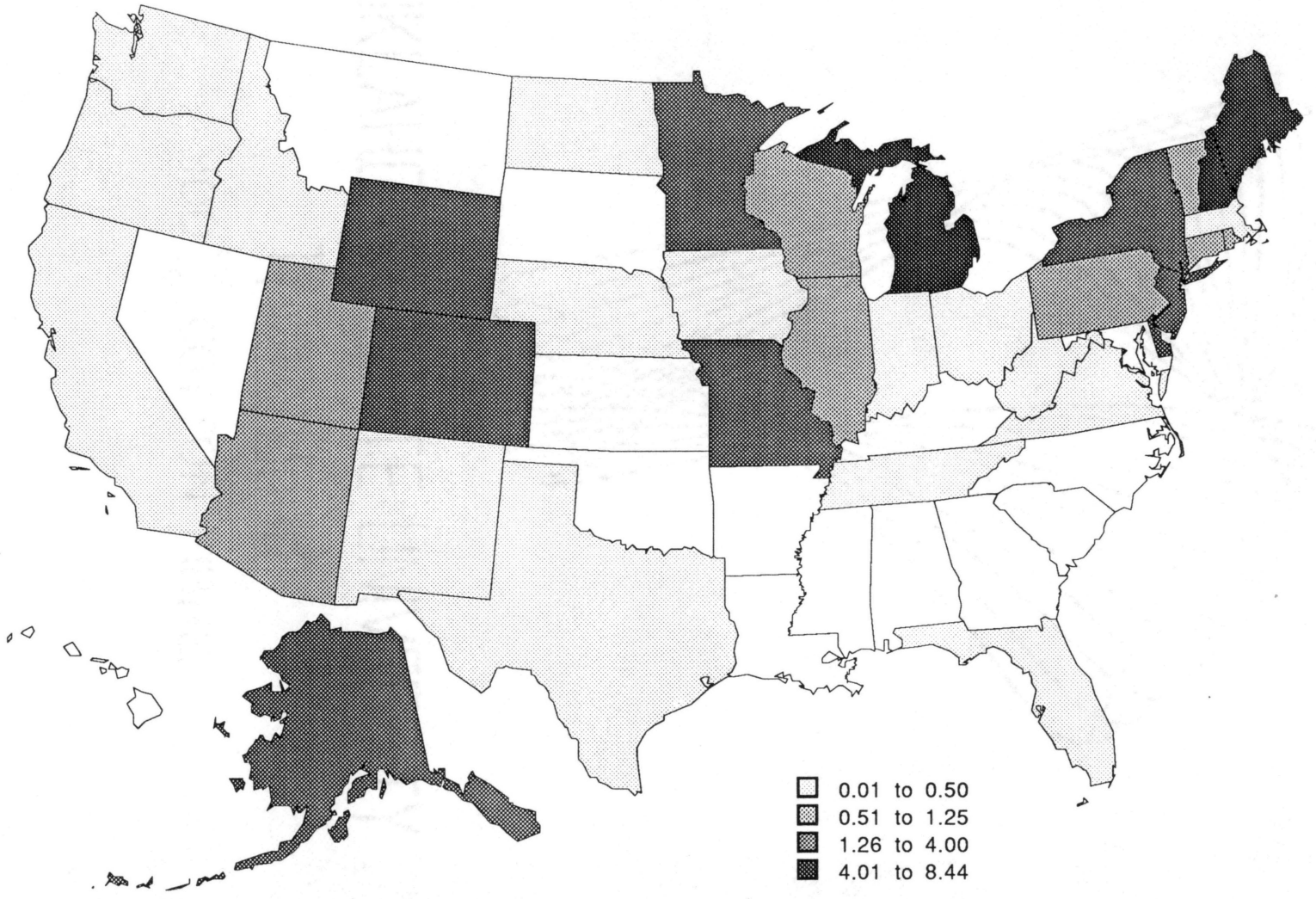

Figure 16B. Team Registration Location Quotients: Senior Division

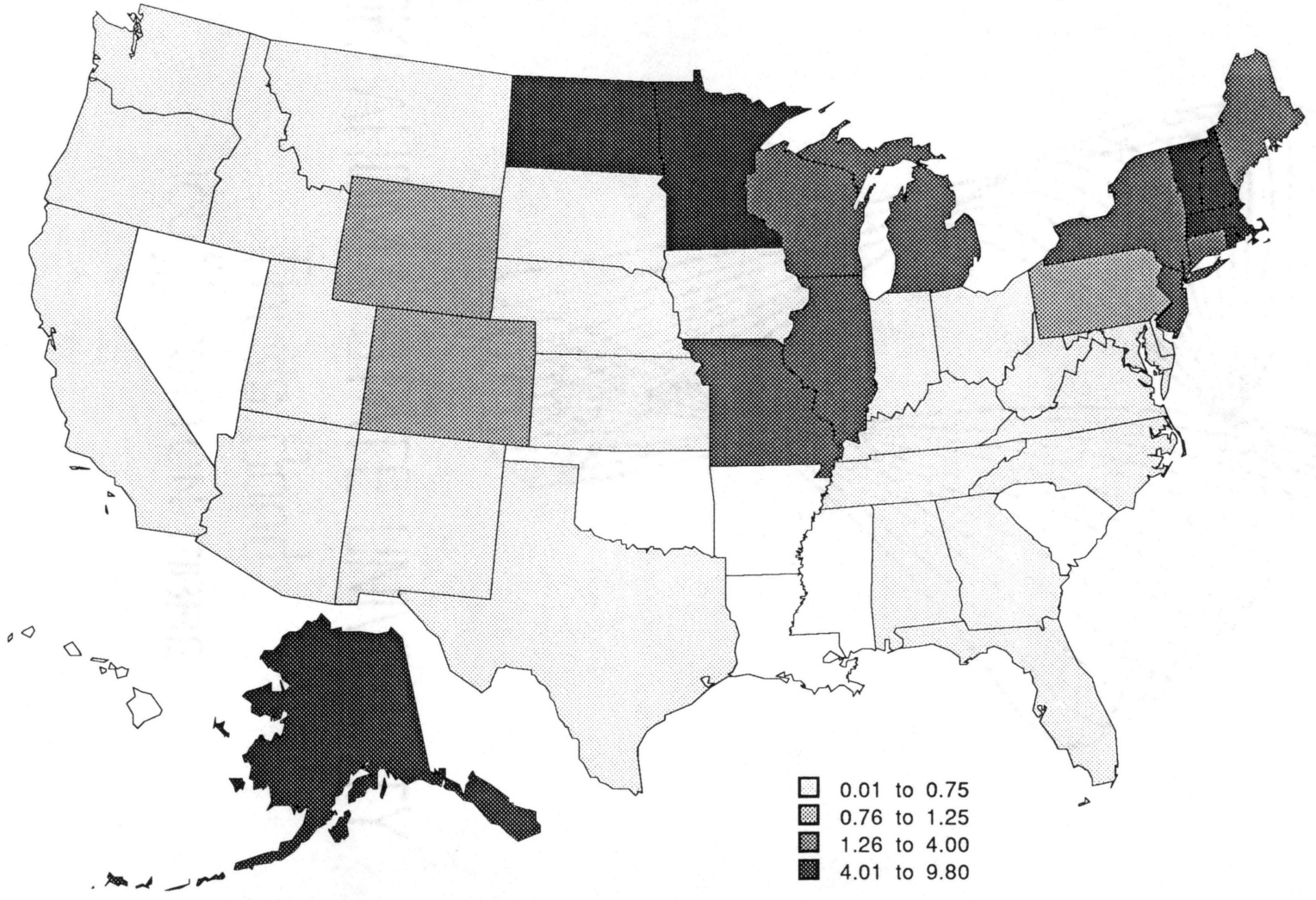

Figure 16C. Team Registration Location Quotients: 14-19 Division

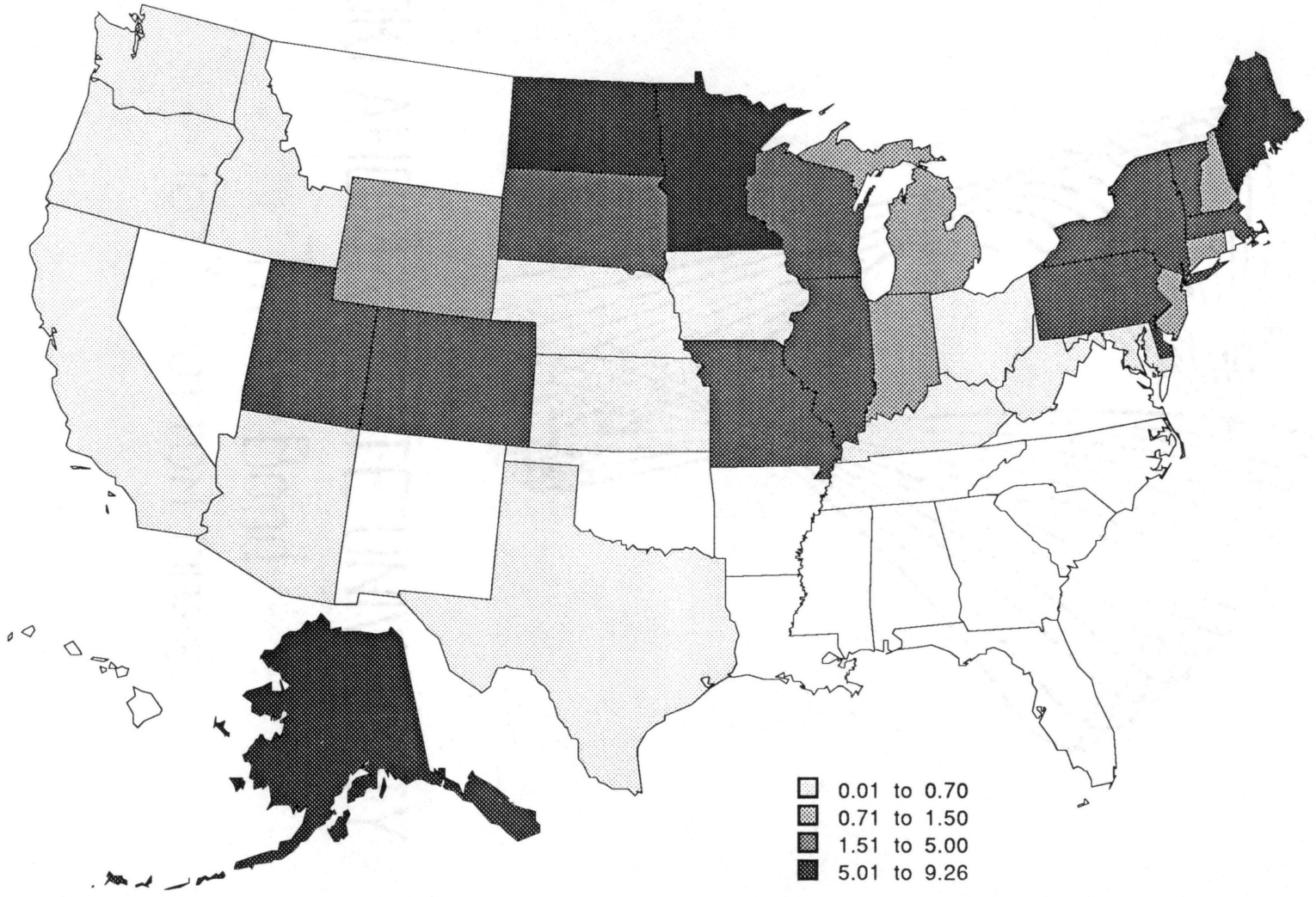

Figure 16D. Team Registration Location Quotients: High School/Prep Division

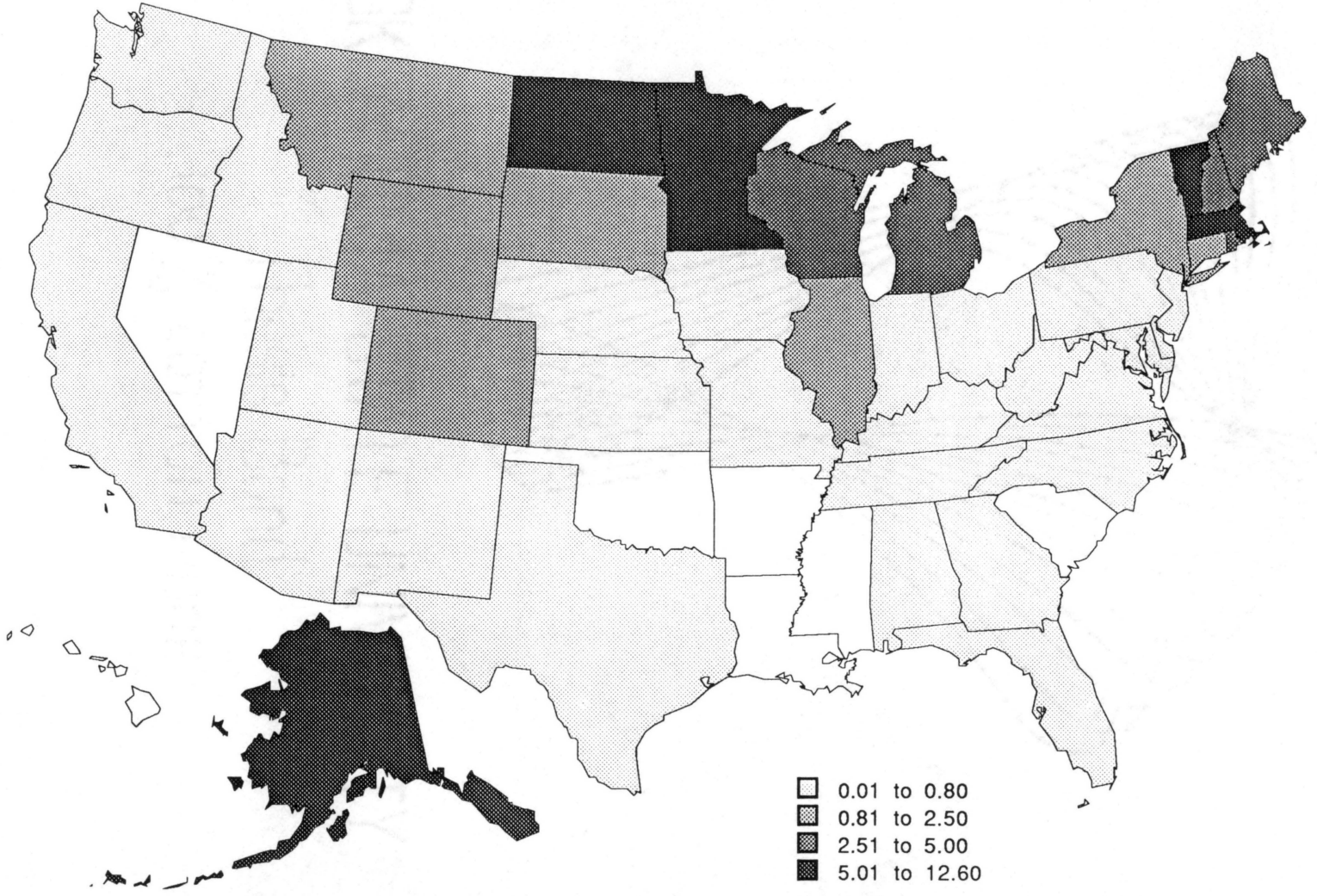

Figure 16E. Team Registration Location Quotients: 7-13 Division

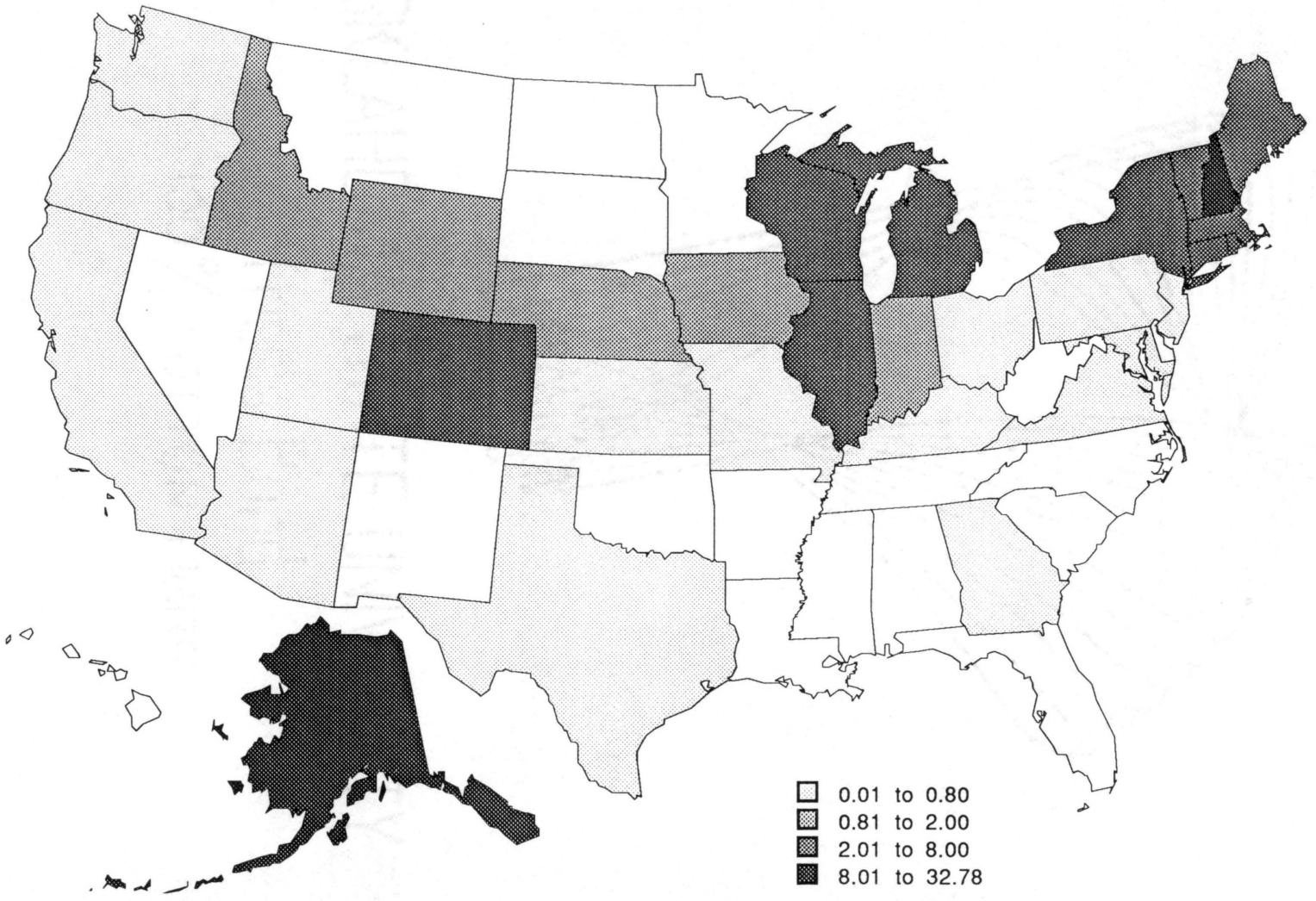

Figure 16F. Team Registration Location Quotients: <7 Division

of ice are factors. With hockey being popular at the lower age levels, older age groups are often relegated to late night playing hours. Playing games at 11 PM or midnight is not conducive to the working schedules of men in their late 20's and 30's.

Perhaps the major dilemma facing hockey in the US, apart from the lack of facilities, is the cost. Craig Ramsey of the Buffalo Sabres has three boys in organized hockey. Two are on travel teams and one plays in a house league. Ramsey estimates the cost of hockey to be approximately $1500 per boy per year. Travelling also costs about $50 per night with tournaments lasting 2-3 days. This is in addition to the cost of a parent and child losing a Friday off work and school respectively. Hockey is becoming a "sport of the well-to-do" (Ramsey, Personal Communication, January 30, 1990). In areas where tradition and commitment are strong, hockey survives and flourishes despite cost. Areas lacking the aforementioned suffer!

> Programs are supported by budget from within the town, school, city, etc.... whatever the area they are in...basically in the Connecticut area and some parts of Rhode Island, Maine, Vermont and New Hampshire, the cost is too great and they have to be subsidized by parents paying $500 per boy... as a result, naturally, that hurts the growth and development of hockey (Crocker, Personal Communication, January 30, 1990).

Jack Ferreira (Personal Communication, January 30, 1990) of the Minnesota North Stars hopes to see more children playing the game and thereby offsetting the cost and alleviating one

of the "major problems of the sport". While this suggestion would help, the initial effort needed to overcome cost inertia is still very significant.

In conclusion, the future of hockey looks solid. It is firmly entrenched in some areas, stable in others and growing in yet others. Mike Schroeder (Personal Communication, January 30, 1990) of USA Hockey describes Ohio, Indiana and Pennsylvania as stable areas. Illinois is a growth area and Alaska is very strong in youth and elite, i.e., top-of-the-line, level hockey. Senior hockey has even gained a foothold in California and Florida. USA Hockey hopes to work in reverse and gain a following in these states. "(Hopefully) it will mean that those transplants will have kids and their kids will want to play hockey and there will be a demand for arenas and facilities in those areas" (Schroeder, Personal Communication, January 30, 1990). Whether this approach will work remains to be seen. The efforts of the NHL to expand in the 90's will hopefully help the impetus hockey currently has.

Total Hockey Player Production in Canada

Total hockey player production in Canada is primarily located in the core of the country stretching from Alberta through Ontario (Figure 17). Combined, those four provinces account for 73% of Canadian production (Table V). Saskatchewan is the most noticeable member of this group at 2.17. Alberta, Manitoba and Ontario are more closely

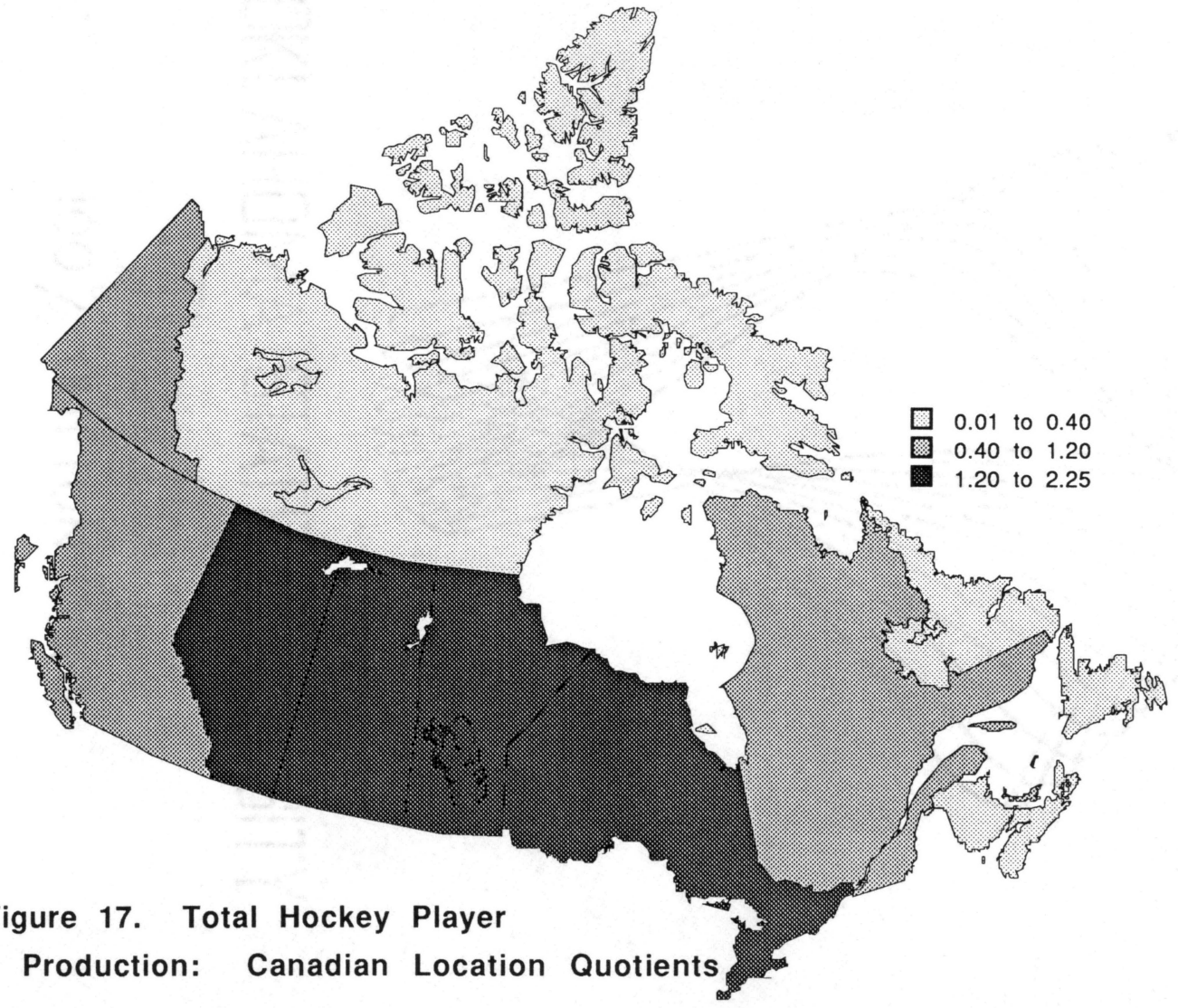

Figure 17. Total Hockey Player Production: Canadian Location Quotients

TABLE V

TOTAL CANADIAN HOCKEY PLAYER PRODUCTION

PROVINCE	TOTAL LQ'S		PLAYERS		TOT	POP
	CDN	NA	PRO	COLL		1986
SASKATCHEWAN	**2.17**	9.76	106	29	135	1,009,613
ALBERTA	**1.56**	7.00	153	74	227	2,365,825
MANITOBA	**1.28**	5.77	56	28	84	1,063,016
ONTARIO	**1.24**	5.57	481	214	695	9,101,694
BC	**1.08**	4.83	110	81	191	2,883,367
YUKON	**0.69**	3.10	0	1	1	23,504
PEI	**0.64**	2.88	4	1	5	126,646
QUEBEC	**0.46**	2.08	154	32	186	6,532,461
NEW BRUNSWICK	**0.34**	1.54	8	7	15	709,442
NWT	**0.31**	1.40	0	1	1	52,238
NOVA SCOTIA	**0.24**	1.09	9	4	13	873,176
NEWFOUNDLAND	**0.14**	0.64	3	2	5	568,349
TOTAL	**1.00**	**4.49**	**1084**	**474**	**1558**	**25,309,331**

grouped between 1.24 and 1.56. British Columbia (BC) is the only other province above the Canadian average at 1.08. Loosely, BC can be considered a part of the core area. An interesting development is the low production rate of Quebec (.46). Russell's (1974) production rate for Quebec was around the national norm. With the exception of Prince Edward Island, the Maritime provinces produce at or below one-third the national Canadian norm. The LQ's for the Yukon and Northwest Territories are difficult to judge accurately due to their small populations. Further, until recently, the culture of the indigenous peoples of the far north (Inuit, Dene) was vastly different from the culture of southern Canadians. In general, production is greater in the west than the east and declines the further east one travels from Ontario.

Total Player Production by Census Division

As previous analysis revealed, Saskatchewan is the leading producer in Canada. Alberta, Manitoba, Ontario, and to a lesser extent, BC, follow and comprise the core area of Canadian production.

At the micro-level, areas of high production show some degree of localization. For example, Saskatchewan consists of 18 Census divisions (CD), of which 11 place in the top 25 producing CD's in Canada (Table VI and Appendix E). Saskatchewan also exhibits a high degree of uniformity in production (Figure 18). The 11 CD's in question are located

TABLE VI

TOP 25 CANADIAN PLAYER PRODUCTION BY CENSUS DISTRICT

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
1	RAINY RIVER	7.1	10	4	6	22,871
2	10-SASK	5.97	9	7	2	24,487
3	KOOTENAY BOUNDARY	5.89	11	7	4	30,335
4	TIMISKAMING	4.84	12	6	6	40,307
5	4-SASK	4.62	4	4	0	14,058
6	4-ALBERTA	3.94	3	3	0	12,376
7	10-ALBERTA	3.87	19	11	8	79,745
8	CENTRAL KOOTENAY	3.64	11	5	6	49,110
9	21-MAN	3.37	5	5	0	24,068
10	OKANAGAN-SIMILKAMEEN	3.3	12	5	7	59,089
11	16-SASK	3.22	8	4	4	40,314
12	THOMPSON-NICOLA	3.02	18	8	10	96,805
13	7-SASK	3.02	10	9	1	53,706
14	SUDBURY REGIONAL	2.98	28	24	4	152,476
15	6-MAN	2.91	2	1	1	11,176
16	1-SASK	2.88	6	3	3	33,813
17	13-SASK	2.83	5	5	0	28,656
18	4-MAN	2.83	2	2	0	11,469
19	5-SASK	2.82	7	4	3	40,315
20	14-SASK	2.77	8	8	0	46,932
21	15-SASK	2.76	14	13	1	82,258
22	LAMBTON	2.61	20	18	2	124,592
23	3-SASK	2.51	3	3	0	19,392
24	6-SASK	2.51	33	22	11	213,800
25	KITIMAT-STIKINE	2.47	6	5	1	39,483

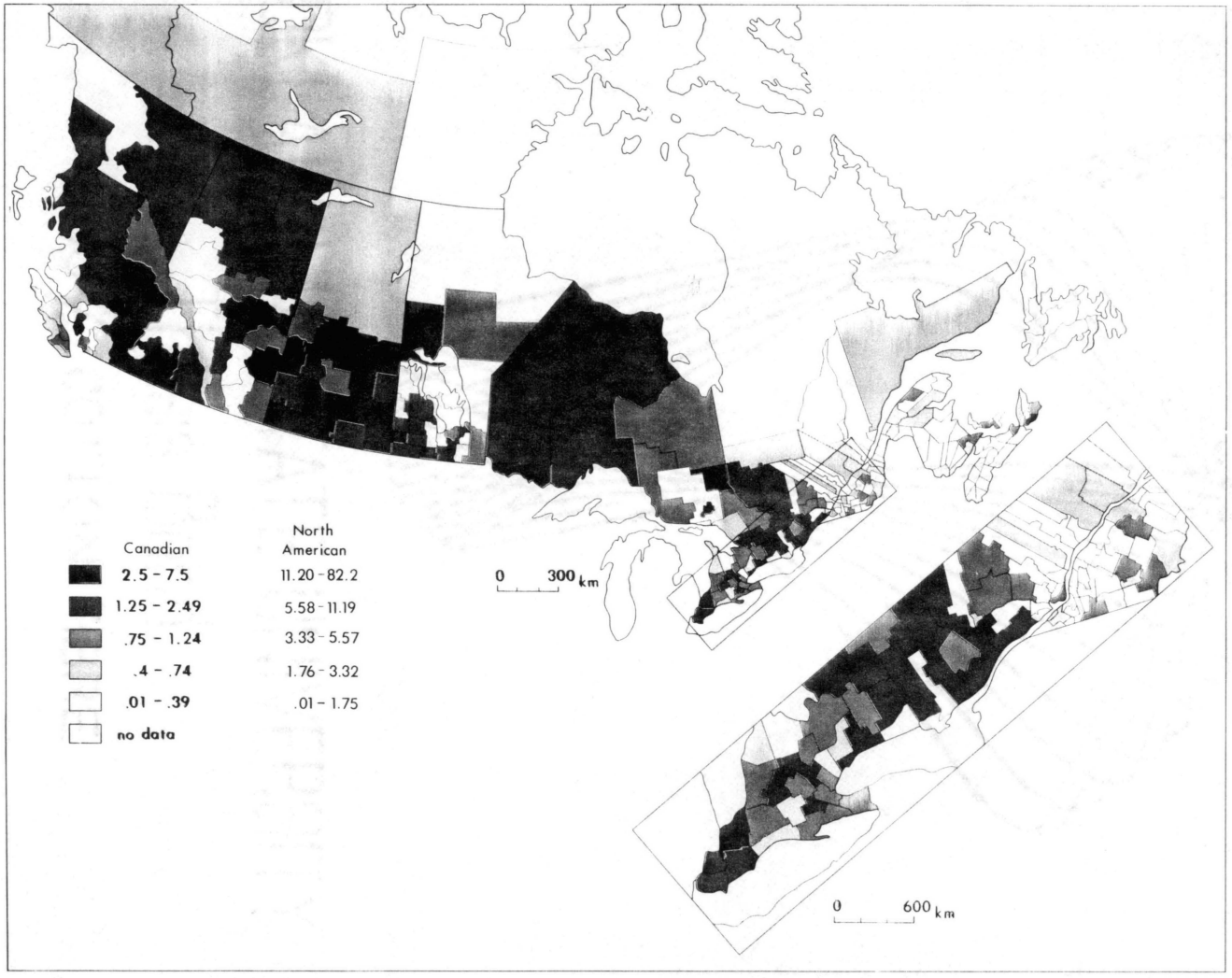

Figure 18. Total Player Production by Census District

below the 54th parallel and are spread out evenly. This may result from "the geography (of Saskatchewan)...there's so many cities or centers of relatively equal size that you wind up with terrific competition within like-sized communities" (Hal Sigurdson, Winnipeg Free Press, Personal Communication, January 30, 1990).

The success of Saskatchewan also results partly from the tradition of hockey in the province and in Canada as a whole. It is the way that young athletes get recognition. It's a constant in a province dominated by an unstable and sometimes volatile farm economy where wheat prices are well beyond the control of the average person. Saskatchewan's urban areas, Regina and Saskatoon, are relatively small and this may limit the number of intervening opportunities an athlete has. Besides, playing hockey is the thing to do in Saskatchewan and in the West in general. Saskatchewan and the West also have a climate which provides young athletes with opportunities to sharpen their skills. In fact, summer ice hockey and ball hockey leagues are becoming common in urban areas. Lastly, there is a mentality in the West, right or wrong, which may further explain why so many young men seek their fortunes on skates. Veteran Winnipeg sportscaster Jack Matheson explains:

> I think Saskatchewan kids want to get out of Saskatchewan as Manitoba kids want to get out of Manitoba...you know the story... we are sort of poverty stricken out here and the kids want to get away from it, in fact the whole population does. I don't know

> when it's going to stop or if it's going to stop... we're sort of losers out here. (Personal Communication, January 30, 1990)

The strength of Saskatchewan is so great that it overflows its borders into both Alberta and Manitoba (Figure 18). It must be stressed that the climate is a very conducive factor in hockey production in this area. The winters are long and harsh and the established tradition channels children to play hockey after supper, on weekends or whenever their spare time allows. According to Mike Murray of the Canadian Amateur Hockey Association, this is a significant factor in improving a youngster's skill level (Personal Communication, January 30, 1990). The other area in the West which produces at a high level, and has a strong commitment and tradition is the Penticton, Kamloops, Trail area of interior BC. The Trail Smoke Eaters senior team was the last team to win a world championship for Canada. According to Mike Murray of the CAHA (Personal Communication, January 30, 1990) the area produces talent at all age levels.

The only non-western CD's appearing in the top 25 are Rainy River, Sudbury Regional, Timiskaming and Lambton. Culturally and physically though, Rainy River, Ontario is closer to Manitoba than to southern Ontario. Surrounding these are two areas of above normal (1.25-2.5) production, one starting in Northwestern Ontario and stretching across northern Saskatchewan, Alberta, the other in BC with some southern extensions into Edmonton-Calgary, Brandon-Dauphin

and Winnipeg-Altona.

In contrast with the US, rural areas compete with or even surpass urban areas in production. Table VIA illustrates this point clearly; only 11 of the top 25 counties are in major urban areas. In rural Western Canada, the arena is the focal point in many small communities. Covered or indoor ice rinks are the rule, not the exception. In the US, where facilities exist primarily in urban centers, urban or near-urban counties produce at a higher rate than rural counties. This trend also lends credence to the argument that the lack of intervening opportunity helps channel youngsters into hockey. Similarly, unlike the US, Canada's highest producing area does not have a NHL franchise. Only recently has the NHL come to Winnipeg, Calgary and Edmonton.

Producing at the same rate as the secondary western provinces is a triangular area extending from Kitchener, Toronto, Ottawa and north to Sudbury. Some high producing CD's also extend to the Windsor area. A hinterland extends to the north of the above area and into Quebec and the Maritimes. In general, Quebec and the Maritimes exhibit low and spotty production that generally decreases to the east.

One of the major reasons that the Maritimes are so low in production is the lack of a hockey tradition in the area. (Sigurdson; Murray; Personal Communications, January 30, 1990) This area has always been viewed as a weak link in Canada. According to Murray (Personal Communication,

TABLE VI A

TOP 25 CANADIAN PLAYER PRODUCTION

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL
1	TORONTO	1.26	170	132	38
2	11-ALBERTA	1.93	96	72	24
3	ILE-DE-MONTREAL	0.75	81	64	17
4	6-ALBERTA	1.66	73	39	34
5	VANCOUVER	0.81	63	39	24
6	OTTAWA-CARLETON	1.5	56	36	20
7	11-MAN	1.26	46	32	14
8	6-SASK	2.51	33	22	11
9	DURHAM	1.44	29	20	9
10	SUDBURY REGIONAI	2.98	28	24	4
11	NIAGARA	1.23	28	18	10
12	HAMILTON-WENT	1.07	28	18	10
13	ESSEX	1.28	25	16	9
14	THUNDER BAY	2.3	22	14	8
15	LAMBTON	2.61	20	18	2
16	WATERLOO	0.99	20	13	7
17	10-ALBERTA	3.87	19	11	8
18	THOMPSON-NICOLA	3.02	18	8	10
19	HALTON	1.08	18	11	7
20	MIDDLESEX	0.88	18	9	9
21	QUEBEC	0.63	18	16	2
22	SIMCOE	1.16	17	12	5
23	BRANT	2.29	15	12	3
24	FRONTENAC	2.11	15	15	0
25	YORK	0.7	15	7	8

January 30, 1990) the, "...development program down there is very poor." Furthermore, the population base is low and the cost of travelling to obtain elite competition is expensive. Perhaps the most telling reason for the low production is the fact that the area does not have any full-time technical directors (Murray, Personal Communication, January 30, 1990). Only New Brunswick has hired a director this year. The other provinces have full-time paid technical directors that coordinate clinics, referee and development programs, etc.. "If you don't have a technical director how the Christ do you expect the guy who pumps gas on Saturday morning to be properly prepared to coach his son's hockey team" (Murray, Personal Communication, January 30, 1990). In combination, all of the above contribute to the low production in the Maritimes.

Commitment is something that is very evident among people in Canada. This is most apparent in the form of the National Coaches Certification Program. This multi-level program teaches amateur coaches the theory and techniques of coaching their particular sports. According to the CAHA, 125,000 Canadians have taken the NCCP Hockey Certification Program showing a very significant level of commitment.

A surprising development this study has uncovered is the rather low LQ (.46) in Quebec. Quebec has a long and great hockey legacy in the form of the Montreal Canadiens. The Canadiens are the New York Yankees of hockey. Despite the passion and the French-Canadian love of hockey, the

production rate is low. A sound explanation is difficult to arrive at and further study is warranted. Such factors as the offensive, i.e. not defensive, style of play in the Quebec Major Junior League and the culture/language differences may play some role in the equation.

Canadian Professional Hockey

A comparison between total player production and professional production reveals striking similarities (Figures 17 and 19 and Table VII). The only major difference that can be noted is the drop in BC production from 1.08 to .89. The Yukon and Northwest Territories also fluctuate but this is due in part to their small population bases. The other provinces remarkably similar.

Canadian College Hockey

A total of 2242 college players were classified for this study. Four hundred and seventy four or 21% came from Canada. In Russell (1974), Ontario produced 22.2% of all US college hockey players. Today Ontario accounts for only 9.5% of production. Russell (1974) also found that Ontario and Massachusetts accounted for 51% of all US college players. That figure today stands at 32%; significantly lower. The export of Canadians to play college hockey in the US has undergone a transformation since 1974. Inferences drawn from Russell (1974) seem to indicate a generally high number of Canadians in US colleges with the

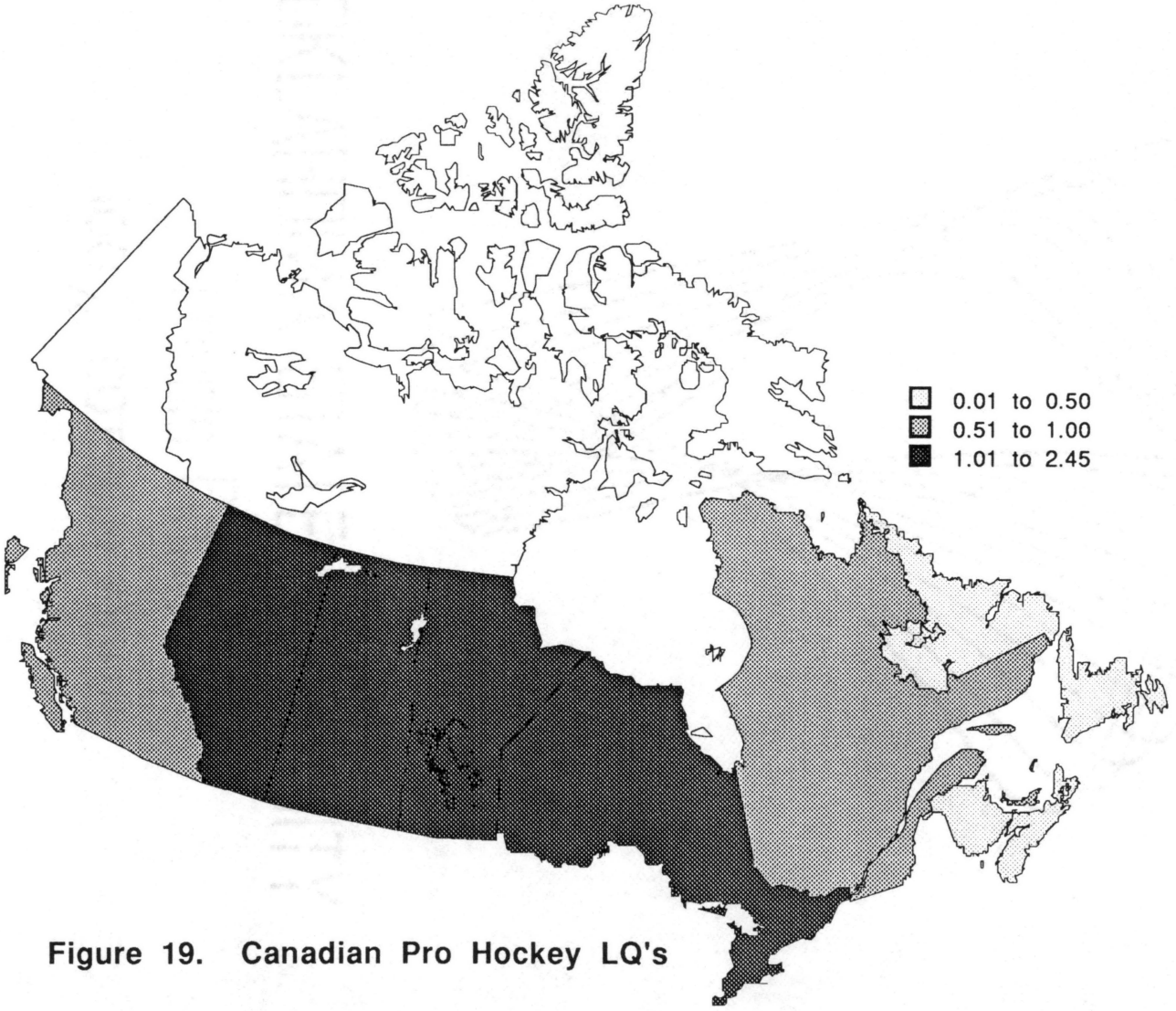

Figure 19. Canadian Pro Hockey LQ's

TABLE VII

CANADIAN PROFESSIONAL HOCKEY LOCATION QUOTIENTS

PROVINCE	PLAYERS PRO	PLAYERS TOTAL	LOCATION QUOTIENTS PRO	LOCATION QUOTIENTS COMBINED
SASKATCHEWAN	106	135	2.45	2.17
ALBERTA	153	227	1.51	1.56
MANITOBA	56	84	1.23	1.28
ONTARIO	480	694	1.23	1.24
BRITISH COLUMBIA	110	191	0.89	1.08
PR EDWARD ISL.	4	5	0.74	0.64
QUEBEC	155	187	0.55	0.46
NOVA SCOTIA	10	14	0.27	0.26
NEW BRUNSWICK	8	15	0.26	0.34
NEWFOUNDLAND	3	5	0.12	0.14
YUKON	0	1	0	0.69
NORTHWEST TERR	0	1	0	0.39

greatest number being from the West. Current figures indicate that the West is still producing at a similar rate with Quebec and Ontario declining significantly. Russell's (1974) calculated LQ for Ontario and Quebec were 6.49 and .95 respectively. Current figure are 1.26 and .26, a dramatic decline!

Table VIII and Figure 20, when compared to Figure 17 and Table VII, reveals a change in pattern. There is a decrease from west to east in the number of Canadian students going to US colleges. Alberta is the leading province, with Saskatchewan dropping to second place. Quebec is much lower, however this can be explained largely by the language barrier, which some Quebec students face at American institutions. The most interesting scenario occurs in BC. The BC college production rate is 1.5; higher than the professional rate of .89. One potential explanation is that BC students are more aware of scholarships offered by American institutions than other Canadian children. Simon Fraser University, until recently, was the only Canadian university to offer scholarships. (Sigurdson, Personal Communication, January 30, 1990) There seems to be some substance to this argument as the BC government is offering to pay a portion of the tuition a college student in BC incurs if he stays in the province.

> I would say now...all students who stay within the province of BC, (and) play a varsity sport automatically get $1000 **gratis** from the BC government... and of course you know the difference in tuition between Canadian

TABLE VIII

CANADIAN COLLEGE HOCKEY LOCATION QUOTIENTS

PROVINCE	PLAYERS COLLEGE	PLAYERS TOTAL	LOCATION QUOTIENTS COLLEGE	LOCATION QUOTIENTS COMBINED
ALBERTA	74	227	1.67	1.56
SASKATCHEWAN	29	135	1.54	2.17
MANITOBA	28	84	1.41	1.28
ONTARIO	214	694	1.26	1.24
BRITISH COLUMBIA	81	191	1.5	1.08
PR EDWARD ISL.	1	5	0.42	0.64
QUEBEC	32	187	0.26	0.46
NOVA SCOTIA	4	14	0.24	0.26
NEW BRUNSWICK	7	15	0.53	0.34
NEWFOUNDLAND	2	5	0.19	0.14
YUKON	1	1	2.27	0.69
NORTHWEST TERR	1	1	1.02	0.39

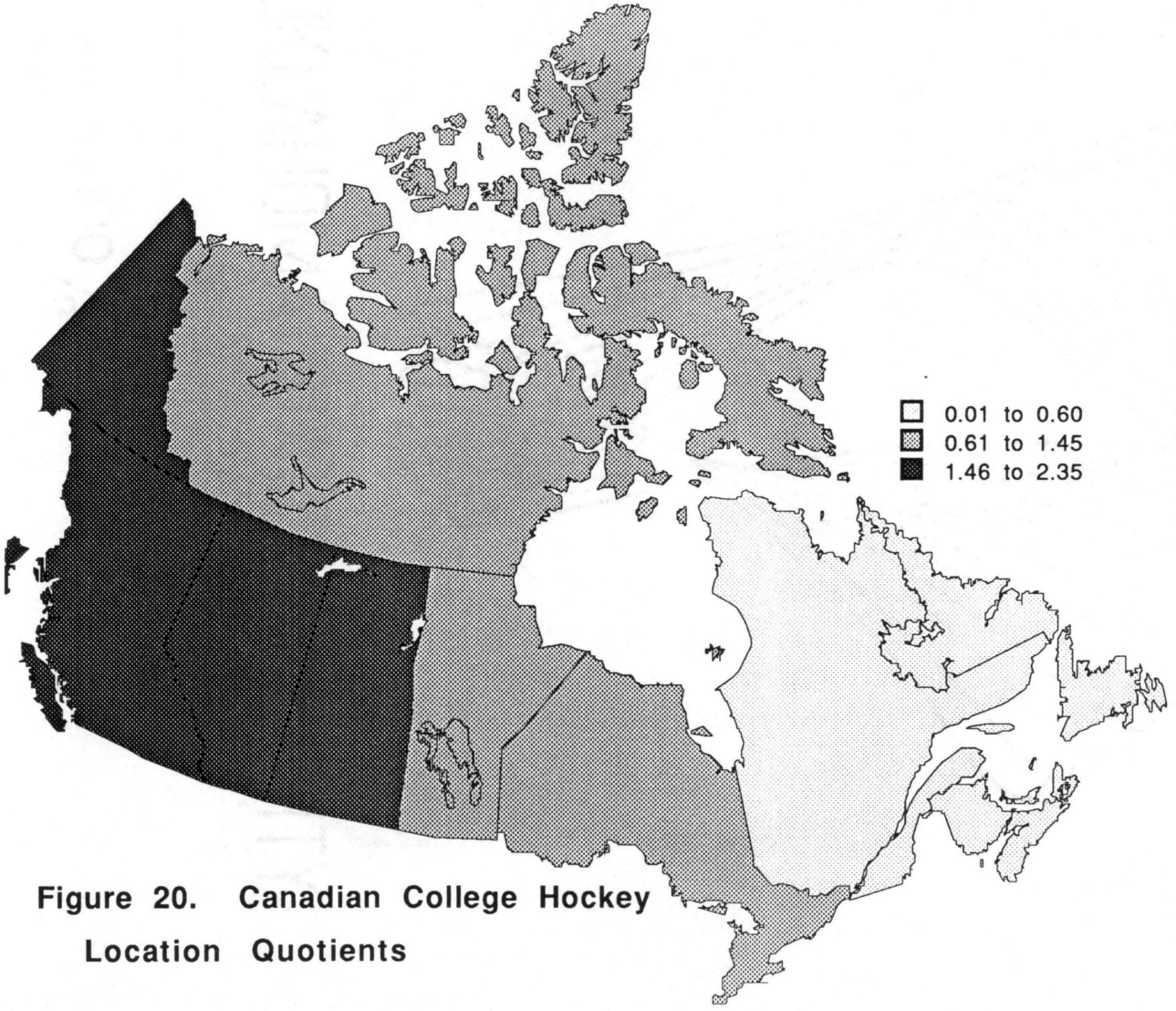

Figure 20. Canadian College Hockey Location Quotients

and American institutions. (Murray, Personal Communication January 30, 1990)

Canada vs. United States

To properly see the relative importance of ice hockey in the two countries, a North American location quotient was generated (Table IX and Figures 21, 22 and 23). As the data clearly shows, Canadian production is generally much higher than American production. Only the traditional American strongholds of Minnesota, Massachusetts, Rhode Island, New Hampshire, Alaska, Vermont and Connecticut compete equally with the Canadian provinces. For Canadian areas, the North American LQ rose dramatically (about 4.5 times) when compared to the Canadian national LQ. At the same time, the North American LQ for the US was about .6 that of the national US LQ. Only Minnesota, Massachusetts and Rhode Island compete equally with the higher ranked Canadian core area.

TABLE IX

TOTAL NORTH AMERICAN LQ'S BY PROVINCE/STATE

PROVINCE	LOCATION QUOTIENTS NA	COMBINED
SASKATCHEWAN	9.76	2.17
MASSACHUSETTS	7.66	12.03
MINNESOTA	7.55	11.85
ALBERTA	7.00	1.56
MANITOBA	5.77	1.28
ONTARIO	5.57	1.24
RHODE ISLAND	5.35	8.40
BRITISH COLUMBIA	4.83	1.08
YUKON	3.10	0.69
PR. EDWARD ISL.	2.88	0.64
NEW HAMPSHIRE	2.71	4.25
ALASKA	2.48	3.90
QUEBEC	2.09	0.46
NEW BRUNSWICK	1.54	0.34
CONNECTICUT	1.47	2.32
NORTHWEST TERR	1.40	0.31
NOVA SCOTIA	1.17	0.20
NEWFOUNDLAND	0.64	0.14

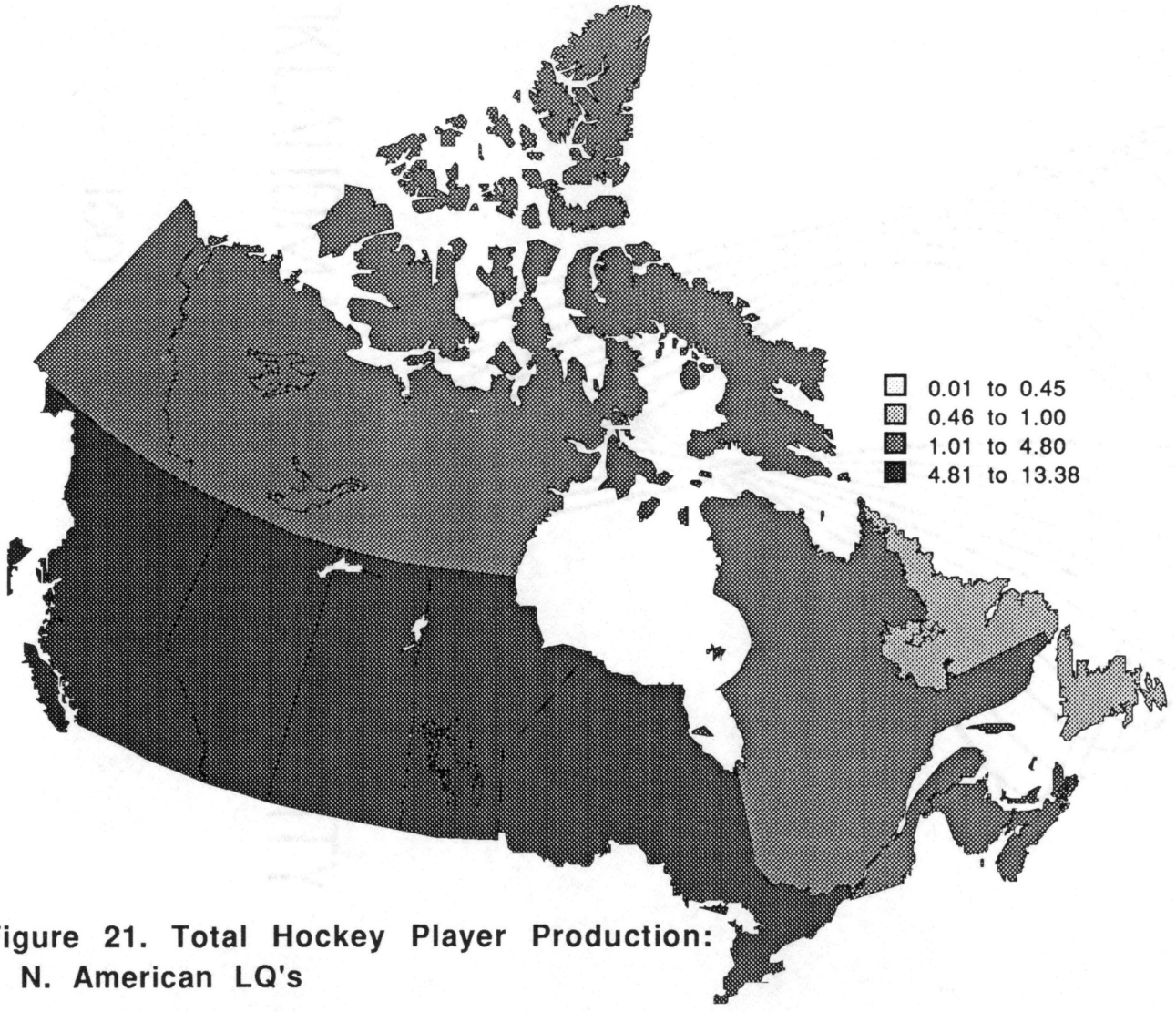

Figure 21. Total Hockey Player Production: N. American LQ's

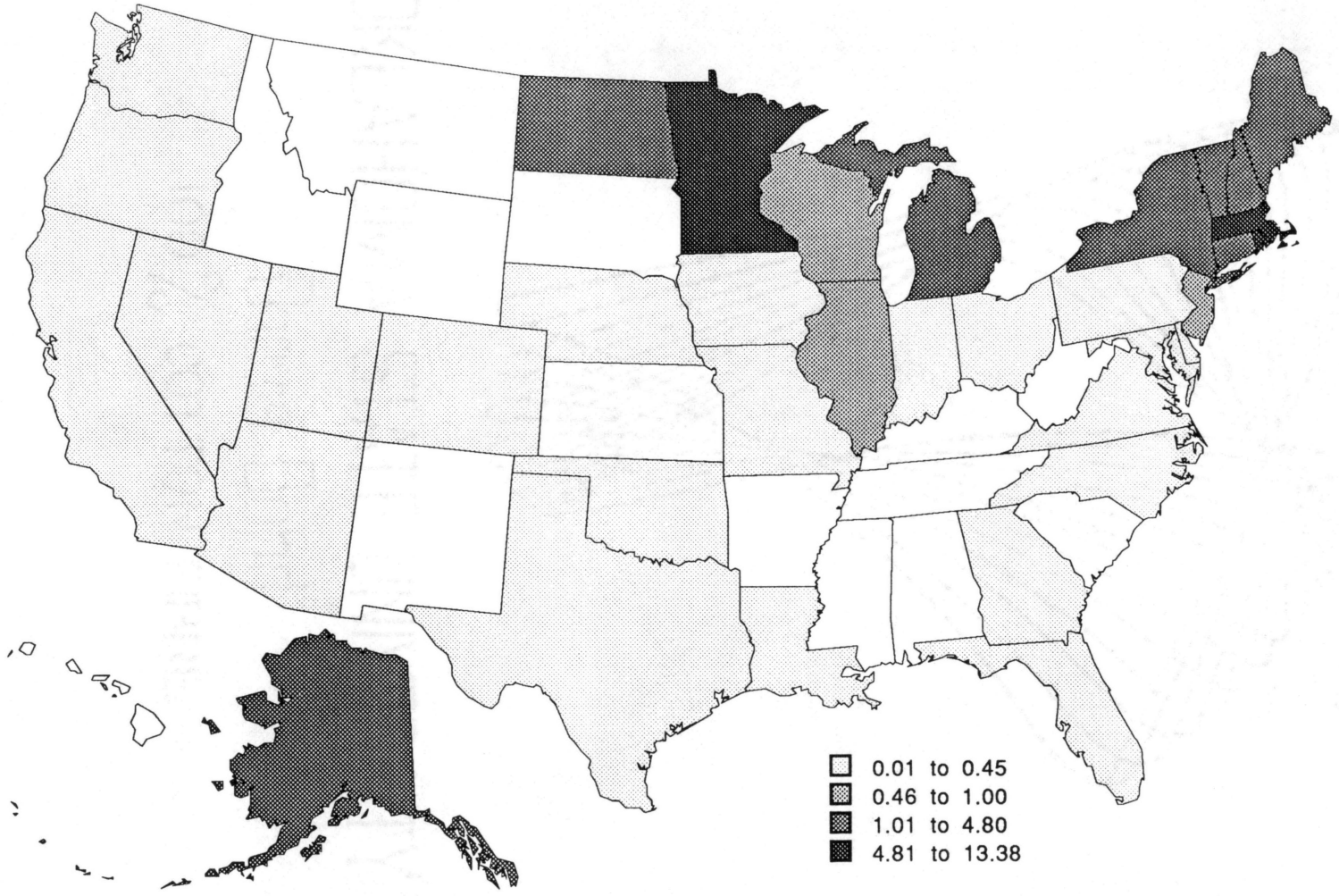

Figure 22. Total Hockey Player Production: N. American LQ's

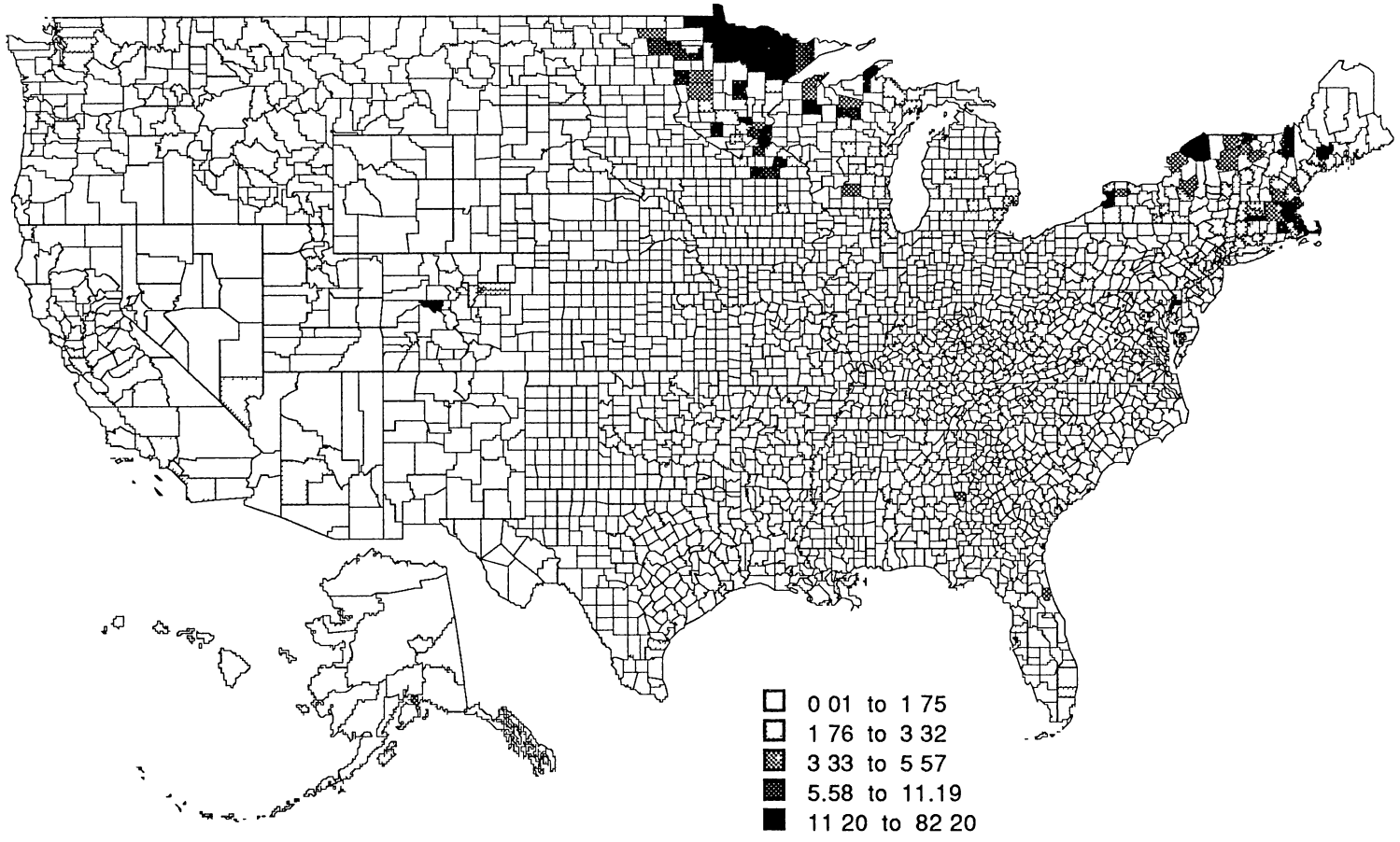

Figure 23. Total Player Production: N. American LQ's

CHAPTER V

CONCLUSION

This study has examined the production of hockey players in North America and attempted to explain why certain areas are more proficient than others. After careful analysis, several conclusions can be drawn.

In the US, hockey is still a regional sport. While it is not as concentrated as Russell (1974) found it to be, the regional image is legitimate. The area from eastern North Dakota to the Great Lakes and through New England is the prime area of American hockey player production. In the core 'Hockey Region', Minnesota, upstate New York and the Massachusetts/ Connecticut/Rhode Island areas standout as the dominant producers.

Careful analysis and interviews has revealed that high player production results from a combination of numerous factors. High production areas often had access to natural ice on which youngsters could sharpen their skills. Initially, natural ice was a stimulant which created a base of interest in hockey and helped develop a commitment to the sport. These areas developed strong enough bonds to the sport that they put a priority on the construction of indoor facilities despite costs. There is a commitment on access

to and construction of facilities. High relative production areas also have a very strong community commitment to the sport in the form of high school/prep programs, and a priority on access to and construction of facilities. In addition they are often located in proximity to college or professional teams and had formed a solid, longstanding hockey tradition.

A breakdown of college and professional production rates showed a few minor differences. Alaska, North Dakota, and Michigan had much higher professional production rates while New York produced college players at a significantly higher levels. In the case of New York, the proximity to high level college competition helps attract many athletes to the sport but the lack of facilities and ice time prevented many athletes from progressing to the elite level. Professional production was higher in the former due to a number of the previously discussed factors acting in unison, i.e., tradition, proximity to college/professional teams, etc.

Also evident is the spread of hockey throughout the US. There has been a 400% increase in the number of teams registered in the last 21 years. Hockey is even reaching into far flung southern areas. There is potential for northern transplants in many of those areas to spread and establish a foothold for hockey.

In Canada, a core area (Alberta-Ontario) stands out as a perennial high production region. In this region, the

West in general, and Saskatchewan in particular stand out as leaders. Player production here can be attributed to the geography of the area, the tradition its inhabitants subscribe to, the long winters, commitment in the form of the NCCP, and their general attitude towards their lives. Unlike the US, rural areas successfully compete with urban areas in player production. In Canada, the local ice rink or arena is often the focal point of social life in rural Canadian communities. Most rural Canadian communities have indoor ice rinks. This is not the case in the US where indoor rinks are more likely to be located in urban or near urban areas. The Maritimes were generally lower mainly due to the lack of tradition and commitment (technical directors). The poor performance of Quebec was hard to explain. Speculation suggest that language barriers, in the case of students going to the US colleges, and the offensive, i.e., not defensive, style of play in the Quebec Major Junior League have hurt Quebec. It is also possible that Quebec production has not slipped, but that the other provinces may have caught up with and passed Quebec. Further investigation is also needed to confirm whether the number of children entering the sport has remained constant in Quebec, and the other provinces or has declined. Any or all of the above may work together to have lowered Quebec's relative production. BC was found to produce more players who attended US colleges. This could be attributed to a greater awareness of scholarships on the part of BC

students.

The research completed in this study helps complete some of the gaps in the sports geography literature. Rooney (1974) started the study of sports from a geographical perspective by identifying sports regions and the importance of those sports to a particular area. This study helps reinforce this particular type of sports geography literature. Further, sports geography is still in its infancy, few sports and fewer countries have been comprehensively studied. This is one of the few works that has seriously examined Canada and its 'national sport'- hockey.

In conclusion, this study suggests several areas where further research is needed. First, research of this nature needs to be extended longitudinally. A more accurate assessment of the trends noted here should be done. Research is also needed on the minor levels, i.e., high school/prep, of hockey and the role it plays in the production of elite players. More work is needed to explain the declining player phenomenon is Quebec. Totally untouched by this study is the role of Canadian universities in player production.

Controversy also exists as to whether a player should progress to the professional level through a junior league system or American college. A survey of facilities is needed, in addition, to investigation of the correlations between facilities and production. Finally, the role of

metro areas in production in both Canada and the United States must be examined.

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APPENDIXES

APPENDIX A

NHL-SOVIET GAME RECORD, 1972-1987

Date	Venue	Score	Goaltenders
9/2/72	Montreal	Soviet Union 7, Team Canada 3	Tretiak – Dryden
9/4/72	Toronto	Team Canada 4, Soviet Union 1	Esposito – Tretiak
9/6/72	Winnipeg	Soviet Union 4, Team Canada 4	Tretiak – Esposito
9/8/72	Vancouver	Soviet Union 5, Team Canada 3	Tretiak – Dryden
9/22/72	Moscow	Soviet Union 5, Team Canada 4	Tretiak – Esposito
9/26/72	Moscow	Team Canada 3, Soviet Union 2	Dryden – Tretiak
9/26/72	Moscow	Team Canada 4, Soviet Union 3	Esposito – Tretiak
9/28/72	Moscow	Team Canada 6, Soviet Union 5	Dryden – Tretiak
12/28/75	New York	Red Army 7, NY Rangers 3	Tretiak – Davidson
12/29/75	Pittsburgh	Soviet Wings 7, Pittsburgh 4	Sidelnikov – Plasse
12/31/75	Montreal	Montreal 3, Red Army 3	Dryden – Tretiak
1/4/76	Buffalo	Buffalo 12 Soviet Wings 6	Desjardins – Kylikov, Sidelnikov
1/7/76	Chicago	Soviet Wings 4, Chicago 2	Sidelnikov – Esposito
1/8/76	Boston	Red Army 5, Boston 2	Tretiak – Gilbert
1/10/76	New York	Soviet Wings 2, NY Islanders 1	Sidelnikov – Resch
1/11/76	Philadelphia	Philadelphia 4, Red Army 1	Stephenson – Tretiak
9/9/76	Philadelphia	Soviet Union 5, Team U S A 0	Tretiak – Curran
9/11/76	Toronto	Team Canada 3, Soviet Union 1	Vachon – Tretiak
12/28/77	Vancouver	Vancouver 2, Spartak 0	Ridley – Pashkov
1/3/78	Denver	Spartak 8, Colorado 3	Pashkov – Favell, McKenzie
1/5/78	St Louis	Spartak 2, St Louis 1	Doroshenko – Johnston, Myre
1/6/78	Montreal	Montreal 5, Spartak 2	Dryden, Larocque – Pashkov
1/8/78	Atlanta	Spartak 2 Atlanta 1	Doroshenko – Belanger
12/31/78	Minnesota	Soviet Wings 8, Minnesota 5	Myshkin – Edwards, LoPresti
1/2/79	Philadelphia	Philadelphia 4, Soviet Wings 4	Parent – Myshkin
1/4/79	Detroit	Detroit 6, Soviet Wings 5	Rutherford, Vachon – Myshkin
1/9/79	Boston	Soviet Wings 4, Boston 1	Sidelnikov – Cheevers, Pettie
2/8/79	New York	Team NHL 4, Soviet Union 2	Dryden – Tretiak
2/10/79	New York	Soviet Union 5, Team NHL 4	Tretiak – Dryden
2/11/79	New York	Soviet Union 6, Team NHL 0	Myshkin – Cheevers
12/26/79	Vancouver	Vancouver 6, Dynamo 2	Ridley – Myshkin
12/27/79	New York	Red Army 5, NY Rangers 2	Tretiak – Baker, Davidson
12/29/79	New York	Red Army 3, NY Islanders 2	Tretiak – Smith
12/31/79	Montreal	Montreal 4, Red Army 2	Sevigny – Tretiak
1/2/80	Winnipeg	Dynamo 7, Winnipeg 0	Myshkin – Hamel, Middlebrook
1/3/80	Buffalo	Buffalo 6 Red Army 1	Edwards – Tretiak
1/4/80	Edmonton	Dynamo 4, Edmonton 1	Myshkin – Mio
1/6/80	Quebec	Red Army 6, Quebec 4	Tretiak – Dion
1/8/80	Washington	Washington 5, Dynamo 5	Inness – Myshkin
9/5/81	Edmonton	Soviet Union 4, Team U S A 1	Tretiak – Esposito
9/9/81	Montreal	Team Canada 7, Soviet Union 3	Liut – Myshkin
9/13/81	Montreal	Soviet Union 8, Team Canada 1	Tretiak – Liut
12/28/82	Edmonton	Edmonton 4, Soviet Union 3	Moog – Myshkin
12/30/82	Quebec	Soviet Union 3, Quebec 0	Tretiak – Bouchard
12/31/82	Montreal	Soviet Union 5, Montreal 0	Tretiak – Sevigny
1/2/83	Calgary	Calgary 3, Soviet Union 2	Edwards, Lemelin – Myshkin
1/4/83	Minnesota	Soviet Union 6, Minnesota 3	Tretiak – Mattson, Beaupre
1/6/83	Philadelphia	Soviet Union 5, Philadelphia 1	Tretiak – Lindbergh
9/8/84	Edmonton	Soviet Union 2, Team U S A 1	Myshkin – Barrasso
9/10/84	Edmonton	Soviet Union 6, Team Canada 3	Tyzhnykh – Lemelin
9/13/84	Calgary	Team Canada 3, Soviet Union 2	Peeters – Myshkin
12/26/85	Los Angeles	Red Army 5, Los Angeles 2	Mylnikov – Janecyk
12/27/85	Edmonton	Red Army 6 Edmonton 3	Mylnikov – Moog
12/29/85	Quebec	Quebec 5, Red Army 1	Malarchuk – Mylnikov
12/29/85	Calgary	Calgary 4, Dynamo 3	Vernon – Myshkin
12/31/85	Montreal	Red Army 6, Montreal 1	Mylnikov – Soetaert, Roy
1/2/86	St Louis	Red Army 4, St Louis 2	Mylnikov – Millen, Wamsley
1/4/86	Minnesota	Red Army 4, Minnesota 3	Mylnikov – Casey
1/4/86	Pittsburgh	Dynamo 3, Pittsburgh 3	Myshkin – Herron
1/6/86	Boston	Dynamo 6, Boston 4	Myshkin – Keans
1/8/86	Buffalo	Dynamo 7, Buffalo 4	Myshkin – Cloutier
2/11/87	Quebec	NHL All-Stars 3, Soviet Union 2	Fuhr – Belosheykin
2/13/87	Quebec	Soviet Union 5, NHL All-Stars 3	Belosheykin – Fuhr
9/4/87	Hartford	Soviet Union 5, Team USA 1	Mylnikov – Barrasso
9/6/87	Hamilton, Ont	Team Canada 3, Soviet Union 3	Fuhr – Belosheykin
9/11/87	Montreal	Soviet Union 6, Team Canada 5	Mylnikov – Fuhr
9/13/87	Hamilton, Ont	Team Canada 6, Soviet Union 5	Fuhr – Belosheykin
9/15/87	Hamilton, Ont	Team Canada 6, Soviet Union 5	Fuhr – Mylnikov

Source: National Hockey League

APPENDIX B

NCAA SCHOOLS RESPONDING TO THE SURVEY

DIVISION 1

Boston College
Boston University
Bowling Green University
Brown University
Canisius College
Clarkson University
Colgate University
Colorado College
University of Connecticut
Cornell University
Dartmouth College
University of Dayton
University of Denver
Fairfield University
Ferris State University
Harvard University
Holy Cross University
University of Illinois-Chicago
Iona College
Lake Superior State University
University of Lowell
University of Maine
Miami University
Michigan State University
Michigan Technological University
University of Michigan
University of Minnesota-Duluth
University of Minnesota
University of New Hampshire
University of North Dakota
Northeastern University
Northern Michigan University
University of Notre Dame
Ohio State University
Princeton University
Providence College
Rensselaer Polytechnic Institute
St. Bonaventure University
St. John's University
St. Lawrence University
U. S. Air Force Academy
U. S. Military Academy
University of Vermont
Villanova University
Western Michigan University
University of Wisconsin
Yale University

DIVISION 2

University of Alaska-Anchorage
University of Alaska-Fairbanks
American International College
Assumption College
Bemidji State University
Bentley College
Mankato State University
Mercyhurst College
Merrimack College
New Hampshire College
Quinnipiac College
St. Anselm College
St. Cloud St University
St. Michael's College
Stonehill College

DIVISION 3

Amherst College
Augsburg College
Babson College
Bethel College
Bowdoin College
Brockport State University
Calvin College
Colby College
Concordia College
Connecticut College
Cortland State
Curry College
Elmira College
Emerson College
Fitchburg State College
Framingham State College
Fredonia State University
Geneseo State University
Hamilton College
Hobart and William Smith University
Lake Forest College
Lawrence University
University of Massachusetts
Middlebury College
New England College
Nichols College
North Adams State College
Norwich University
Oswego State University

Plattsburgh State University
Plymouth State College
Potsdam State University
Rochester Institute of Technology
Roger Williams College
St. Mary's College
St. Norbert College
St. Olaf College
College of St. Scholastica
College of St. Thomas
Salem State College
University of Scranton
Skidmore College
State University of New York-Binghamton
Southeastern Massachusetts University
University of Southern Maine
Suffolk University
Trinity College
Tufts University
Union College
Wesleyan University
Western New England College
Westfield State College
Williams College
University of Wisconsin-Eau Claire
University of Wisconsin-River Falls
University of Wisconsin-Stevens Point
University of Wisconsin-Superior
Worcester State College

APPENDIX C

CALCULATION OF LOCATION QUOTIENTS

State/Province Location Quotient

Alaska

(19/558,15)/(2,143/244,708,828)=3.90

North American Location Quotient

Alaska

(19/558,159)/((2,143+1,558)/
(25,309,331+244,708,829))=2.48

County/Census Division Location Quotient

Roseau, MN

15/13,312/(2,143/244,708,828)=128.67

APPENDIX D

TOTAL US PLAYER PRODUCTION BY COUNTY

RANK	FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
1	27135	ROSEAU,MN	128.55	82.17	8	7	15
2	25013	HAMPDEN,MA	114.02	72.88	19	6	25
3	27071	KOOCHICHING,MN	66.32	42.39	7	2	9
4	24029	KENT,MD	53.82	34.4	8	0	8
5	23011	KENNEBEC,ME	53.19	34	6	0	6
6	27137	ST. LOUIS, MN	41.04	26.23	62	10	72
7	27061	ITASCA, MN	39.48	25.23	11	4	15
8	27077	L. WOODS, MN	30.1	19.24	1	0	1
9	27007	BELTRAMI,MN	27.19	17.38	7	1	8
10	55113	SAWYER, WI	23.47	15	2	1	3
11	36089	ST. LAW., NY	22.92	14.65	23	0	23
12	27037	DAKOTA,MN	19.53	12.48	34	7	41
13	25021	NORFOLK,MA	18.56	11.86	89	9	98
14	25017	MIDDLESEX, MA	17.97	11.48	183	32	215
15	27123	RAMSEY,MN	17.85	11.41	53	21	74
16	33007	COOS, NH	14.89	9.52	3	0	3
17	25023	PLYMOUTH,MA	14.83	9.48	49	8	57
18	25001	BARNSTABLE,MA	14.69	9.39	21	2	23
19	38035	GRANDFORKS,ND	14.35	9.17	6	3	9
20	27119	POLK, MN	13.64	8.72	3	1	4
21	44003	KENT, RI	13.43	8.59	17	2	19
22	27053	HENNEPIN,MN	13.4	8.56	95	21	116
23	27047	FREEBORN,MN	13.23	8.46	4	0	4
24	27109	OLMSTED,MN	12.61	8.06	9	2	11
25	36029	ERIE, NY	12.34	7.89	97	7	104
26	50011	FRANKLIN,VT	12.08	7.72	2	2	4
27	27163	WASHINGTON,MN	11.96	7.65	14	0	14
28	27027	CLAY,MN	11.94	7.63	5	0	5
29	25009	ESSEX, MA	11.08	7.08	52	11	63
30	8097	PITKIN, CO	10.36	6.62	1	0	1
31	27075	LAKE, MN	10.06	6.43	1	0	1
32	27035	CROWWING,MN	10.01	6.4	3	1	4
33	25025	SUFFOLK,MA	9.66	6.17	34	22	56
34	44007	PROVIDENCE, RI	9.6	6.14	38	11	49
35	27131	RICE, MN	9.51	6.08	3	1	4
36	27141	SHERBURNE,MN	9.29	5.94	2	1	3
37	26061	HOUGHTON,MI	9.19	5.88	3	0	3
38	27099	MOWER,MN	8.83	5.64	3	0	3
39	27067	KANDIYOHI, MN	8.8	5.62	3	0	3
40	27003	ANOKA, MN	8.54	5.46	15	2	17
41	2020	ANCHORAGE,AK	8.28	5.29	12	6	18
42	25027	WORCESTER,MA	7.91	5 05	35	11	46

RANK	FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
			US	NA	COLL	PRO	
43	55007	BAYFIELD, WI	7.78	4.97	1	0	1
44	27005	BECKER,MN	7.56	4 83	2	0	2
45	38099	WALSH,ND	7.37	4 71	1	0	1
46	36065	ONEIDA, NY	7.32	4.68	13	3	16
47	50007	CHITTENDEN,VT	7.21	4.61	7	1	8
48	55025	DANE, WI	7.18	4.59	17	5	22
49	23023	SAGADAHOC,ME	7.14	4.56	1	1	2
50	27111	OTTERTAIL,MN	6.45	4.12	3	0	3
51	13145	HARRIS, GA	6.37	4.07	1	0	1
52	50023	WASHINGTON,VT	6.27	4.01	3	0	3
53	55125	VILAS, WI	6.25	4	1	0	1
54	36031	ESSEX, NY	6.23	3 98	1	1	2
55	33011	HILLSBOROUGH,NH	5.9	3.77	15	2	17
56	33017	STRAFFORD,NH	5.84	3 74	5	0	5
57	36037	GENESEE, NY	5.78	3.7	2	1	3
58	36045	JEFFERSON,NY	5.7	3.64	3	2	5
59	12035	FLAGLER,FL	5.69	3.64	1	0	1
60	24039	SOMERSET,MD	5.62	3.59	1	0	1
61	36019	CLINTON,NY	5.56	3.55	4	0	4
62	36109	TOMPKINS,NY	5.16	3.3	4	0	4
63	25011	FRANKLIN,MA	5.14	3.28	2	1	3
64	33013	MERRIMACK,NH	4 96	3.17	4	1	5
65	26065	INGHAM, MI	4.93	3.15	12	0	12
66	25005	BRISTOL, MA	4.89	3.12	20	1	21
67	55089	OZAUKEE, WI	4.84	3.09	2	1	3
68	44001	BRISTOL, RI	4.74	3.03	2	0	2
69	19013	BLACKHAWK, IA	4.48	2.86	3	2	5
70	27139	SCOTT,MN	4.38	2 8	1	1	2
71	33015	ROCKINGHAM,NH	4.31	2.76	8	1	9
72	55009	BROWN, WI	4.21	2.69	7	0	7
73	25003	BERKSHIRE, MA	4.07	2.6	5	0	5
74	55069	LINCOLN, WI	4.01	2.57	1	0	1
75	26147	ST. CLAIR, MI	3.98	2.54	4	1	5
76	27041	DOUGLAS,MN	3.81	2.44	1	0	1
77	55097	PORTAGE, WI	3.81	2.43	2	0	2
78	9009	NEWHAVEN,CT	3.79	2.42	25	1	26
79	36015	CHEMUNG,NY	3.79	2.42	2	1	3
80	27017	CARLTON,MN	3.77	2.41	0	1	1
81	50021	RUTLAND,VT	3.76	2.4	2	0	2
82	27085	McLEOD,MN	3.62	2.32	1	0	1
83	55085	ONEIDA, WI	3.52	2.25	0	1	1
84	36091	SARATOGA,NY	3.42	2.18	5	0	5

RANK	FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
			US	NA	COLL	PRO	
85	29510	ST. LOUIS C., MO	3.4	2.17	6	6	12
86	23001	ANDROSCOGGIN,ME	3.37	2.15	3	0	3
87	27171	WRIGHT,MN	3.37	2.15	2	0	2
88	36053	MADISON,NY	3.37	2.16	2	0	2
89	17097	LAKE, IL	3.26	2.08	14	0	14
90	26099	MACOMB,MI	3.24	2.07	16	4	20
91	26103	MARQUETTE,MI	3.16	2.02	2	0	2
92	36063	NIAGARA, NY	3.16	2.02	6	0	6
93	25015	HAMPSHIRE,MA	3.14	2.01	4	0	4
94	39173	WOOD,OH	3.11	1.99	2	1	3
95	36055	MONROE,NY	3.07	1.96	18	1	19
96	27145	STEARNS,MN	2.96	1.89	3	0	3
97	36087	ROCKLAND,NY	2.94	1.88	7	0	7
98	26163	WAYNE, MI	2.93	1.87	33	22	55
99	26041	DELTA, MI	2.92	1.87	1	0	1
100	26107	MECOSTA, MI	2.92	1.87	1	0	1
101	9005	LITCHFIELD,CT	2.79	1 79	4	0	4
102	2212	KENAI PEN, AK	2.78	1.78	1	0	1
103	55031	DOUGLAS, WI	2.74	1.75	0	1	1
104	55035	EAU CLAIRE, WI	2.7	1.73	2	0	2
105	44005	NEWPORT, RI	2.65	1.7	1	1	2
106	26049	GENESEE, MI	2.63	1.68	7	3	10
107	36033	FRANKLIN,NY	2.61	1.67	1	0	1
108	55039	FOND DU LAC, WI	2.5	1.6	2	0	2
109	55021	COLUMBIA, WI	2.49	1.59	1	0	1
110	23005	CUMBERLAND,ME	2 46	1.57	4	1	5
111	27169	WINONA,MN	2.46	1.57	0	1	1
112	55105	ROCK, WI	2.46	1.57	3	0	3
113	34021	MERCER,NJ	2.45	1.57	6	1	7
114	36069	ONTARIO,NY	2.45	1.57	2	0	2
115	26125	OAKLAND, MI	2.41	1.54	15	7	22
116	18141	ST. JOSEPH, IN	2.37	1.51	5	0	5
117	9001	FAIRFIELD,CT	2.35	1.5	16	1	17
118	36093	SCHENECTADY,NY	2.27	1.45	3	0	3
119	36003	ALLEGANY, NY	2.25	1.44	1	0	1
120	27013	BLUE EARTH,MN	2.23	1.43	1	0	1
121	9003	HARTFORD,CT	2.19	1.4	12	4	16
122	36007	BROOME,NY	2.17	1.39	4	0	4
123	17043	DUPAGE, IL	2.16	1.38	12	2	14
124	26161	WASHTENAW,MI	2.1	1.34	4	1	5
125	50027	WINDSOR,VT	2.1	1.34	1	0	1
126	51510	ALEXANDRIA, VA	2.1	1.34	1	1	2

RANK	FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
			US	NA	COLL	PRO	
127	36035	FULTON,NY	2.07	1.32	1	0	1
128	39095	LUCAS, OH	1.99	1.27	5	3	8
129	36115	WASHINGTON,NY	1.98	1.26	1	0	1
130	36051	LIVINGSTON, NY	1.91	1.22	1	0	1
131	17089	KANE, IL	1.83	1.17	3	2	5
132	38101	WARD,ND	1.82	1.16	1	0	1
133	36103	SUFFOLK,NY	1.79	1.15	21	0	21
134	18005	BARTHOLOMEW,IN	1.75	1.12	1	0	1
135	34029	OCEAN, NJ	1.69	1.08	5	1	6
136	55087	OUTAGAMIE, WI	1.66	1.06	2	0	2
137	33009	GRAFTON,NH	1.58	1.01	1	0	1
138	26077	KALAMAZOO, MI	1.57	1.01	3	0	3
139	26111	MIDLAND, MI	1.55	0.99	1	0	1
140	36083	RENSSELAER, NY	1.5	0.96	2	0	2
141	48085	COLLIN, TX	1.5	0.96	2	1	3
142	51161	ROANOKE, VA	1.5	0.96	0	1	1
143	55027	DODGE, WI	1.5	0.96	0	1	1
144	36059	NASSAU, NY	1.46	0.94	16	1	17
145	26121	MUSKEGON, MI	1.45	0.92	2	0	2
146	23031	YORK, ME	1.4	0.9	2	0	2
147	36079	PUTNAM,NY	1.37	0.87	1	0	1
148	34003	BERGEN, NJ	1.36	0.87	9	1	10
149	36009	CATTARAUGUS,NY	1.33	0.85	1	0	1
150	17197	WILL, IL	1.31	0.84	4	0	4
151	17031	COOK, IL	1.28	0.82	41	18	59
152	12085	MARTIN,FL	1.25	0.8	1	0	1
153	36001	ALBANY, NY	1.2	0.77	2	1	3
154	36071	ORANGE, NY	1.19	0.76	3	0	3
155	31153	SARPY,NE	1.17	0.75	1	0	1
156	42003	ALLEGHENY, PA	1.17	0.75	14	0	14
157	34019	HUNTERDON,NJ	1.16	0.74	1	0	1
158	38017	CASS, ND	1.13	0.72	0	1	1
159	39035	CUYAHOGA, OH	1.12	0.71	11	3	14
160	34027	MORRIS, NJ	1.07	0.69	4	0	4
161	26093	LIVINGSTON, MI	1.03	0.66	1	0	1
162	55073	MARATHON,WI	1	0 64	1	0	1
163	26017	BAY, MI	0.99	0.64	0	1	1
164	53073	WHATCOM,WA	0.98	0.63	1	0	1
165	26081	KENT, MI	0.94	0.6	4	0	4
166	36075	OSWEGO, NY	0.94	0.6	1	0	1
167	55059	KENOSHA, WI	0.94	0.6	1	0	1
168	36119	WESTCHESTER,NY	0.93	0.59	6	1	7

RANK	FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
			US	NA	COLL	PRO	
169	17179	TAZEWELL, IL	0.92	0.59	1	0	1
170	17201	WINNEBAGO, IL	0.91	0.58	1	1	2
171	36027	DUTCHESS,NY	0.88	0.56	2	0	2
172	8005	ARAPAHOE, CO	0.87	0.55	3	0	3
173	26115	MONROE, MI	0.85	0.54	1	0	1
174	36061	NEW YORK, NY	0.85	0.54	6	5	11
175	24021	FREDRICK, MD	0.83	0.53	0	1	1
176	9007	MIDDLESEX,CT	0.82	0.53	1	0	1
177	23019	PENOBSCOTT,ME	0.82	0.53	1	0	1
178	53033	KING, WA	0.82	0.53	8	2	10
179	42077	LEHIGH, PA	0.8	0.51	2	0	2
180	26075	JACKSON, MI	0.79	0.5	1	0	1
181	55079	MILWAUKEE, WI	0.74	0.47	6	0	6
182	42051	FAYETTE, PA	0.73	0.47	1	0	1
183	36111	ULSTER,NY	0.69	0.44	1	0	1
184	17111	McHENRY, IL	0.68	0.44	1	0	1
185	34007	CAMDEN,NJ	0.68	0.44	3	0	3
186	34039	UNION, NJ	0.68	0.43	2	1	3
187	8031	DENVER,CO	0.67	0.43	1	1	3
188	34013	ESSEX, NJ	0.67	0.43	4	1	5
189	29099	JEFFERSON,MO	0.66	0.42	1	0	1
190	42029	CHESTER,PA	0.66	0.42	2	0	2
191	26139	OTTAWA, MI	0.65	0.41	1	0	1
192	42017	BUCKS, PA	0.64	0.41	3	0	3
193	12083	MARION, FL	0.62	0.4	0	1	1
194	34025	MONMOUTH,NJ	0.62	0.4	2	1	3
195	42007	BEAVER, PA	0.6	0.38	1	0	1
196	34005	BURLINGTON,NJ	0.58	0.37	2	0	2
197	8041	EL PASO, CO	0.57	0.37	2	0	2
198	26145	SAGINAW, MI	0.53	0.34	1	0	1
199	34015	GLOUCESTER,NJ	0.53	0.34	1	0	1
200	34035	SOMERSET,NJ	0.52	0.33	1	0	1
201	24033	PRINCE GEO.'S, MD	0.49	0.32	3	0	3
202	34031	PASSAIC, NJ	0.49	0.31	1	1	2
203	42095	NORTHAMPTON,PA	0.48	0.31	1	0	1
204	18089	LAKE, IN	0.47	0.3	1	1	2
205	9011	NEWLONDON,CT	0.46	0.29	1	0	1
206	12101	PASCO, FL	0.44	0.28	0	1	1
207	17163	ST. CLAIR, IL	0.42	0.27	1	0	1
208	34017	HUDSON,NJ	0.41	0.26	2	0	2
209	42045	DELAWARE,PA	0.41	0.26	2	0	2
210	8001	ADAMS,CO	0.39	0.25	1	0	1

RANK	FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
			US	NA	COLL	PRO	
211	18003	ALLEN, IN	0.38	0.24	1	0	1
212	55133	WAUKESHA, WI	0.38	0.25	1	0	1
213	32003	CLARK, NV	0.37	0.24	2	0	2
214	48355	NUECES, TX	0.37	0.23	0	1	1
215	42091	MONTGOMERY, PA	0.34	0.22	1	1	2
216	49035	SALT LAKE, UT	0.32	0.2	2	0	2
217	42129	WESTMORELAND, PA	0.3	0.19	1	0	1
218	18097	MARION, IN	0.29	0.19	2	0	2
219	42101	PHILADELPHIA, PA	0.28	0.18	1	3	4
220	53061	SNOHOMISH, WA	0.28	0.18	1	0	1
221	10003	NEW CASTLE, DE	0.27	0 17	1	0	1
222	8059	JEFFERSON, CO	0.26	0.17	1	0	1
223	37119	MECKLENBURG, NC	0.25	0.16	1	0	1
224	22051	JEFERSON, LA	0.23	0.15	1	0	1
225	6059	ORANGE, CA	0.21	0.13	3	1	4
226	6037	LA, CA	0.2	0.13	8	7	15
227	39113	MONTGOMERY, OH	0.2	0.13	1	0	1
228	41051	MULTNOMAH, OR	0.2	0.13	0	1	1
229	6111	VENTURA, CA	0.18	0.12	1	0	1
230	11001	D OF COL	0.18	0.12	1	0	1
231	13121	FULTON, GA	0.18	0.11	1	0	1
232	34023	MIDDLESEX, NJ	0.18	0.11	1	0	1
233	40109	OKLAHOMA, OK	0.18	0.11	0	1	1
234	4013	MARICOPA, AZ	0.17	0.11	3	0	3
235	6085	SANTA CLARA, CA	0.16	0.1	2	0	2
236	24510	BALT. C., MD	0.15	0.1	0	1	1
237	36067	ONONDAGA, NY	0.15	0.09	5	1	6
238	51059	FAIRFAX, VA	0.15	0.1	1	0	1
239	12099	PALM B, FL	0.14	0.09	1	0	1
240	6067	SACRAMENTO, CA	0.12	0.08	0	1	1
241	6073	SAN DIEGO, CA	0.1	0.06	1	1	2
242	12011	BROWARD, FL	0.1	0.06	1	0	1
243	6001	ALAMEDA, CA	0.09	0.06	0	1	1
244	36081	QUEENS, NY	0.06	0.04	0	1	1
245	48113	DALLAS, TX	0.06	0.04	1	0	1
			1	**0.64**	**1770**	**375**	**2146**

APPENDIX E

TOTAL CANADIAN PLAYER PRODUCTION BY CENSUS DISTRICT

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PLAYERS PRO	PLAYERS COLL	POP 1986
1	RAINY RIVER	7 1	10	4	6	22,871
2	10-SASK	5 97	9	7	2	24,487
3	KOOTENAY BOUNDARY	5 89	11	7	4	30,335
4	TIMISKAMING	4 84	12	6	6	40,307
5	4-SASK	4 62	4	4	0	14,058
6	4-ALBERTA	3 94	3	3	0	12,376
7	10-ALBERTA	3.87	19	11	8	79,745
8	CENTRAL KOOTENAY	3 64	11	5	6	49,110
9	21-MAN	3.37	5	5	0	24,068
10	OKANAGAN-SIMILKAMEEN	3 3	12	5	7	59,089
11	16-SASK	3 22	8	4	4	40,314
12	THOMPSON-NICOLA	3 02	18	8	10	96,805
13	7-SASK	3.02	10	9	1	53,706
14	SUDBURY REGIONAL	2.98	28	24	4	152,476
15	6-MAN	2.91	2	1	1	11,176
16	1-SASK	2.88	6	3	3	33,813
17	13-SASK	2 83	5	5	0	28,656
18	4-MAN	2.83	2	2	0	11,469
19	5-SASK	2.82	7	4	3	40,315
20	14-SASK	2.77	8	8	0	46,932
21	15-SASK	2 76	14	13	1	82,258
22	LAMBTON	2.61	20	18	2	124,592
23	3-SASK	2 51	3	3	0	19,392
24	6-SASK	2 51	33	22	11	213,800
25	KITIMAT-STIKINE	2 47	6	5	1	39,483
26	EAST KOOTENAY	2.45	8	3	5	53,089
27	17-MAN	2 45	4	0	4	26,522

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
28	17-ALBERTA	2 33	7	7	0	48,852
29	THUNDERBAY	2.3	22	14	8	155,673
30	BRANT	2.29	15	12	3	106,267
31	10-MAN	2.21	1	0	1	7,334
32	PETERBOROUGH	2.16	14	13	1	105,056
33	FRONTENAC	2.11	15	15	0	115,221
34	15-MAN	2 05	3	2	1	23,818
35	16-ALBERTA	2	6	2	4	48,779
36	5-MAN	1 97	2	1	1	16,495
37	SUNSHINECOAST	1.94	2	2	0	16,758
38	11-ALBERTA	1 93	96	72	24	807,504
39	13-MAN	1.93	4	2	2	33,619
40	2-SASK	1.84	3	2	1	26,491
41	TEMISCAMINGUE	1 83	6	5	1	53,238
42	HASTINGS	1 78	12	7	5	109,352
43	7-MAN	1 71	6	5	1	57,112
44	PEACE RIVER-LAIRD	1 7	6	5	1	57,278
45	3-MAN	1 69	4	1	3	38,422
46	6-ALBERTA	1.66	73	39	34	715,605
47	PONTIAC	1 64	2	2	0	19,809
48	MUSKOKA	1 61	4	1	3	40,235
49	S. D. & G.	1 59	10	5	5	102,262
50	KENORA	1 54	5	3	2	52,834
51	LEEDS & GRENVILLE	1 54	8	5	3	84,582
52	8-ALBERTA	1 53	11	9	2	116,611
53	KENT	1.52	10	5	5	106.732
54	9-SASK	1.5	4	4	0	43,455

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
55	OTTAWA-CARLETON	1 5	56	36	20	606,639
56	N. OKANAGAN	1.48	5	4	1	54,820
57	PERTH	1 46	6	5	1	66,608
58	RENFREW	1 46	8	6	2	88,965
59	DURHAM	1 44	29	20	9	326,179
60	CARIBOO	1 37	5	1	4	59,495
61	RICHMOND,NS	1.37	1	1	0	11,841
62	8-SASK	1 36	3	3	0	35,723
63	HALIBURTON	1.36	1	1	0	11,961
64	BULKELY-NECHAKO	1.3	3	2	1	37,470
65	ESSEX	1.28	25	16	9	316,362
66	WELLINGTON	1.28	11	9	2	139,436
67	12-SASK	1 26	2	2	0	25,867
68	11-MAN	1.26	46	32	14	594,551
69	TORONTO	1.26	170	132	38	2,192,721
70	COWICHANVALLEY	1.24	4	4	0	52,466
71	ALGOMA	1 23	10	6	4	131,841
72	NIAGARA	1 23	28	18	10	370,132
73	NIPISSING	1 23	6	4	2	79,004
74	SIMCOE	1 16	17	12	5	238,408
75	MATANE	1 11	2	2	0	29,258
76	14-MAN	1.1	1	1	0	14,713
77	FRASER-FT.GEORGE	1 09	6	4	2	89,337
78	HALTON	1 08	18	11	7	271,389
79	HAMILTON-WENTWORTH	1 07	28	18	10	423,398
80	22-MAN	1.06	2	2	0	30,544
81	COCHRANE	1.04	6	4	2	93,712

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
82	1-MAN	1	1	1	0	16,262
83	DUFFERIN	1	2	0	2	32,635
84	ARGENTEUIL	1	2	2	0	32,533
85	NANAIMO	0 99	5	3	2	82,180
86	WATERLOO	0 99	20	13	7	329,404
87	LANARK	0 98	3	2	1	49,649
88	11-SASK	0.97	13	11	2	217,231
89	LABELLE	0.94	2	2	0	34,579
90	3-ALBERTA	0 93	2	2	0	34,970
91	VICTORIA	0 93	3	3	0	52,599
92	MISSIQUOI	0 93	2	2	0	35,028
93	HALDIMAN-NORFOLK	0 9	5	2	3	90,121
94	13-ALBERTA	0 89	3	3	0	54,973
95	MEGANTIC	0 89	3	3	0	55,028
96	MIDDLESEX	0.88	18	9	9	332,471
97	WESTMORELAND	0 88	6	5	1	110,969
98	HURON	0.87	3	1	2	55,996
99	ANTIGONISH	0.87	1	1	0	18,776
100	1-ALBERTA	0.86	3	3	0	56,592
101	17-SASK	0 86	2	1	1	37,775
102	RICHMOND,PQ	0 84	2	2	0	38,653
103	VANCOUVER	0.81	63	39	24	1,266,152
104	COMPTON	0 81	1	1	0	20,110
105	PAPINEAU	0 81	2	2	0	40,258
106	7-ALBERTA	0.8	2	0	2	40,681
107	CAPE BRETON	0 79	6	5	1	123,625
108	QUEENS	0 77	3	2	1	63,460

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
109	ILE-DE-MONTREAL	0 75	81	64	17	1,752,582
110	CAPITAL REGION	0 74	12	7	5	264,614
111	PRINCE	0.74	2	2	0	43,677
112	INVERNESS	0 74	1	1	0	21,946
113	CENTRALOKANAGAN	0 72	4	1	3	89,730
114	15-ALBERTA	0 71	1	1	0	22,794
115	5-NFL	0 71	2	1	1	45,648
116	YORK	0.7	15	7	8	350,602
117	COMOX-STRATCHONA	0 68	3	2	1	71,145
118	DRUMMOND	0.68	3	3	0	72,051
119	SHERBROOKE	0.67	5	4	1	120,551
120	MONTMAGNY	0.66	1	1	0	24,794
121	ALBERT	0 65	1	0	1	24,832
122	PICTOU	0.65	2	1	1	49,772
123	6-NWT	0.65	1	0	1	25,116
124	18-SASK	0.64	1	1	0	25,340
125	QUEBEC	0 63	18	16	2	466,483
126	FRONTENAC	0 62	1	1	0	26,390
127	SAGUENAY	0.62	4	4	0	104,131
128	CHARLOTTE	0 61	1	0	1	26,525
129	HULL	0.58	5	4	1	139,966
130	OXFORD	0 57	3	1	2	85,364
131	KAMOURASKA	0 57	1	0	1	28,483
132	ST. HYACINTHE	0.57	2	2	0	57,027
133	FRASER-CHEAM	0 56	2	2	0	57,965
134	BRUCE	0 55	2	2	0	58,848
135	ALBERNI-CLAYOQUOT	0 54	1	1	0	30,341

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
136	LOTBINIERE	0 54	1	1	0	29,809
137	PORTNEUF	0 54	2	1	1	60,610
138	2-NFL	0 54	1	1	0	30,285
139	CHATEAUGUAY	0 53	2	1	1	61,608
140	ABITIBI	0 52	3	3	0	94,410
141	KENT, NB	0 52	1	1	0	31,496
142	JOLIETTE	0.51	2	2	0	63,343
143	PARRY SOUND	0 48	1	1	0	33,828
144	CENTRAL FRASER	0.47	4	0	4	136,892
145	ELGIN	0.46	2	2	0	70,335
146	RIMOUSKI	0.46	2	2	0	69,945
147	BONAVENTURE	0.41	1	1	0	39,576
148	CHAMPLAIN	0.41	3	3	0	119,563
149	RESTIGOUCHE	0.41	1	0	1	39,921
150	2-MAN	0.4	1	1	0	40,368
151	RIVIERE-DU-LOUP	0.4	1	0	1	40,646
152	SAINT JOHN	0.39	2	0	2	82,460
153	CHICOUTIMI	0 37	4	4	0	174,625
154	LUNENBURG	0.35	1	1	0	46,483
155	LAC ST. JEAN EST	0 34	1	1	0	47,497
156	BEAUHARNOIS	0 31	1	0	1	53,106
157	TERREBONNE	0.31	4	3	1	206,657
158	NORTHUMBERLAND	0.31	1	1	0	52,981
159	ST. MAURICE	0.3	2	2	0	109,033
160	VAUDREUIL	0.3	1	0	1	53,421
161	KINGS, NB	0.29	1	1	0	56,598
162	PRESCOTT& RUSSELL	0 28	1	1	0	57,620

RANK	CENSUS DISTRICT	TOTAL LQ	PLAYERS TOTAL	PRO	COLL	POP 1986
163	GATINEAU	0.28	1	1	0	57,213
164	PEEL	0.27	10	5	5	592,169
165	L'ASSOMPTION	0.27	2	2	0	122,509
166	CHAMBLY	0 26	5	5	0	316,337
167	NORTHUMBERLAND	0.24	1	1	0	67,704
168	VERCHERRES	0 24	1	1	0	67,610
169	GREY	0 22	1	0	1	74,759
170	DEUX-MONTAGNES	0 21	1	0	1	75,880
171	YORK, NB	0.21	1	0	1	77,211
172	LEVIS	0.16	1	0	1	103,318
173	2-ALBERTA	0.14	1	1	0	115,739
174	1-NFL	0.13	2	1	1	246,149
175	HALIFAX	0.11	2	0	2	306,418
176	ILE-DE-JESUS	0 06	1	0	1	284,164

APPENDIX F

TOTAL US PLAYER PRODUCTION BY COUNTY AND STATE

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
2020	ANCHORAGE,AK	8.28	5.29	12	6	18
2212	KENAI PEN, AK	2.78	1.78	1	0	1
TOTAL	**ALASKA**	**3.9**	**2.48**	**13**	**6**	**19**
4013	MARICOPA,AZ	0.17	0.11	3	0	3
TOTAL	**ARIZONA**	**0.1**	**0.06**	**3**	**0**	**3**
6001	ALAMEDA,CA	0.09	0.06	0	1	1
6037	LA, CA	0.2	0.13	8	7	15
6059	ORANGE, CA	0.21	0.13	3	1	4
6067	SACRAMENTO,CA	0.12	0.08		1	1
6073	SAN DIEGO, CA	0.1	0.06	1	1	2
6085	SANTA CLARA, CA	0.16	0.1	2	0	2
6111	VENTURA,CA	0.18	0.12	1	0	1
TOTAL	**CALIFORNIA**	**0.11**	**0.07**	**15**	**11**	**26**
8001	ADAMS, CO	0.39	0.25	1	0	1
8005	ARAPAHOE, CO	0.87	0.55	3	0	3
8031	DENVER, CO	0.67	0.43	1	1	2
8041	EL PASO, CO	0.57	0.37	2	0	2
8059	JEFFERSON, CO	0.26	0.17	1	0	1
8097	PITKIN, CO	10.36	6.62	1	0	1
TOTAL	**COLORADO**	**0.34**	**0.22**	**9**	**1**	**10**
9001	FAIRFIELD,CT	2.35	1.5	16	1	17
9003	HARTFORD,CT	2.19	1.4	12	4	16
9005	LITCHFIELD,CT	2.79	1.79	4	0	4
9007	MIDDLESEX,CT	0.82	0.53	1	0	1
9009	NEW HAVEN,CT	3.79	2.42	25	1	26
9011	NEW LONDON,CT	0.46	0.29	1	0	1
TOTAL	**CONNECTICUT**	**2.32**	**1.47**	**59**	**6**	**65**
10003	NEW CASTLE, DE	0.27	0.17	1	0	1
TOTAL	**DELEWARE**	**0.18**	**0.11**	**1**	**0**	**1**

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
11001	DOFCOL	0.18	0 12	1	0	1
TOTAL	**DISTRICT OF COL**	**0.18**	**0.12**	**1**	**0**	**1**
12011	BROWARD,FL	0.1	0.06	1	0	1
12035	FLAGLER,FL	5.69	3.64	1	0	1
12083	MARION,FL	0.62	0.4	0	1	1
12085	MARTIN,FL	1.25	0.8	1	0	1
12099	PALM B,FL	0.14	0.09	1	0	1
12101	PASCO,FL	0.44	0.28	0	1	1
TOTAL	**FLORIDA**	**0.06**	**0.04**	**4**	**2**	**6**
13121	FULTON,GA	0.18	0.11	1	0	1
13145	HARRIS, GA	6.37	4.07	1	0	1
TOTAL	**GEORGIA**	**0.04**	**0.02**	**2**	**0**	**2**
17031	COOK, IL	1.28	0.82	41	18	59
17043	DUPAGE, IL	2.16	1.38	12	2	14
17089	KANE, IL	1.83	1.17	3	2	5
17097	LAKE, IL	3.26	2.08	14	0	14
17111	McHENRY, IL	0.68	0.44	1	0	1
17163	ST. CLAIR, IL	0.42	0.27	1	0	1
17179	TAZEWELL, IL	0.92	0.59	1	0	1
17197	WILL, IL	1.31	0.84	4	0	4
17201	WINNEBAGO, IL	0.91	0.58	1	1	2
TOTAL	**ILLINOIS**	**1**	**0.64**	**78**	**23**	**101**
18003	ALLEN, IN	0.38	0.24	1	0	1
18005	BARTHOLOMEW,IN	1.75	1.12	1	0	1
18089	LAKE, IN	0.47	0.3	1	1	2
18097	MARION, IN	0.29	0.19	2	0	2
18141	ST. JOSEPH, IN	2.37	1.51	5	0	5
TOTAL	**INDIANA**	**0.23**	**0.14**	**10**	**1**	**11**
19013	BLACKHAWK, IA	4.48	2.86	3	2	5
TOTAL	**IOWA**	**0.2**	**0.13**	**3**	**2**	**5**

FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
		US	NA	COLL	PRO	
22051	JEFERSON, LA	0.23	0.15	1	0	1
TOTAL	**LOUISIANA**	**0.02**	**0.02**	**1**	**0**	**1**
23001	ANDROSCOGGIN,ME	3.37	2.15	3	0	3
23005	CUMBERLAND,ME	2 46	1.57	4	1	5
23011	KENNEBEC,ME	53.19	34	6	0	6
23019	PENOBSCOTT,ME	0.82	0.53	1	0	1
23023	SAGADAHOC,ME	7.14	4.56	1	1	2
23031	YORK, ME	1.4	0.9	2	0	2
TOTAL	**MAINE**	**1.83**	**1.17**	**17**	**2**	**19**
24021	FREDRICK, MD	0.83	0.53	0	1	1
24029	KENT,MD	53.82	34.4	8	0	8
24033	PRINCE GEO.'S, MD	0.49	0.32	3	0	3
24039	SOMERSET,MD	5.62	3.59	1	0	1
24510	BALT. C., MD	0.15	0.1	0	1	1
TOTAL	**MARYLAND**	**0.35**	**0.22**	**12**	**2**	**14**
25001	BARNSTABLE,MA	14.69	9.39	21	2	23
25003	BERKSHIRE,MA	4.07	2.6	5	0	5
25005	BRISTOL, MA	4.89	3.12	20	1	21
25009	ESSEX, MA	11.08	7.08	52	11	63
25011	FRANKLIN,MA	5.14	3.28	2	1	3
25013	HAMPDEN,MA	114.02	72.88	19	6	25
25015	HAMPSHIRE,MA	3.14	2.01	4	0	4
25017	MIDDLESEX,MA	17.97	11.48	183	32	215
25021	NORFOLK,MA	18.56	11.86	89	9	98
25023	PLYMOUTH,MA	14.83	9.48	49	8	57
25025	SUFFOLK,MA	9.66	6.17	34	22	56
25027	WORCESTER,MA	7.91	5.05	35	11	46
TOTAL	**MASSACHUSSETS**	**12.03**	**7.66**	**513**	**103**	**616**
26017	BAY, MI	0.99	0.64	0	1	1
26041	DELTA, MI	2.92	1.87	1	0	1
26049	GENESEE, MI	2.63	1.68	7	3	10
26061	HOUGHTON,MI	9.19	5.88	3	0	3
26065	INGHAM, MI	4.93	3 15	12	0	12
26075	JACKSON, MI	0.79	0.5	1	0	1

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
26077	KALAMAZOO, MI	1.57	1.01	3	0	3
26081	KENT, MI	0.94	0.6	4	0	4
26093	LIVINGSTON, MI	1.03	0.66	1	0	1
26099	MACOMB, MI	3.24	2.07	16	4	20
26103	MARQUETTE, MI	3.16	2.02	2	0	2
26107	MECOSTA, MI	2.92	1.87	1	0	1
26111	MIDLAND, MI	1.55	0.99	1	0	1
26115	MONROE, MI	0.85	0.54	1	0	1
26121	MUSKEGON, MI	1.45	0.92	2	0	2
26125	OAKLAND, MI	2.41	1.54	15	7	22
26139	OTTAWA, MI	0.65	0.41	1	0	1
26145	SAGINAW, MI	0.53	0.34	1	0	1
26147	ST. CLAIR, MI	3.98	2.54	4	1	5
26161	WASHTENAW, MI	2.1	1.34	4	1	5
26163	WAYNE, MI	2.93	1.87	33	22	55
TOTAL	**MICHIGAN**	**1.89**	**1.2**	**113**	**39**	**152**
27003	ANOKA, MN	8.54	5.46	15	2	17
27005	BECKER, MN	7.56	4.83	2	0	2
27007	BELTRAMI, MN	27.19	17.38	7	1	8
27013	BLUE EARTH, MN	2.23	1.43	1	0	1
27027	CLAY, MN	11.94	7.63	5	0	5
27017	CARLTON, MN	3.77	2.41	0	1	1
27035	CROW WING, MN	10.01	6.4	3	1	4
27037	DAKOTA, MN	19.53	12.48	34	7	41
27041	DOUGLAS, MN	3.81	2.44	1	0	1
27047	FREEBORN, MN	13.23	8.46	4	0	4
27053	HENNEPIN, MN	13.4	8.56	95	21	116
27061	ITASCA, MN	39.48	25.23	11	4	15
27067	KANDIYOHI, MN	8.8	5.62	3	0	3
27071	KOOCHICHING, MN	66.32	42.39	7	2	9
27075	LAKE, MN	10.06	6.43	1	0	1
27077	L. WOODS, MN	30.1	19.24	1	0	1
27085	McLEOD, MN	3.62	2.32	1	0	1
27099	MOWER, MN	8.83	5.64	3	0	3
27109	OLMSTED, MN	12.61	8.06	9	2	11
27111	OTTERTAIL, MN	6.45	4.12	3	0	3
27119	POLK, MN	13.64	8.72	3	1	4
27123	RAMSEY, MN	17.85	11.41	53	21	74
27131	RICE, MN	9.51	6.08	3	1	4
27135	ROSEAU, MN	128.55	82.17	8	7	15

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
27137	ST. LOUIS, MN	41.04	26.23	62	10	72
27139	SCOTT,MN	4.38	2.8	1	1	2
27141	SHERBURNE,MN	9.29	5.94	2	1	3
27145	STEARNS,MN	2.96	1.89	3	0	3
27163	WASHINGTON,MN	11.96	7.65	14	0	14
27169	WINONA,MN	2.46	1.57	0	1	1
27171	WRIGHT,MN	3.37	2.15	2	0	2
TOTAL	**MINNESOTA**	**11.85**	**7.55**	**357**	**84**	**441**
29099	JEFFERSON,MO	0.66	0.42	1	0	1
29510	ST. LOUIS C., MO	3.4	2.17	6	6	12
TOTAL	**MISSOURI**	**0.29**	**0.19**	**7**	**6**	**13**
31153	SARPY,NE	1.17	0.75	1	0	1
TOTAL	**NEBRASKA**	**0.07**	**0.05**	**1**	**0**	**1**
32003	CLARK,NV	0.37	0.24	2	0	2
TOTAL	**NEVADA**	**0.22**	**0.14**	**2**	**0**	**2**
33007	COOS,NH	14.89	9.52	3	0	3
33009	GRAFTON,NH	1.58	1.01	1	0	1
33011	HILLSBOROUGH,NH	5.9	3.77	15	2	17
33013	MERRIMACK,NH	4.96	3.17	4	1	5
33015	ROCKINGHAM,NH	4.31	2.76	8	1	9
33017	STRAFFORD,NH	5.84	3.74	5	0	5
TOTAL	**NEW HAMPSHIRE**	**4.25**	**2.71**	**36**	**4**	**40**
34003	BERGEN,NJ	1.36	0.87	9	1	10
34005	BURLINGTON,NJ	0.58	0.37	2	0	2
34007	CAMDEN,NJ	0.68	0.44	3	0	3
34013	ESSEX, NJ	0.67	0.43	4	1	5
34015	GLOUCESTER,NJ	0.53	0.34	1	0	1
34017	HUDSON,NJ	0.41	0.26	2	0	2
34019	HUNTERDON,NJ	1.16	0.74	1	0	1
34021	MERCER,NJ	2.45	1.57	6	1	7
34023	MIDDLESEX, NJ	0 18	0.11	1	0	1
34025	MONMOUTH,NJ	0.62	0.4	2	1	3

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
34027	MORRIS, NJ	1.07	0.69	4	0	4
34029	OCEAN, NJ	1.69	1.08	5	1	6
34031	PASSAIC, NJ	0 49	0.31	1	1	2
34035	SOMERSET, NJ	0.52	0.33	1	0	1
34039	UNION, NJ	0.68	0.43	2	1	3
TOTAL	**NEW JERSEY**	**0.76**	**0.48**	**44**	**7**	**51**
36001	ALBANY, NY	1.2	0.77	2	1	3
36003	ALLEGANY, NY	2.25	1.44	1	0	1
36007	BROOME, NY	2.17	1.39	4	0	4
36009	CATTARAUGUS,NY	1.33	0.85	1	0	1
36015	CHEMUNG,NY	3.79	2 42	2	1	3
36019	CLINTON,NY	5.56	3.55	4	0	4
36027	DUTCHESS,NY	0.88	0.56	2	0	2
36029	ERIE, NY	12.34	7.89	97	7	104
36031	ESSEX, NY	6.23	3.98	1	1	2
36033	FRANKLIN,NY	2.61	1.67	1	0	1
36035	FULTON,NY	2.07	1.32	1	0	1
36037	GENESEE, NY	5.78	3.7	2	1	3
36045	JEFFERSON,NY	5.7	3.64	3	2	5
36051	LIVINGSTON, NY	1.91	1.22	1	0	1
36053	MADISON, NY	3.37	2.16	2	0	2
36055	MONROE, NY	3.07	1.96	18	1	19
36059	NASSAU, NY	1.46	0.94	16	1	17
36061	NEW YORK, NY	0.85	0.54	6	5	11
36063	NIAGARA, NY	3.16	2.02	6	0	6
36065	ONEIDA, NY	7.32	4.68	13	3	16
36067	ONONDAGA, NY	0.15	0.09	5	1	6
36081	QUEENS, NY	0.06	0.04	0	1	1
36069	ONTARIO, NY	2.45	1.57	2	0	2
36071	ORANGE, NY	1 19	0 76	3	0	3
36075	OSWEGO, NY	0.94	0.6	1	0	1
36079	PUTNAM,NY	1.37	0.87	1	0	1
36083	RENSSELAER,NY	1.5	0.96	2	0	2
36087	ROCKLAND,NY	2.94	1.88	7	0	7
36089	ST. LAW., NY	22.92	14.65	23	0	23
36091	SARATOGA, NY	3.42	2.18	5	0	5
36093	SCHENECTADY,NY	2.27	1.45	3	0	3
36103	SUFFOLK,NY	1.79	1.15	21	0	21
36109	TOMPKINS, NY	5.16	3.3	4	0	4

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
36111	ULSTER,NY	0.69	0.44	1	0	1
36115	WASHINGTON,NY	1.98	1.26	1	0	1
36119	WESTCHESTER,NY	0.93	0.59	6	1	7
TOTAL	**NEW YORK**	**1.89**	**1.2**	**268**	**26**	**294**
37119	MECKLENBURG,NC	0.25	0.16	1	0	1
TOTAL	**NORTH CAROLINA**			**1**	**0**	**1**
38017	CASS,ND	1.13	0.72	0	1	1
38035	GRANDFORKS,ND	14.35	9.17	6	3	9
38099	WALSH,ND	7.37	4.71	1	0	1
38101	WARD,ND	1.82	1.16	1	0	1
TOTAL	**NORTH DAKOTA**	**1.98**	**1.26**	**8**	**4**	**12**
39035	CUYAHOGA,OH	1.12	0.71	11	3	14
39095	LUCAS,OH	1.99	1.27	5	3	8
39113	MONTGOMERY,OH	0.2	0.13	1	0	1
39173	WOOD,OH	3.11	1.99	2	1	3
TOTAL	**OHIO**	**0.28**	**0.18**	**19**	**7**	**26**
40109	OKLAHOMA,OK	0.18	0.11	0	1	1
TOTAL	**OKLAHOMA**	**0.03**	**0.02**	**0**	**1**	**1**
41051	MULTNOMAH,OR	0.2	0.13	0	1	1
TOTAL	**OREGON**	**0.04**	**0.03**	**0**	**1**	**1**
42003	ALLEGHENY,PA	1.17	0.75	14	0	14
42007	BEAVER,PA	0.6	0.38	1	0	1
42017	BUCKS,PA	0.64	0.41	3	0	3
42029	CHESTER,PA	0.66	0.42	2	0	2
42045	DELAWARE,PA	0.41	0.26	2	0	2
42051	FAYETTE,PA	0.73	0.47	1	0	1
42077	LEHIGH,PA	0.8	0.51	2	0	2
42091	MONTGOMERY,PA	0.34	0.22	1	1	2
42095	NORTHAMPTON,PA	0.48	0.31	1	0	1
42101	PHILADELPHIA,PA	0.28	0.18	1	3	4

FIPS	COUNTY	TOTAL LQ'S US	TOTAL LQ'S NA	PLAYERS COLL	PLAYERS PRO	TOT
42129	WESTMORELAND,PA	0.3	0.19	1	0	1
TOTAL	**PENNSYLVANIA**	**0.32**	**0.2**	**29**	**4**	**33**
44001	BRISTOL, RI	4.74	3.03	2	0	2
44003	KENT, RI	13.43	8.59	17	2	19
44005	NEWPORT, RI	2.65	1.7	1	1	2
44007	PROVIDENCE, RI	9.6	6.14	38	11	49
TOTAL	**RHODE ISLAND**	**8.4**	**5.35**	**58**	**14**	**72**
48085	COLLIN, TX	1.5	0.96	2	1	3
48113	DALLAS, TX	0.06	0.04	1	0	1
48355	NUECES, TX	0.37	0.23	0	1	1
TOTAL	**TEXAS**	**0.03**	**0.02**	**3**	**2**	**5**
49035	SALT LAKE, UT	0.32	0.2	2	0	2
TOTAL	**UTAH**	**0.13**	**0.09**	**2**	**0**	**2**
50007	CHITTENDEN,VT	7.21	4.61	7	1	8
50011	FRANKLIN, VT	12.08	7.72	2	2	4
50021	RUTLAND,VT	3.76	2.4	2	0	2
50023	WASHINGTON,VT	6.27	4.01	3	0	3
50027	WINDSOR, VT	2.1	1.34	1	0	1
TOTAL	**VERMONT**	**3.75**	**2.39**	**15**	**3**	**18**
51059	FAIRFAX, VA	0.15	0.1	1	0	1
51510	ALEXANDRIA, VA	2.1	1.34	1	1	2
51161	ROANOKE, VA	1.5	0.96	0	1	1
TOTAL	**VIRGINIA**	**0.08**	**0.05**	**2**	**2**	**4**
53033	KING, WA	0.82	0.53	8	2	10
53061	SNOHOMISH, WA	0.28	0.18	1	0	1
53073	WHATCOM,WA	0.98	0.63	1	0	1
TOTAL	**WASHINGTON**	**0.3**	**0.19**	**10**	**2**	**12**

FIPS	COUNTY	TOTAL LQ'S		PLAYERS		TOT
		US	NA	COLL	PRO	
55007	BAYFIELD, WI	7.78	4.97	1	0	1
55009	BROWN, WI	4.21	2.69	7	0	7
55021	COLUMBIA, WI	2 49	1.59	1	0	1
55025	DANE, WI	7.18	4.59	17	5	22
55027	DODGE, WI	1.5	0.96	0	1	1
55031	DOUGLAS, WI	2.74	1.75	0	1	1
55035	EAU CLAIRE, WI	2.7	1.73	2	0	2
55039	FONDDU LAC, WI	2.5	1.6	2	0	2
55059	KENOSHA, WI	0.94	0.6	1	0	1
55069	LINCOLN, WI	4.01	2.57	1	0	1
55073	MARATHON,WI	1	0.64	1	0	1
55079	MILWAUKEE, WI	0.74	0 47	6	0	6
55087	OUTAGAMIE, WI	1.66	1.06	2	0	2
55085	ONEIDA, WI	10.57	6.75	2	1	3
55089	OZAUKEE, WI	4.84	3.09	2	1	3
55097	PORTAGE, WI	3.81	2.43	2	0	2
55105	ROCK, WI	2.46	1.57	3	0	3
55113	SAWYER, WI	23.47	15	2	1	3
55125	VILAS, WI	6.25	4	1	0	1
55133	WAUKESHA, WI	0.38	0.25	1	0	1
TOTAL	**WISCONSIN**	**1.47**	**0.94**	**52**	**10**	**62**
TOTAL		**1**	**0.64**	**1770**	**375**	**2146**

APPENDIX G

TOTAL CANADIAN PLAYER PRODUCTION BY CENSUS DISTRICT AND PROVINCE

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
BRITISH COLUMBIA	**1.00**	**191**	**0.89**	**1.5**	**1.08**	**2,883,367**
KOOTENAY BOUNDARY	5 47	11	5.39	7 04	5 89	30,335
CENTRAL KOOTENAY	3.38	11	2.38	6 52	3.64	49,110
OKANAGAN-SIMILKAMEEN	3.07	12	1 98	6.33	3.3	59,089
THOMPSON-NICOLA	2 81	18	1.93	5.52	3.02	96,805
KITIMAT-STIKINE	2 29	6	2.96	1.35	2 47	39,483
EAST KOOTENAY	2 27	8	1.32	5 03	2 45	53,089
SUNSHINE COAST	1.80	2	2.79	0	1.94	16,758
PEACE RIVER-LAIRD	1.58	6	2 04	0.93	1.7	57,278
N. OKANAGAN	1.38	5	1.7	0 97	1.48	54,820
CARIBOO	1 27	5	0 39	3.59	1 37	59,495
BULKELY-NECHAKO	1.21	3	1 25	1 43	1 3	37,470
COWICHAN VALLEY	1.15	4	1.78	0	1.24	52,466
FRASER-FT.GEORGE	1.01	6	1 05	1.2	1 09	89,337
NANAIMO	0 92	5	0.85	1.3	0.99	82,180
VANCOUVER	0 75	63	0.72	1.01	0.81	1,266,152
CAPITAL REGION	0.68	12	0.62	1 01	0 74	264,614
CENTRAL OKANAGAN	0 67	4	0.26	1.79	0 72	89,730
COMOX-STRATCHONA	0.64	3	0.66	0.75	0 68	71,145
FRASER-CHEAM	0.52	2	0.81	0	0 56	57,965
ALBERNI-CLAYOQUOT	0.50	1	0 77	0	0.54	30,341
CENTRAL FRASER	0 44	4	0	1 56	0 47	136,892

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
ALBERTA	**1.00**	**227**	**1.51**	**1.67**	**1.56**	**2,365,825**
4-ALBERTA	2 53	3	5.66	0	3 94	12,376
10-ALBERTA	2.48	19	3 22	5 36	3 87	79,745
17-ALBERTA	1 49	7	3.35	0	2 33	48,852
16-ALBERTA	1.28	6	0.96	4 38	2	48,779
11-ALBERTA	1.24	96	2.08	1.59	1.93	807,504
6-ALBERTA	1 06	73	1.27	2 54	1 66	715,605
8-ALBERTA	0 98	11	1.8	0 92	1 53	116,611
3-ALBERTA	0 60	2	1.34	0	0.93	34,970
13-ALBERTA	0 57	3	1.27	0	0 89	54,973
1-ALBERTA	0 55	3	1.24	0	0 86	56,592
7-ALBERTA	0.51	2	0	2 63	0.8	40,681
15-ALBERTA	0 46	1	1.02	0	0.71	22,794
2-ALBERTA	0 09	1	0.2	0	0 14	115,739
SASKATCHEWAN	**1.00**	**135**	**2.45**	**15.02**	**2.17**	**1,009,613**
10-SASK	2.75	9	6.67	4 36	5 97	24,487
4-SASK	2 13	4	6 64	0	4 62	14,058
16-SASK	1.48	8	2.32	5.3	3.22	40,314
7-SASK	1.39	10	3 91	0 99	3 02	53,706
1-SASK	1 33	6	2.07	4 74	2 88	33,813
13-SASK	1.30	5	4 07	0	2 83	28,656
5-SASK	1.30	7	2.32	3 97	2 82	40,315

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
14-SASK	1 27	8	3 98	0	2 77	46,932
15-SASK	1.27	14	3.69	0 65	2.76	82,258
3-SASK	1.16	3	3 61	0	2 51	19,392
6-SASK	1.15	33	2.4	2.75	2 51	213,800
2-SASK	0.85	3	1 76	2 02	1 84	26,491
9-SASK	0 69	4	2 15	0	1 5	43,455
8-SASK	0 63	3	1 96	0	1.36	35,723
12-SASK	0.58	2	1 81	0	1.26	25,867
11-SASK	0 45	13	1.18	0 49	0.97	217,231
17-SASK	0.40	2	0.62	1 41	0.86	37,775
18-SASK	0 30	1	0.92	0	0 64	25,340
MANITOBA	**1.00**	**84**	**1.23**	**12.51**	**1.28**	**1,063,016**
21-MAN	2.63	5	4.85	0	3.37	24,068
6-MAN	2.26	2	2.09	4 78	2 91	11,176
4-MAN	2.21	2	4 07	0	2.83	11,469
17-MAN	1.91	4	0	8 05	2 45	26,522
10-MAN	1.73	1	0	7.28	2.21	7,334
15-MAN	1 59	3	1.96	2 24	2 05	23,818
5-MAN	1 53	2	1.42	3 24	1.97	16,495
13-MAN	1.51	4	1 39	3.18	1.93	33,619
7-MAN	1 33	6	2 04	0 93	1.71	57,112
3-MAN	1 32	4	0.61	4.17	1 69	38,422
11-MAN	0 99	46	1.26	1 26	1 26	594,551

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
14-MAN	0 86	1	1 59	0	1.1	14,713
22-MAN	0.83	2	1.53	0	1 06	30,544
1-MAN	0 78	1	1.44	0	1	16,262
2-MAN	0.31	1	0.58	0	0 4	40,368
ONTARIO	**1.00**	**694**	**1.23**	**1.26**	**1.24**	**9,101,694**
RAINY RIVER	5 73	10	4.08	14.01	7.1	22,871
TIMISKAMING	3.90	12	3.48	7.95	4 84	40,307
SUDBURYREGIONAL	2.41	28	3.68	1.4	2 98	152,476
LAMBTON	2 11	20	3.37	0.86	2 61	124,592
THUNDERBAY	1.85	22	2 1	2 74	2.3	155,673
BRANT	1.85	15	2.64	1.51	2.29	106,267
PETERBOROUGH	1.75	14	2.89	0 51	2 16	105,056
FRONTENAC	1 71	15	3.04	0	2 11	115,221
HASTINGS	1 44	12	1.49	2.44	1.78	109,352
MUSKOKA	1.30	4	0.58	3 98	1 61	40,235
S. D. & G.	1.28	10	1 14	2 61	1 59	102,262
KENORA	1.24	5	1.33	2 02	1.54	52,834
LEEDS & GRENVILLE	1.24	8	1.38	1.89	1 54	84,582
KENT	1.23	10	1.09	2 5	1 52	106,732
OTTAWA-CARLETON	1 21	56	1.39	1 76	1.5	606,639
PERTH	1 18	6	1.75	0.8	1.46	66,608
RENFREW	1.18	8	1.57	1 2	1 46	88,965
DURHAM	1 17	29	1.43	1.47	1 44	326,179
HALIBURTON	1 10	1	1 95	0	1 36	11,961

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
ESSEX	1.04	25	1 18	1 52	1 28	316,362
WELLINGTON	1.03	11	1 51	0 77	1 28	139,436
TORONTO	1 02	170	1.41	0 93	1 26	2,192,721
NIPISSING	1.00	6	1.18	1 35	1.23	79,004
ALGOMA	0.99	10	1.06	1 62	1 23	131,841
NIAGARA	0.99	28	1.14	1 44	1.23	370,132
SIMCOE	0 94	17	1.18	1 12	1.16	238,408
HALTON	0 87	18	0 95	1 38	1 08	271,389
HAMILTON-WENTWORTH	0 87	28	0 99	1 26	1 07	423,398
COCHRANE	0.84	6	1	1 14	1.04	93,712
DUFFERIN	0.80	2	0	3 27	1	32,635
WATERLOO	0.80	20	0.92	1 13	0.99	329,404
LANARK	0 79	3	0 94	1.08	0.98	49,649
VICTORIA	0.75	3	1.33	0	0.93	52,599
HALDIMAN-NORFOLK	0 73	5	0 52	1 78	0.9	90,121
MIDDLESEX	0.71	18	0.63	1 45	0 88	332,471
HURON	0 70	3	0 42	1.91	0 87	55,996
YORK	0 56	15	0.47	1 22	0.7	350,602
OXFORD	0 46	3	0 27	1.25	0 57	85,364
BRUCE	0 45	2	0 79	0	0 55	58,848
PARRY SOUND	0.39	1	0.69	0	0 48	33,828
ELGIN	0 37	2	0 66	0	0 46	70,335
PRESCOTT& RUSSELL	0 23	1	0 41	0	0.28	57,620
PEEL	0.22	10	0.2	0 45	0.27	592,169
NORTHUMBERLAND	0 19	1	0 34	0	0 24	67,704
GREY	0 18	1	0	0 71	0 22	74,759

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
QUEBEC	**1.00**	**187**	**0.55**	**0.26**	**0.47**	**6,532,461**
TEMISCAMINGUE	3 94	6	2 19	1	1.83	53,238
PONTIAC	3 53	2	2.36	0	1.64	19,809
MATANE	2 39	2	1 6	0	1 11	29,258
ARGENTEUIL	2 15	2	1.44	0	1	32,533
LABELLE	2.02	2	1.35	0	0 94	34,579
MISSIQUOI	1.99	2	1.33	0	0.93	35,028
MEGANTIC	1 90	3	1.27	0	0.89	55,028
RICHMOND	1.81	2	1 21	0	0 84	38,653
COMPTON	1.74	1	1.16	0	0 81	20,110
PAPINEAU	1 74	2	1.16	0	0.81	40,258
ILE-DE-MONTREAL	1 61	81	0 85	0 52	0.75	1,752,582
DRUMMOND	1.45	3	0 97	0	0 68	72,051
SHERBROOKE	1 45	5	0.77	0 44	0.67	120,551
MONTMAGNY	1 41	1	0.94	0	0 66	24,794
QUEBEC	1 35	18	0.8	0 23	0 63	466,483
SAGUENAY	1 34	4	0 9	0	0 62	104,131
FRONTENAC	1 32	1	0 88	0	0 62	26,390
HULL	1.25	5	0.67	0.38	0 58	139,966
KAMOURASKA	1 23	1	0	1 87	0 57	28,483
ST. HYACINTHE	1 23	2	0 82	0	0.57	57,027
LOTBINIERE	1.17	1	0.78	0	0 54	29,809
PORTNEUF	1 15	2	0.39	0 88	0 54	60,610
CHATEAUGUAY	1.13	2	0 38	0 87	0.53	61,608
ABITIBI	1 11	3	0 74	0	0.52	94,410

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
JOLIETTE	1 10	2	0 74	0	0.51	63,343
RIMOUSKI	1.00	2	0 67	0	0.46	69,945
BONAVENTURE	0.88	1	0.59	0	0.41	39,576
CHAMPLAIN	0.88	3	0.59	0	0 41	119,563
RIVIERE-DU-LOUP	0 86	1	0	1 31	0.4	40,646
CHICOUTIMI	0.80	4	0.53	0	0 37	174,625
LAC ST. JEAN EST	0 74	1	0.49	0	0.34	47,497
TERREBONNE	0.68	4	0.34	0 26	0.31	206,657
BEAUHARNOIS	0 66	1	0	1 01	0.31	53,106
VAUDREUIL	0.65	1	0	1	0.3	53,421
ST. MAURICE	0.64	2	0.43	0	0.3	109,033
GATINEAU	0 61	1	0.41	0	0.28	57,213
L'ASSOMPTION	0.57	2	0.38	0	0.27	122,509
CHAMBLY	0 55	5	0.37	0	0.26	316,337
VERCHERRES	0 52	1	0 35	0	0.24	67,610
DEUX-MONTAGNES	0.46	1	0	0.7	0.21	75,880
LEVIS	0.34	1	0	0 52	0 16	103,318
ILE-DE-JESUS	0.12	1	0	0 19	0.06	284,164
ROUVILLE	0 00	0	0	0	0	43,859
YAMASKA	0 00	0	0	0	0	14,722
NEW BRUNSWICK	**1.00**	**15**	**0.26**	**0.53**	**0.34**	**709,442**
WESTMORELAND	2 56	6	1.05	0 48	0 88	110,969
ALBERT	1 90	1	0	2 15	0 65	24,832
CHARLOTTE	1 78	1	0	2.01	0 61	26,525

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
KENT	1 50	1	0.74	0	0 52	31,496
RESTIGOUCHE	1.18	1	0	1.34	0.41	39,921
SAINT JOHN	1 15	2	0	1.3	0 39	82,460
NORTHUMBERLAND	0.89	1	0.44	0	0 31	52,981
KINGS	0 84	1	0 41	0	0 29	56,598
YORK	0 61	1	0	0 69	0.21	77,211
PRINCE EDWARD ISL	**1.00**	**5**	**0.74**	**0.42**	**0.64**	**126,646**
QUEENS	1.20	3	0.74	0 84	0 77	63,460
PRINCE	1.16	2	1.07	0	0.74	43,677
NOVA SCOTIA	**1.00**	**14**	**0.27**	**0.24**	**0.26**	**873,176**
RICHMOND	5 27	1	1 97	0	1 37	11,841
ANTIGONISH	3.32	1	1 24	0	0.87	18,776
CAPE BRETON	3.03	6	0.94	0.43	0 79	123,625
INVERNESS	2 84	1	1.06	0	0.74	21,946
PICTOU	2 51	2	0.47	1 07	0.65	49,772
LUNENBURG	1.34	1	0.5	0	0 35	46,483
HALIFAX	0 41	2	0	0.35	0 11	306,418
NEWFOUNDLAND	**1.00**	**5**	**0.12**	**0.19**	**0.14**	**568,349**

CENSUS DISTRICT	PROV LQ	TOTAL PLAYERS	LOCATION QUOTIENTS PRO	COLL	TOT	POP 1986
5-NFL	4 98	2	0 51	1 17	0 71	45,648
2-NFL	3 75	1	0 77	0	0.54	30,285
1-NFL	0 92	2	0.09	0.22	0 13	246,149
YUKON	**1.00**	**1**	**0**	**2.27**	**0.69**	**23,504**
NWT	**1.00**	**1**	**0**	**1.02**	**0.31**	**52,238**
6-NWT	2 08	1	0	2 13	0 65	25,116

VITA

Jerry P. Henzel

Candidate for the Degree of

Master of Science

Thesis: REGIONAL VARIATION IN THE IMPORTANCE OF ICE HOCKEY IN NORTH AMERICA-1988

Major Field: Geography

Biographical:

Personal Data: Born in Steinbach, Manitoba, Canada, January 11, 1962, the son of Edward and Sally Henzel.

Education: Graduated from the Steinbach Regional Secondary School, Steinbach, Manitoba, in June 1980; received a Bachelor of Education from the University of Manitoba in May 1986; completed the requirements for the Master of Science degree at Oklahoma State University in May, 1990.

Professional Experience: New York Times Fellow, Department of Geography, Oklahoma State University, January, 1989 to May, 1990; Teacher, Hanover School Division, Steinbach, Manitoba, September 1986 to June 1987.

Professional Organizations: Gamma Theta Upsilon; Association of American Geographers.