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## **Abstract**

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# Industry Association Influence Upon State Aquaculture Policy in the North Central Region<sup>1</sup>

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**ABSTRACT.** States within the North Central Region of the U.S. differ in their approaches to regulating the aquaculture industry. According to interest group theory, these policy differences may be attributable to differences in the abilities of state aquaculture associations to influence state policy makers. The influence abilities of six aquaculture industry associations were examined in relation to the corresponding state policy outputs. Influence was defined in terms of each group's relative cohesion, power, and access to policy makers at both the administrative and legislative levels. Each component was measured separately and subsequently aggregated to form an overall influence index for each association. State policy outputs were assessed by means of a matrix analysis which enabled the states to be ranked in order of regulatory control. A moderately positive relationship was found between association influence and state policy output. Power and access variables were indicated as the more important determinants of influence. Factors external to the groups themselves, such as the political and social cultures of the states, also played an important role in aquaculture association influence upon state-level policies.

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## INTRODUCTION

Aquaculture, or fish farming, has seen a surge of interest during the past two decades. With United States consumption of fish and seafood continuing to rise while capture fisheries reach or exceed carrying capacities, aquaculture provides the means to keep up with an increasing demand without compromising future supplies.

As a result of the continued expansion and development of aquaculture in the United States, industry associations are becoming a highly visible part of the industry. In 1990 there were at least 50 associations serving the industry, many of them state-level producer organizations (Water Farming Journal 1990). In addition to the selective benefits they provide, these associations are the primary organized group representing the interests of aquaculture producers in the public policy process.

Regulatory policy has long been a concern of the industry. For instance, most states in the North Central Region (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) do not have a comprehensive state policy addressing aquaculture as a business. Rather, these states have relied on a disjointed set of laws and regulations pertaining to fish and game management, environmental quality management, health and consumer protection, and other substantive areas. Previous studies of aquaculture policies in the United States have identified the need to make these policies more consistent, with streamlined permit procedures and clear delineation of whether or not aquaculture qualifies for the programs and benefits of traditional agricultural commodities (Bowden 1981; Stickney 1988, 1989; Parker 1989).

Aquaculture, like traditional agriculture, relies on publicly regulated resources to produce a consumer

good (Floyd et al. 1991). But unlike agriculture, the aquaculture industry is emerging during a period of increasingly stringent environmental regulation. Public policy goals with respect to water quality, wildlife, and product safety have a substantial impact on the potential for aquaculture to develop as a viable sector of the economy.

As a policy area, aquaculture usually does not generate much public interest. In such substantive areas, interest groups may dominate the policy process (Kingdon 1984). To the extent that this is true, one would expect that differences among state aquaculture policies can be attributed primarily to differences in the strength of the vested interests, in this case represented by the state aquaculture associations. Objectives of the presented research reflected this expectation and were: 1) to determine the role that aquaculture associations in the North Central Region have had in state-level policy making, and 2) to provide some empirical evidence of interest group influence at the state level.

## Theoretical Framework and Related Research

First advanced by Arthur Bentley (1908), interest group theory has been given a great deal of attention as the rationale for governmental decision making. Bentley maintained that the analysis of groups alone could provide an explanation of the workings of government. Gaps in Bentley's theory regarding the causes and effectiveness of group organization were comprehensively addressed by Truman (1951), who asserted that groups are formed in order to advance some common interest. Truman maintained that group members are attracted and retained on the basis of this shared interest, and that the achievement of certain political goals is primary. Latham (1952) further proposed that politics simply represents a temporary balance of power among the contending groups at any given point in time.

The pluralist view stresses the importance of the cohesiveness of the group as a prerequisite to its

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effectiveness in influencing legislation. Also emphasized are the group's status and resources, particularly leadership, that can be applied toward the attainment of the goals of the group (Truman 1951).

While very little comparative information exists regarding the influence of interest groups at the state level, some theorists maintain that the analysis of group characteristics alone is not sufficient to understand interest group influence upon policy outcomes. General typologies of interest groups in state politics have been developed (Zeller 1954, Zeigler and van Dalen 1976, Morehouse 1981, Zeigler 1983), classifying states according to the strength—strong, moderate, or weak—of their major pressure groups. The broad scope of these studies and their emphasis on the very largest and most influential interest groups make them most valuable as assessments of the overall political environment of states rather than as comparisons of interest groups per se. These pioneering studies, however, provided a basis for later, more specific analyses of interest group activity.

For instance, Browne (1985) used the typology developed by Zeigler and van Dalen (1976) as the basis for his selection of the four states in which to compare the behavior and style of lobbyists for aging-based interest groups (such as the American Association of Retired Persons). His findings suggested that lobbying must reflect the particular needs of the state in order to be effective. In other words, simply utilizing a standard set of techniques was insufficient. He concluded that interest groups can only be studied within the context of a given political culture. Relevant variables in this context include the strength of interest groups in general, the relative power of the governor, and the size of state bureaucracies.

Kerin (1986) also studied aging-based interest group strength across four states. She found that the presence of an amateur legislature and an active policy subsystem were among the most important determinants of interest group strength. Both of these variables are external to the groups themselves.

Thomas and Hrebenar (1986) also found external circumstances to be indicative of interest group power in their study of western state politics. Results suggested that although good organization, financing, and group status contributed to interest group effectiveness, "local circumstances may make one group powerful while it may be much less effective in another state" (Thomas and Hrebenar 1986).

The effect of many competing interest groups upon state policy was examined by Culhane in his study of western public land use policy (1981). Results indicated that even at the local administrative level, which is traditionally thought to be relatively immune to group influence in this policy area, interest groups had a significant influence on the policy outputs of public land management agencies. However, according to Culhane, an aggregation of group characteristics did not alone determine group influence. Rather, group activity in general seemed to be the key characteristic of influence. This activity was interpreted by Culhane as being the total number of contacts between agencies and interest groups about a particular issue.

The proliferation of interest group activity at the state level results largely from the American federal system with its many points of access (Zeigler 1965, Morehouse 1981, Saffell 1984). While business interests tend to dominate lobbying activity in every state, the substantial cohesion of the smaller, narrowly focussed groups is emphasized as being a potentially significant factor in state-level politics (Zeigler 1965, Saffell 1984). According to Zeigler, a major factor that determines interest group strength at this level is the socio-political structure of the state, a theme that has been substantially borne out in subsequent empirical research (Browne 1985, Thomas and Hrebenar 1986, Kerin 1986).

## MATERIALS AND METHODS

State regulatory policy was assessed by means of a matrix which enabled the 12 states in the North Central Region to be ranked in order of increasing regulatory control. Aquaculture association influence was defined in terms of each group's relative cohesion, power, and access to policy makers. Likert scale techniques and telephone interviews were used to measure these three components, and scores were subsequently aggregated to form an influence index for each association.

### Measuring State Aquaculture Policy Output

In order to produce a ranking of states on the basis of a particular policy output—regulations affecting aquaculture—a method of measuring aquaculture policy output had to be devised. The difficulties encountered in creating an appropriate measure of state policy are enumerated by Lester et al. (1983). Although fiscal measures of output have been most often employed, there has been considerable debate as to the appropriateness of monetary outlays as a measure of policy activity. Lester and others (1983) used non-fiscal indicators of policy outputs in their comparison of state-level regulation of hazardous waste. These measures have also been employed in redistributive policy evaluations (Fry and Winters 1970, Berry 1979), assessments of innovations in state policy (Walker 1969, Gray 1973), and evaluations of statutory structure (Rosenbaum 1981, Sullivan and Floyd 1991).

A non-fiscal measure of policy output was deemed appropriate for this study as well. An ordinal classification matrix was developed (Fig. 1) to rank each state across several selected categories of regulatory policies. The chosen categories were permit system, species restrictions, sales requirements, transportation requirements, import and export requirements, and record-keeping regulations. These categories are not all-inclusive, because there are other relevant areas of regulation. However, many of these other areas are federally or locally controlled. Thus, the selected categories represent a cross-section of policies that permit an ordinal classification of the states in the North Central Region with respect to state-level aquaculture policy output. The result of this classification was a set of ordinal-level data describing the regulatory policy outputs of the 12 states in the North Central Region.

Six of the North Central states were chosen for participation in the study on the basis of contrasts in aquaculture policies. Three states exhibiting a high degree

STATE	Permit System				Species Availability				Sales Requirements				Transportation Requirements				Import Requirements				Export Requirements				Record-keeping Requirements				PERCENT OF TOTAL POSSIBLE				
	None required	Single permit	2 permits required	3 or more permits	No restrictions	Decided case by case	Some restrictions	Mostly restricted	None specified	Special license class	Conform to size limits	Live sale only/some species	None specified	Label/invoice only	Special permit	Vehicle identification	None specified	Permit required/some	Permit required/all	Restrictions	None specified	Permit required/some	Permit required/all	Restrictions	None specified	Subject to inspection	Annual report required	Annual report + additional		RAW TOTAL			
Ohio	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	16
Minnesota	1				1							3			3			2			1								3	14	66		
Michigan		2				2			1				1							3				3	1				13	61			
Iowa	1					2				2			1				1							3		2			12	57			
N. Dakota		2					3		0				0							3	0				1				9	42			
Nebraska	1				1				0				1					2			0						3		8	38			
S. Dakota		2			1				0				1				1				1					2			8	38			
Wisconsin	1				1				1				1						2		0					2			8	38			
Indiana	1					2			0				1				1				1					1			7	33			
Illinois	1				1				0				1								0					1			5	23			
Kansas	0					2			0				0							3	0				0				5	23			
Missouri	0				0				0				1				1				0					1			3	14			

FIGURE 1. Ordinal classification matrix comparing relative degree of regulatory control over aquacultural marketing in the North Central Region (adapted from Thomas et al. 1992).

of regulatory control over aquaculture were analyzed in comparison with three states having little or no regulatory constraints. Ohio, Minnesota, and Michigan comprised the former group, with Kansas, Illinois, and Missouri providing the contrast. The six corresponding aquaculture associations that were studied included the Ohio Aquaculture Association, Minnesota Fish Farmers Association, Michigan Fish Growers Association, Kansas Commercial Fish Growers Association, Illinois Aquaculture Association, and Missouri Fish Farmers Association.

**Measuring Aquaculture Association Influence**

The three component variables, cohesion, power, and access, were measured separately and then were standardized and aggregated to form the independent variable, association influence.

Groups that present a “united front” will be more influential than groups that display dissension in the ranks (Truman 1951). Cohesion was defined for the purpose of this study as the homogeneity of attitudes and positions held by the members of a group, enabling them to speak representatively and convincingly as a group.

A mail survey of aquaculture association members in each of the six study states provided a measure of cohesion. A Likert scale was used to solicit member perceptions of association cohesion, and questions were adapted from the literature addressing group cohesion (for example, Enoch 1965, Anderson 1974). Content validity was established by a panel of experts consisting of aquaculture research and extension personnel from several North Central states. Reliability was calculated using Cronbach’s alpha procedure for summated scales

(Cronbach 1951), and a coefficient of 0.86 was obtained. The reliability coefficient indicates that 86% of the observed variance in the scores was caused by true variance in the population as opposed to error variance. Coefficients of 0.80 and above are considered acceptable (Nunnally 1967). Association cohesion scores were calculated by totaling the median values produced by member responses to each question.

The second property to be measured was association power, which is comprised of group resources and leadership skill. It stands to reason that groups possessing greater resources and skilled leaders to apply those resources will be the most influential. In this study, power was defined as the extent to which a group possesses certain key resources that were assumed to contribute to that group’s relative ability to influence public policy formulation and implementation. In addition to membership, leadership, and financial resources, group status was also evaluated.

Access was the third property considered in this study. Even the most cohesive and powerful group cannot exert its influence unless it develops and maintains access to political decision makers (Truman 1951). Access was considered to include the manner and techniques used by state aquaculture associations in communicating their concerns to administrators, legislators, and the general public.

Both power and access were measured via telephone interviews with key persons within each state aquaculture association—in most cases this was the association president or a past president. The power and access components of

the interview were identical in format. Each question included five predetermined, coded response categories. These were ranked in order of increasing power or access, with the first response category receiving zero points, the second receiving one point, and so on up to a maximum of four points. The questions and the rank order of response categories were derived from the body of literature on interest group influence (Truman 1951, Morehouse 1981, Browne 1985, Wootton 1985). Interviews were conducted so that each question was asked in an open-answer format with the response coded into the appropriate category for scoring. Points awarded for each response were summed for each of the two components, with the results being that group's power and access scores.

In addition to the scaled power and access components, the interviews also included several subjective questions that were not scored. These served to provide a more in-depth assessment of the associations and to enhance the discussion of research results.

While any one of these three properties can contribute favorably to a group's ability to influence policy outcomes, it is generally agreed that it is essentially an amalgam of the three that determines the relative effect of an interest group's activity (Culhane 1981). Thus, each association's cohesion, power, and access scores were standardized and aggregated to form the second major variable, aquaculture association influence.

## RESULTS

### Mail Survey Addressing Group Cohesion

Of the 445 aquaculture association members who received a mail questionnaire, 183 (41%) responded. Minnesota had the highest rate of response with 47%, and Michigan had the lowest with a 36% response rate.

Association members were somewhat non-committal when evaluating their organization's cohesion. The majority of association members who responded perceived their groups to be marginally cohesive. This is indicated by an overall rating of 65 of a possible 96, or 67.7%. The ratings of individual state associations in the study population did not deviate much from the overall, with a low rating of 58.5% (Michigan Fish Growers) and a high rating of 72.5% (Kansas Commercial Fish Growers).

One-way analysis of variance was conducted to determine if the associations were significantly different from one another with respect to the cohesion variable. Although a relatively liberal level of significance ( $\alpha = 0.10$ ) was chosen, results indicated that most of the groups were not significantly different in members' responses to each item on the questionnaire. Because the six groups did not represent a random sample, significance testing was not warranted as a means of controlling sampling error. However, the achievement of a minimal level of significance was desirable as an indication of the importance of the differences found to exist in the study population. The exception was the Michigan group, which scored significantly lower than the two highest scoring groups, Kansas and Ohio.

### Telephone Interviews Addressing Group Power and Access

Association power was broken down into four categories for analysis: membership resources, leadership resources, financial resources, and group status. Results of a Kruskal-Wallis analysis of variance for the power variable indicated that the associations were significantly different at the 0.10 alpha level.

Minnesota Fish Farmers emerged as being the most powerful of the associations, with the Illinois group a close second. Large and diverse memberships were important determinants of power, as were quality of leadership and the length of time aquaculture groups had been active in a particular state. Financial resources were not necessarily important determinants of power—the richer associations tended to cite financial problems as being more pressing than did their less endowed counterparts. Relatively small, young organizations, as characterized by the Michigan and Ohio groups, were less powerful. However, the Ohio association possessed strong leadership resources and could certainly become very powerful over time.

The access variable was divided into three categories for analysis: access to state-level administrative agencies, access to the state legislature, and public relations activities generally believed to facilitate access. Analysis of variance confirmed that the differences among associations with respect to access were significant at an alpha level of 0.10.

The Illinois Aquaculture Association emerged as the group that has sought and maintained the greatest amount of access relative to the other associations in the study. The Illinois group's awareness of and use of public relations as a facilitator was an important determining factor. The cultivation of good working relationships with legislators and administrative agency personnel also figured prominently in the evaluation of association access.

Interestingly, the Missouri Fish Farmers Association, which scored relatively high for agency access, did not appear to place the same importance on legislative access or public relations. The Ohio Aquaculture Association, which was less than one-year old at the time of the study, had not yet begun to develop its access. However, the general level of public support indicated by key contacts in Ohio is apt to facilitate the association's endeavors.

### The Influence-Policy Relationship

An overview has been assembled of the cohesion, power, and access scores calculated for each aquaculture association, its standardized values, and values for the aggregate variable, association influence (Table 1). The standardized values for each association are those which were used in a correlational analysis of association influence and state policy.

Spearman rank correlation coefficients were used to evaluate the relationship between aquaculture association influence and policy output. Significant correlations are noted as evidence of their relative importance. Terminology used in the interpretation of correlation coefficients is based on Davis (1971).

A moderately positive relationship existed between association influence and state policy output (Table 2). The very high degree of correlation between power and

influence, access and influence, and power and access suggests a high degree of internal coherence for these components of the influence model. In other words, as one component increases, the other tends to increase, lending validity to a ranking of associations based on the aggregate variable, association influence.

TABLE 1

*Association cohesion, power, access, and influence scores.*

Association	Components						Influence <sup>a</sup>
	Cohesion		Power		Access		
	Raw	Std.	Raw	Std.	Raw	Std.	
Illinois	61.0	0.64	33	0.69	63	0.72	2.05
Minnesota	64.0	0.66	35	0.73	56	0.64	2.03
Kansas	72.5	0.76	28	0.58	47	0.53	1.87
Missouri	66.0	0.69	24	0.50	33	0.38	1.57
Michigan	58.5	0.61	18	0.38	44	0.50	1.49
Ohio	70.5	0.68	22	0.46	18	0.20	1.34
Mean	67	0.67	29	0.56	38	0.50	1.73

<sup>a</sup>Association influence scores are an aggregate of the standardized values for cohesion, power, and access.

TABLE 2

*Correlation matrix for the impact of aquaculture association influence upon state policy output.*

Variables	Variables				
	Cohesion	Power	Access	Influence	Output
Cohesion	1.0000				
Power	0.0857	1.0000			
Access	-0.3714	0.7714*	1.0000		
Influence	-0.2000	0.8857*	0.9429*	1.0000	
Output	0.0290	0.1160	0.2029	0.3769	1.0000

\*Denotes coefficients significant at alpha = 0.05.

Note, however, the negligible to moderately inverse relationship between group cohesion and the other four variables. Upon a cursory analysis, it would appear that cohesion was not a necessary factor in aquaculture associations' abilities to influence policy. In fact, it appears that the less cohesive organizations tended to have the most access and influence. However, the differences among associations were not very important for this variable. With the exception of the highest and lowest scoring associations, the ranking of scores used in the correlations was essentially a random ordering. Thus, it was not possible to evaluate the effect of cohesion upon interest group influence or policy output based on the results obtained from the six studied associations.

## DISCUSSION

### External Factors Affecting Aquaculture Association Influence

The findings of this study are consistent with those of previous tests of interest group influence at the state level. Intrinsic properties such as power and access tend to

contribute favorably toward a group's ability to influence policy. However, there are other factors, external to the group itself, that ultimately determine the amount of influence a particular interest group can have upon state policy outputs.

When studying interest group influence across several states, the use of regulatory policies as the dependent variable may be misleading. States differ in the detail in which laws and codes are written and in the extent to which written laws and codes are implemented and enforced. These basic differences in detail and implementation may outweigh any differences that could be attributed to differences among the interest groups addressed by this research.

Both Minnesota and Missouri illustrated this limitation well. Rankings of the six states with respect to aggregate scores indicating overall aquaculture association influence and overall state policy output show that Minnesota placed highly in terms of association influence (Table 3). Yet Minnesota is one of the most stringently regulated states. Conversely, Missouri, with its relatively less influential association, was ranked first in terms of policy output.

TABLE 3

*Comparison of state rankings on both the independent and dependent variables.*

Aquaculture Association Influence <sup>a</sup>	State Policy Output <sup>b</sup>
1. Illinois	1. Missouri
2. Minnesota	2. Illinois (tie)
3. Kansas	2. Kansas (tie)
4. Missouri	4. Michigan
5. Michigan	5. Minnesota
6. Ohio	6. Ohio

<sup>a</sup>Ranking based on scores given in Table 1.

<sup>b</sup>Ranking based on scores given in Fig. 1.

These anomalies may be a reflection of the different approaches taken by Minnesota and Missouri with respect to natural resource policy in general. Minnesota has passed a comprehensive aquaculture development act (Minnesota 1989), and thereby has achieved a goal of many aquaculture producers. However, Minnesota laws and regulations are written in detail and are very explicit, covering a multitude of fisheries-related activities. Consequently, this greater specificity kept the state's policy output from being ranked higher in relation to other states.

On the other hand, Missouri laws and regulations are very broad and generally worded. They do not address many of the categories measured, and therefore Missouri ranks highly in terms of state policy output. Consequently, the Missouri association has very little reason to develop its influence. Evidence of this was provided in the interviews with Missouri contacts. Of the six associations in the study, only Missouri had no specific priorities for their group and had virtually no political agenda.



Differences among group influence could also result from the functional nature of the influence-policy relationship. Intuitively, it seems that the relationship would be a causal one—that influence would tend to cause a policy effect. However, it is just as likely that a group's influence is determined, at least in part, by the status of the policy itself. The Missouri association was not very influential because it did not have to be. The Minnesota association, on the other hand, had developed a great deal of influence relative to the other groups in the study. According to association respondents, the constraining nature of the Minnesota regulatory environment necessitated it.

“Windows of opportunity” to initiate or change laws or regulations sometimes come about as a result of favorable political circumstances (Kingdon 1984). Some aquaculture policies have been formulated after policy windows have opened. For instance, the comprehensive Illinois Aquaculture Development Act of 1987 (Illinois 1989) was established as a result of that state's actively seeking out alternative agricultural products. It has been suggested that the law probably could not be enacted today because other concerns have taken over the agenda (S. Waite, Past President, Illinois Aquaculture Association, personal interview 1991). Examples of other policy windows might result from a change in administration or a change in the regional- or state-level interest on locally farmed fish. An aquaculture association's ability to recognize and act upon changes in the social, economic, or political climate may be the key to aquaculture policy formulation in the North Central Region and elsewhere.

### **Determinants of Aquaculture Association Influence**

Some specific determinants of association influence emerged from this study. Interestingly, these were distributed fairly evenly across the components of power and access. One of the identified components of power, financial resources, did not appear to be related to group influence. This finding is of some importance because lack of funds is usually thought to be a limiting factor in achieving political influence. Research results provided very little evidence about the effect of cohesion upon group influence because the studied associations did not differ significantly with regard to this variable.

Aquaculture associations with large and diverse memberships were more influential than small, producer-only groups. The encouragement and retention of non-producer members, such as researchers, government administrators, and industry suppliers, served to widen the scope of aquaculture policy issues beyond the narrowly focussed concerns of a small group of producers. While diversification of members may seem to be easily achieved, some of the interviewed group leaders stated that the organizations are reluctant to broaden their membership for fear of compromising the interests of members who are producers.

Also important is a strong, politically active core of members. There seems to be an anomaly concerning political action in that the groups' goals, according to key leaders, were primarily political, yet the reasons given for membership were inevitably “technical assistance” or

“business contacts,” with “political action” being secondary. If an aquaculture association is in fact interested in influencing the formulation of aquaculture policies, a number of members must be committed to this goal.

Leaders who brought education, experience, and contacts to the organization contributed substantially to group power. In the associations studied, leaders ranged from a “whoever gets stuck with it” situation to leaders having advanced degrees in related fields such as fisheries biology. Educated and experienced officers are likely to be perceived as having a broad perspective; consequently, their positions stand to be given more credibility. Leader affiliations with national fisheries and agricultural associations also tend to increase a group's credibility, and this in turn could contribute to association power.

Aquaculture association status is enhanced via longevity, or how long aquaculture interests have been active in a state. Group longevity ranged from less than one year (Ohio) to more than 27 years (Kansas), but age of the groups was not necessarily a direct indication of status. Status can also be increased through a group's affiliation with other, more established, interest groups. For instance, four of the six associations in the study were in some way connected with the Farm Bureau. Public perception of fish farming is also a major factor in attaining status as a group. Whereas the Kansas association had existed for quite some time, support for aquaculture was seen as being somewhat lacking, possibly because of the strong identification with traditional agriculture in that state. Conversely, the Ohio Aquaculture Association, while less than one year old, stands to benefit from the considerable public support for aquaculture that was indicated by key leaders in that group.

Access to administrative decision makers is particularly important because of the many policies that are formulated at this level. A good working relationship between aquaculture interests and state agencies that regulate the aquaculture industry is fundamental. This has been facilitated in Minnesota, Missouri, Illinois, and Kansas by the creation of an aquaculture advisory council or task force. This entity, which is separate from the association, provides a forum for both sides to discuss issues and to resolve conflicts on a regular basis. By generally discussing issues as they pertain to the industry as a whole, it is likely that fewer confrontations involving specific producers will result.

A program of technical assistance, either formally implemented through state policy or informally practiced, is characteristic of those states where associations have effective relationships with administrative agencies. Missouri in particular has a successful technical assistance program, with that state's Department of Conservation even assisting with the association's annual convention. Sporadic, problem-oriented contact with administrative agencies was characteristic of states (Kansas, for instance) with a more adversarial association-agency relationship.

An important determinant of successful access at the legislative level seemed to center upon the individuals targeted for access. Associations that had directed their efforts toward highly influential legislators and, in some cases, even toward the governor's office, were more successful than associations that had limited their contacts

to legislators from particular districts. Obviously, the amount of influence gained by enlisting the support of a legislator is limited to the amount of influence that individual is capable of exerting. By seeking out the most influential leaders in the legislative and executive branches, some aquaculture associations have made tremendous progress in getting their concerns on the political agenda. This was the case in both Illinois and Minnesota, the two states that have passed aquaculture development acts. Less influential officials may be enthusiastically supportive but lacking in the seniority necessary to initiate and build support for a policy.

Appropriate public relations activities were the most overlooked route toward increased influence among the associations in the study. Only the Illinois association considered public relations to be one of its ongoing functions. Others, such as the Minnesota association, cited occasional public relations activities or only had sporadic media attention. For the most part, however, associations in the study did not take advantage of this vital enhancer of access.

The fundamental importance of expanding an issue in scope, visibility, and intensity has been stressed by Cobb and Elder (1983), pioneers in the study of agenda setting. Aquaculture issues directly affect only a limited number of people and, as a consequence, decision makers stand to lose very little by neglecting those issues in favor of greater ones. A well-planned and implemented public relations campaign can serve to expand aquaculture issues to a larger public, make those issues more visible, and increase the chances of getting them placed on agendas of the legislative and executive branches.

### Summary and Implications

The purpose of this research was to explain the disparities among North Central states' aquaculture policies in terms of observed differences in the abilities of aquaculture interests to influence state-level policy. Based on the interest group literature, a method of measuring relative interest group influence was devised. Results were subsequently correlated with measures of state policy output, and a moderately positive relationship was observed.

The first objective of the present study was to determine the role that aquaculture associations have had in state-level policy making. While not generalizable, findings indicate that these groups do have at least some role in the formulation and implementation of policies that affect them. The overall political environment of the state, the stringency with which laws and codes are formulated and implemented, was at least as important in determining policy outputs as the strength of the group itself.

Aquaculture associations seeking to increase their influence upon state policy need to take into consideration the primary determinants of influence—membership, leadership, status, administrative and legislative access, and public relations—and develop these in their organizations. At the same time, the associations can work toward opening policy windows. This can be accomplished via public relations efforts, by taking advantage of political campaigns and administrative turnover, and by simply

being prepared to act quickly when the opportunity presents itself.

As a case study, aquaculture policy serves to expand interest group theory beyond the customary big business groups, labor unions, and others that can potentially dominate the policy process. Aquaculture policy, by contrast, exemplifies those areas of public policy that affect, and interest, a very small and specific segment of the population. Yet our findings generally support those of previous research. This seems to indicate that the components of influence—group characteristics as well as external political and cultural factors—remain relatively constant in relation to interest groups of variable strength and constituency.

It would be useful to replicate this study in another policy area, using stronger or more diverse interest groups. The utilization of a random sample of state associations within a particular area of concern would be extremely valuable in increasing the external validity of these types of studies. Modifications in the measurement of both influence and policy output will certainly come about as a result of further inquiry and must eventually result in a more or less standardized view of these constructs. Until this is achieved, comparisons of the findings of one study relative to another will not be as valid or meaningful as they might be.

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