

PUBLIC ACCESS TO NEW HAMPSHIRE STATE WATERS: A COMPARISON OF THREE COHORTS OF RESIDENTS ACROSS THREE DISTINCT GEOGRAPHIC

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Abstract: This study was intended to provide New Hampshire agencies with a better understanding of public access-related demand information. Through an analysis of three groups of New Hampshire residents based upon geographic location and length of residency, important issues and attitudes were identified from all over the State. The results of this study will assist in policy-making regarding water-based recreation in the State, allowing for more informed and appropriate decisions to be made.

Introduction

Understanding the recreational access needs of the general public is important to resource managers. In New Hampshire, there has been considerable debate over the criteria that should be considered when making public access development decisions. Lakes and rivers over ten acres within the State are held in public trust, therefore subject to public access. The New Hampshire Fish and Game (NHFG) Department leads the state's public access program and is charged with insuring that the demand for public access is linked with supply. Also, NHFG is responsible for providing public access with a clear understanding of the demands and needs of the public, as well as allocating limited funds for the development of public access in a way that proves most beneficial to the public.

Land use planners and resource managers want and need to understand the public, thus reinforcing the need for this study. While NHFG is used to dealing with traditional stakeholder groups (fishers, hunters, loggers, etc.), the agency is not sure what and who the public is, or how to consider the planning process associated with the development and management of public access sites. Policy makers and managers in New Hampshire have identified several factors guiding decision-making relating to recreational opportunities, including knowing if they should consider regional areas when making public access development decisions, and understanding and being responsive to constituencies in making these decisions. One group of constituencies that is of great importance in New Hampshire relates to the length of residency,

commonly referred to as the distinction between "natives," "newcomers," and "old-timers."

Objectives

The objectives of this study are to investigate a variety of demand and supply issues associated with the development of public access opportunities in New Hampshire between three distinct geographical regions in the State; natives and two distinct in-migration cohorts; and interactions between the geographical regions and native/in-migrant cohorts. This research will look at whether region of residency affects water-based recreation choices, if length of residency affects choices, and if there are any interactions between these groups that influence recreational preferences.

Methods

The data was collected as part of the New Hampshire Public Access Planning Process during 1997-1998. First, a telephone questionnaire was administered to a stratified random sample of 1,566 households throughout New Hampshire, and then a detailed questionnaire was mailed to a self-selected subsample of 563 households. The results of the survey identified three sets of independent variables used in this study: three distinct geographic regions [Metro-Southern Tier (n=753/257), Lakes Region (n=374/150), and Rural North Country (n=376/143)]; native/in-migrants [natives (n=504/165); old-timers—moved to New Hampshire prior to 1980 (n=511/225), and newcomers—moved to New Hampshire in 1980s and 1990s (n=489/160)]; and age, income, and education were all included as a covariate.

Several dependent variables also were used in this study. These include sociodemographic variables (age, income, education); participation (water-based recreation, motorized and non-motorized boat ownership); access (private access, second home on a lake, primary home on a lake); the importance of site attributes was included as a scaled variable (naturalness, access attributes, familiarity, maps); access development (good/bad, preference, need, type of site); and general attitudes and evaluation of public access.

Results

Geographic Region and Native/In-Migrant Cohorts

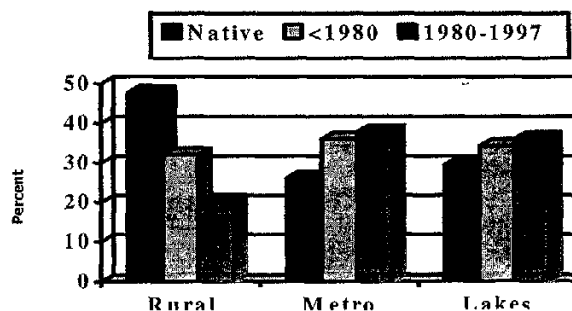


Figure 1. Migration levels between geographic regions (chi-square 67.03, sig. 0.000).

A chi-square analysis of this variable (67.03) showed that there was a significant relationship (0.000). This indicates that rural New Hampshire has the greatest proportion of persons who were born in New Hampshire and the smallest proportion of those who moved to New Hampshire in the 1980s and 1990s. Also, metro residents have the greatest proportion of residents who moved in the 1980s and 1990s, as indicated in Figure 1.

Sociodemographic Variables and Activities

A summary of the results of sociodemographic differences between geographic regions and native/in-migration cohorts revealed important information about these groups. First, there were three notable differences relating to annual household income: newcomers generally have higher incomes than natives and old-timers; natives generally have lower incomes than in-migrants; and rural residents have the lowest income, whereas metro newcomers and Lakes region migrants (prior to 1980) have the highest income. Also, levels of education varied across cohorts: in-migrants arriving between 1980-1997 are generally the most highly educated; natives are generally the lowest educated; and rural natives and Lakes natives have the lowest level of education. Finally, age varied among the groups: in-migrants moving to New Hampshire prior to the 1980s were the oldest; and rural residents are older than metro residents.

Participation in water-based recreation was another interesting finding of the study. An analysis of the question "Have you participated in water-based recreation in the last 12 months?" indicated a chi-square of 8.9 (0.01), with 62% of rural residents, 66% of metro residents, and 72% of Lakes residents indicating that they had answered "yes." The relationship for native/in-migrant cohorts was non-significant. Region/in-migration interaction shows that newcomers from the metro region are least likely to participate in water-based recreation, with a chi-square of 5.7 (0.05).

When asked "Does your household own a motorized boat?", only 22-25% of the respondents said "yes," and the differences were non-significant. Non-motorized boat ownership, however, had different results. An analysis of regional differences [chi-square: 5.7 (0.06)] shows that 36% of rural and metro respondents, and 44% of Lakes respondents, own non-motorized boats. The differences among native cohorts had a chi-square of 17.7 (0.000), and indicated that 34% of natives, 46% of old-timers, and 33% of newcomers own non-motorized boats. Finally, the interaction between region/in-migration reveals a chi-square of 7.8 for rural residents and 13.6 for Lakes residents. Here, 48% of rural old-timers, 34% of rural newcomers, and 29% of rural natives own non-motorized boats; 57% of Lakes old-timers, 33% of Lakes newcomers, and 41% of Lakes natives own non-motorized boats; and the relationship was non-significant for metro residents (33-40%).

Primary or secondary home ownership along a lake, pond or river in New Hampshire was another aspect that was considered in this study. When asked if their household has a primary home on a waterbody in New Hampshire, the response across regions [chi-square: 9.9

(0.007)] indicated that 14% of rural residents, 10% of metro residents, and 16% of Lakes residents responded "yes." Only 9% of natives, 14% of old-timers, and 14% of newcomers said that they own a primary home on a lake, pond, or river in New Hampshire [chi-square: 5.94 (0.05)]. The interaction between region/in-migration cohorts [chi-square: 8.3 (0.01)] revealed that only 8% of natives responded "yes," while 21% of old-timers and 18% of newcomers said "yes." Finally, when asked "Does your household have a second home or camp on a lake, pond or river in New Hampshire?", there was no significant difference or interaction between cohorts.

Also, private access to New Hampshire waterbodies was examined in this study. Respondents were asked if their household had private access to any rivers, lakes or ponds in New Hampshire. An analysis of the regions [chi-square: 35.5 (0.000)] showed that 26% of rural residents, 21% of metro residents, and 38% of Lakes residents indicated that they did have private access. Differences among natives/in-migrants was non-significant, as well as the region/in-migrant interaction between cohorts.

Preferences for Specific Access Site Attributes

Factor analysis revealed several preferred characteristics of public access sites, as identified by survey respondents, like physical attributes, naturalness, familiarity, and mapping. The physical attributes that were recognized included well-designed and adequate parking, good law enforcement, well-maintained access sites, overall signing of the access facility, a safe area for recreation, and the existence of restroom facilities. Natural attributes that were desired by respondents included undeveloped shorelines, the presence of birds and wildlife, lack of homes/development, the remoteness of the site, and the lack of other people. Also, familiarity of the site was considered important, like familiar surroundings, located within 30 minutes of home, the site's availability for year-round recreation, and how easy the site is to get to. Finally, the presence of accurate maps to and of the site are highly important to many New Hampshire residents.

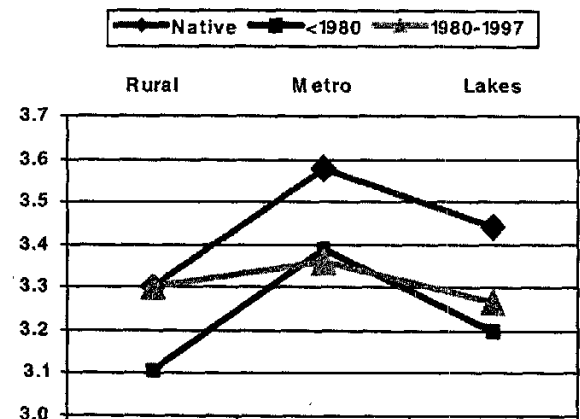


Figure 2 Preferences for physical attributes of access sites.

The physical attributes of the access site were significant for several variables: native/in-migrant

relationship (0.05), region (0.07), age (0.007), and education (0.05). Here, rural respondents identified physical characteristics as not being as important to them when compared to metro residents, and natives responded significantly higher than old-timers (see Figure 2).

The importance of natural characteristics of access sites to the study's respondents is interesting, as indicated by Figure 3. The model is not significant when including age, level of education, and income (0.08). The model is significant if the only variable used is age (0.04). Respondents' level of education is significant in both models, but the interaction effect is significant for the age-only model (0.03), and not with education/income (0.09). Here, rural newcomers and Lakes old-timers indicated that natural attributes are of great importance to them, while natives in all regions indicated that natural attributes are not as important to them.

Respondents' familiarity with an access site was also significant in this study (0.02). The native/in-migrant relationship (0.03) shows that natives indicated a greater importance of familiarity than old-timers. Also, newcomers ranked familiarity significantly higher than old-timers, as shown in Figure 4. Further, education is considered to be a significant (0.05) variable.

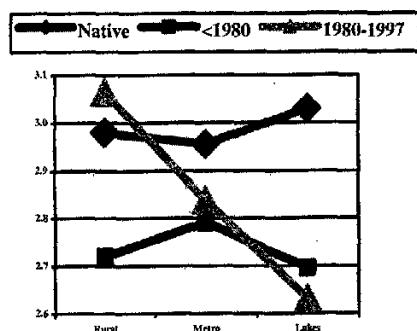


Figure 3. Preferences for natural attributes of access sites.

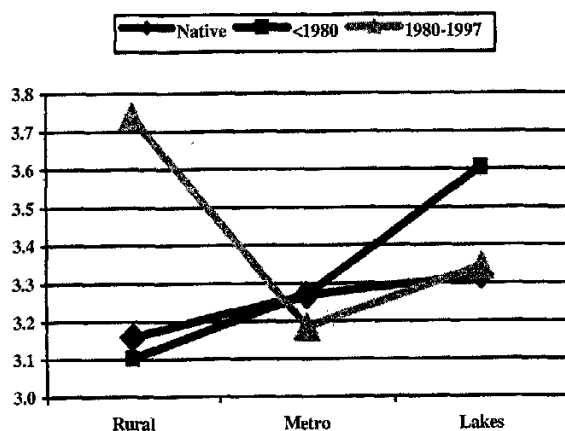


Figure 4. Preferences for familiarity attributes of access sites.

Finally, maps of water access sites are quite significant to New Hampshire residents (0.005). An analysis of regions indicates a significance of 0.205, and that rural residents rank maps of lower importance than

metro residents (0.076). Also, the native/in-migrant (0.09) relationship shows that natives rank the importance of maps significantly lower than newcomers (0.03), as shown in Figure 5. Additionally, the F-score for the region/in-migrant interaction effect is 2.58 (0.03). The presence of maps is important to all groups of residents, but for different reasons. As indicated by Figure 5, Lakes region natives are outliers, as they want to protect their access sites and prevent other groups from using them by not having maps, while newcomers to the Lakes region indicate a need for maps, as they want to find the access areas.

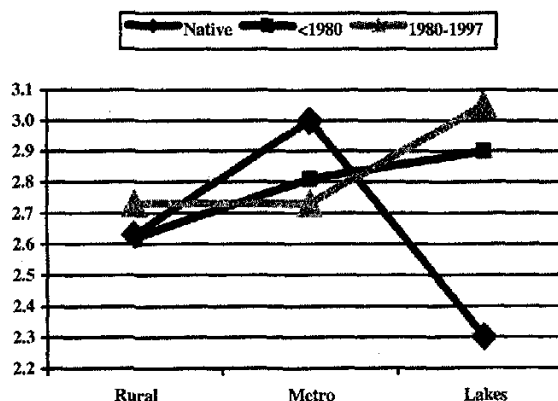


Figure 5. Preferences for maps of access sites

Access Development Policy

Another important issue examined in this study is whether maintaining the existing character of state waters a "good or bad idea." The model developed through data analysis is significant (0.01), and identifies income (0.02) and level of education (0.03) as significant covariates. There is a significant interaction between region and native/in-migrants (0.01). The data indicates that a majority of the respondents think that maintaining the existing character of state waters is a very good idea. Also, these respondents scored higher than a four on a five-point scale. It is important to point out that this question identifies very complex interactions between all of the variables, seen most clearly in Figure 6. Education and income both have significant interactions, especially for Lakes region respondents.

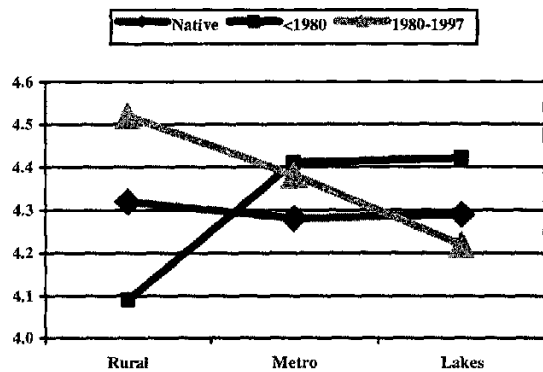


Figure 6. Is maintaining the existing character of State waters a good or bad idea?

A related issue is the assurance of public access to state waters in New Hampshire. Survey participants were asked whether this is a good or bad idea, and the resulting model proved significant (0.007). It was also significant to natives/in-migrants (0.001), but it is important to point out that natives are significantly more likely to want insured access than both old-timers and newcomers to New Hampshire, as apparent in Figure 7.

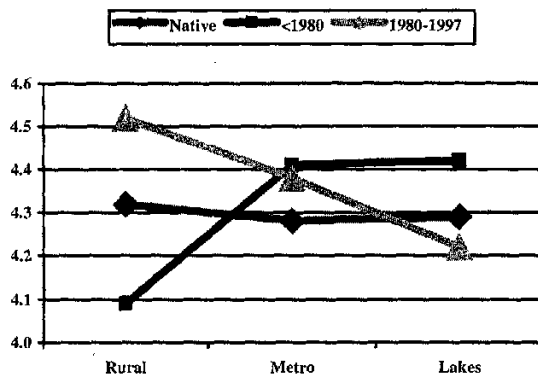


Figure 7. Is insuring public access to State waters a "good or bad idea"?

Another important question that was asked in the study was dealing with management approaches to access sites. The question that is important here is "Given the option between supporting one of these two management approaches, would you support (1) insuring that the existing character of each lake or river is maintained, or (2) insuring that state residents have access to publicly owned lakes and rivers." When analyzed at a regional scale, chi-square revealed 10.17 (0.006), where 60% of the rural respondents, 70% of the metro respondents, and 68% of the Lakes respondents supported maintaining the existing character of access sites. For natives/in-migrants, chi-square was 18.29 (0.000), and 60% of the natives 69% of old-timers, and 73% of newcomers supported maintaining the existing character of access sites. The interaction between these two cohorts showed that for Lakes region residents (0.01), 56% of natives, 74% of old-timers, and 72% of newcomers feel that it is important to maintain the

existing character of access sites, while 63% of natives, 71% of old-timers, and 74% of newcomers in metro region residents (0.04) share this belief.

The need for an increase in the number of access sites varied across the cohorts in New Hampshire. Analyses revealed that regional differences were not significant, with 48% of rural residents, 58% of metro residents, and 50% of Lakes residents expressing that there is a need for more access sites in the State. Also, 57% of natives, 51% of old-timers, and 51% of newcomers replied similarly [chi-square: 10.87 (0.004)], whereas there was no significant relationship between the region/in-migrant interaction. Also, when questioned concerning the types of access that should be considered, walk-in received the highest percent by all groups, boat launch received the second highest percent of all groups, and car top received the lowest percentage of all groups. Here, regional comparisons were not significant, but length of residency was. Also, the interaction between Lakes and Metro cohorts was significant.

This study also considered the statement: "The fact that a waterbody is owned by the public does not mean that it must have public access" (strongly disagree to strongly agree). Analyses of the responses to this statement indicated a significant model (0.02), where educational levels were significant (0.000), as well as the interaction between regions and length of residency. Here, rural natives were most likely to disagree with this statement, while Lakes newcomers and Lakes natives were most likely to agree, as indicated in Figure 8.

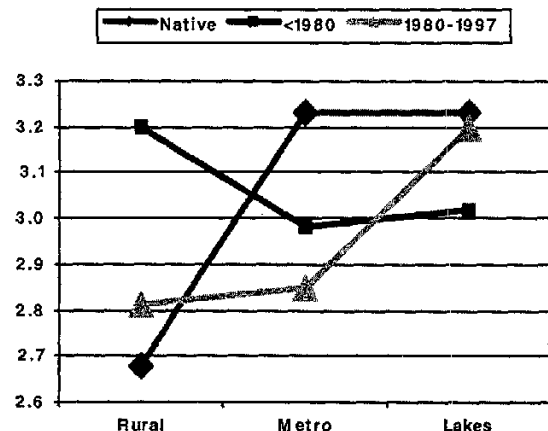


Figure 8. The fact that a waterbody is owned by the public does not mean that it must have public access (strongly disagree to strongly agree).

One of the main problems with public access sites is the lack of public boat launches. The study looked at the question "I have to drive too far to use a lake or river with a public boat launch area" (strongly disagree to strongly agree). The model is significant (0.000), and well as level of education and income (0.02). Native/in-migrant responses are considered non-significant, but a regional comparison is significant (0.04), where rural residents are significantly less likely to agree with the statement, as seen in Figure 9. Finally, the interaction between regions and

natives is significant (0.006). Here, it can be assumed that newcomers to the Lakes & rural regions do not consider driving distances a problem, as they are more accustomed to travelling longer distances than metro residents.

A point of contention between managers and the public has been the implementation of user fees at access sites, which prevents many residents from using certain facilities. The study looked at this, by asking respondents to rank their attitude of this statement: "I have not used some lakes, rivers or ponds in New Hampshire because of fees charged for access to lakes, rivers and ponds" (strongly disagree to strongly agree). The model is considered significant (0.001), as well as income (0.001). Both length of residency and region of residency are considered to be non-significant variables, but the interaction between the two is statistically significant (0.06), as seen in Figure 10.

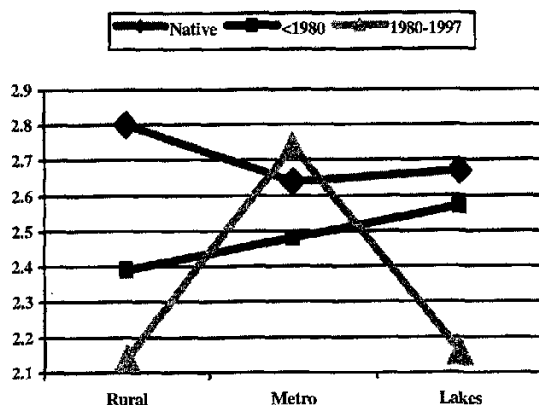


Figure 9. I have to drive too far to use a lake or river with a public boat launch area (strongly disagree to strongly agree).

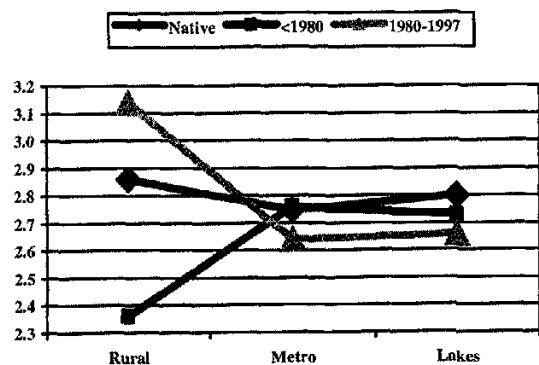


Figure 10. I have not used some lakes, rivers or ponds in New Hampshire because of fees charged for access to lakes, rivers and ponds (strongly disagree to strongly agree).

The final statement that was examined for this study was that "New Hampshire will lose the natural quality of some of its lakes, ponds and rivers if more water access is

developed" (strongly disagree to strongly agree). This model is considered statistically significant (0.06). Also, income is a significant variable (0.01). Length of residency is considered non-significant, while the region of residence is significant (0.01), where persons from the Lakes region are more likely to agree with the statement, while rural residents are most likely to disagree.

Summary and Conclusions

When looking at the sociodemographic variables considered in this study, it is important to think about several factors. First, when considering "in-migration," all regions are not created equal. The "rural" region of New Hampshire has the greatest over-proportion of "natives," while the metro south and Lakes region have the greatest proportion of more recent in-migrants. Also, income and education interact in different ways for different regions and for different cohorts, depending on the topic. Participation in water-based recreation is also an important variable in this study. In New Hampshire, the Lakes region has the highest participation rates, and the newcomers to the metro area have the lowest participation rate. Further, there are no differences across regions in motorized boat ownership, but "old-timers" are most likely to own a non-motorized boat. Another important issue that this study recognizes is the existence of public access areas within the State, and revealed that residents in the Lakes region are more likely to own a primary home on the water, and that natives are least likely to own a home on the water, both of which could partially explain some of the difficulties public agencies face in making public access decisions.

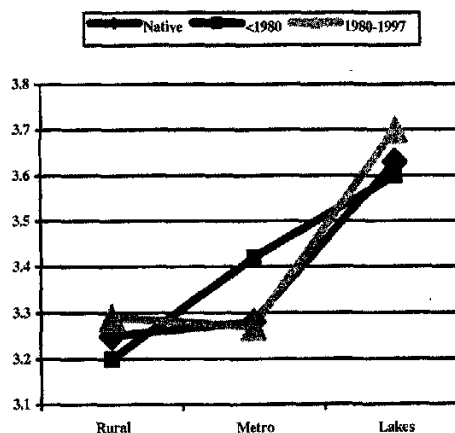


Figure 11. New Hampshire will lose the natural quality of some of its lakes, ponds and rivers if more water access is developed (strongly disagree to strongly agree).

Also, this study recognizes the importance of access site attributes. Factor analysis yielded four conceptually meaningful factors: physical attributes, naturalness, familiarity and maps. It can be assumed that newcomers are looking for naturalness, whereas natives are seeking quality facilities. Also, the Lakes region has an issue with maps, as many landowners fight the listing and publication of access maps, as to protect their private property and preserve the naturalness of their own lakes. This research

amply demonstrates the need that newcomers have for accurate maps of water-based recreation access sites.

This study helps to identify objectives of access development policies. First, all groups support maintaining the existing character of access sites. Next, newcomers to rural regions support these policies more than Lakes region residents. Finally, natives want to insure access more than other groups, as they do not have the resources that "old-timers" and "newcomers" have. Also, this study helps to recognize general attitudes towards specific issues associated with public access to lakes, rivers and great ponds. These include: natives in rural areas are most likely to believe that public waters should have public access, newcomers to the rural and Lakes regions do not have a problem with driving to access sites, newcomers to rural areas avoid some sites due to lack of public access and fees, and that residents of the Lakes region believe that providing more access will impact lake quality.

Recommendations

The results of this study have identified two primary recommendations for the New Hampshire Fish and Game Department. First, NHFG should consider both "region" and "length of residence" in public access development decisions, as it is important to establish a regional advisory committee with a mix of natives, old-timers, and newcomers. Second, there is the need to investigate the relationship between region and supply issues.