Conflict in Resource Management and the Use of Threat: The Goldstream Controversy

Colin J. B. Wood

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INTRODUCTION

A major problem facing managers of public goods is the integration of public opinion into the decisionmaking process. Some form of participation has almost always been present at the level of local government, but only recently has it become a feature of metropolitan, regional or even national governments. At the latter scales of political organization the emergence of interest and pressure groups testifies that the traditional political frameworks are viewed by many citizens as inadequate: in short, the public wants to be heard, and now! Responses to this demand have varied: the autocratic planner sees it as his nemesis; the efficiency expert a nightmare; and the political aspirant, another bandwagon to jump upon.

Numerous problems are associated with implementation of public participation in the decisionmaking process. There may be no legal requirement for a particular decisionmaking group to consult with the public. If an inquiry or public hearing is required, the manager may be faced with a bewildering range of responses or complete apathy. There may be budget or time constraints which demand quick decisions and prohibit lengthy discussion and debate. To the public the managers may appear paternal and distant, while the agencies of government they have to deal with may seem, or even may be, a maze of Kafkaesque proportions.

Because of these problems, and clearly only a few have been mentioned, it is essential to make provision for input from citizens at different stages of a public decisionmaking situation, and that to pay some attention to it, lest prolonged and stressful conflict result. This is not to assert that conflict is solely a negative and costly burden to society; on the contrary, it provides a sharp reminder and signal that changes in public attitudes and preferences can and do occur. Nevertheless, any modifications to existing decisionmaking structures which can alleviate conflict must be examined.

An example of the conflict which can occur in a community between a resource manager and the public if no provision exists for input of citizens' views and preferences took place in Victoria, British Columbia, over allocation of water between urban needs and requirements of a salmon spawning stream. A Water Commissioner attempting to provide water as cheaply as possible clashed with conservationists trying to maintain a minimum flow in a salmon spawning stream. After refusing to provide water for the fish, the Water Commissioner changed his position because of considerable indirect pressure from the public. It was an issue widely reported in the media, which raised both specific questions related to water supply and jurisdiction over natural resources and more fundamental ones pertaining to economic growth, environmental quality and the role of the public in community decisionmaking.

This article attempts to unravel the threads of the conflict. Initially the nature of a decisionmaking at the metropolitan community level is described to provide a broad framework for interpretation of the structure of the system. More specific attention is given to the form of conflict and the interaction between the groups involved in the dispute, that is, the functioning system. Thus, some insight may be gained into the nature of community conflict. From this may come a clearer understanding of the ways in which public decisionmaking structures may be modified to incorporate input from interested citizens.

THE URBAN COMMUNITY AND DECISIONMAKING

A community consists of individuals and groups varying in power and organization occupying a common location and linked by social, economic, and political interactions.[1] Individuals' rights to power are delegated by the elective process to politicians who set policy and make decisions concerning public goods and welfare, while a non-elected technical bureaucracy implements them. The structure of the system is formally defined in respect of representation, jurisdiction, time framework and amount of public participation.

Two models have been proposed to describe the *general* ways in which the community decisionmaking system actually functions.[2] Maass suggests that it works as an "upward forming consensus" in

1. For recent assessments of community structure and decision making see, Community Structure and Decision Making: Comparative Analyses (T. Clark ed. 1968). A locational emphasis is found in K. Cox, Conflict Power and Politics in the City: A Geographic View (1973).

2. An excellent discussion of them can be found in O'Riordan, *Towards a Strategy of Involvement,* in Perceptions and Attitudes in Resources Management 99-101 (W. Sewell & I. Burton eds. 1971).

which a majority of the citizens delegate power to an elected group
of politicians (the proximate decisionmakers), who in turn enact
legislation and formulate policies implemented by the administrative
bureaucracy (Figure 1). Should inconsistencies develop between
electors and elected, the latter are liable to be dismissed at the next
election. If there were a free exchange of information between
decisionmakers and the public and active citizen participation in civic
affairs, we might accept this description.[3]

The system has also been characterized as a counterflow process in
which decisions are made at the top by a political or economic
"elite" and flow down to confront the community "after the fact"
(Figure 1). Consequently, those groups which feel threatened by the
decision bargain in a gaming-type process placed under uncertain
conditions until a mutually advantageous situation is arrived at.[4]
Thus, groups have goals, develop strategies and resort to varying
tactics to achieve them.

The realities of community decisionmaking at the level of urban/
regional government would seem to be more accurately described by
the second model. The first model assumes that a free and con-
tinuous exchange of information between the decisionmakers and
the public occurs, is comprehended without divergent perceptions
and attitudes, and is incorporated into the decisionmaking process:
assumptions which are clearly unrealistic. The second model is
supported by the abundant evidence concerning the power structures
of communities, the behavior of interest groups over community
issues and the common occurrence of communication and attitudinal
gaps between the decisionmakers and the public. In particular the
second model results when a majority of citizens are usually willing
to delegate their interests in government, almost to the state of
abdication, as long as decisionmakers perform adequately and do not
deviate too much from past performance. Only when it feels threat-
ened does the public respond.

The structure of the decisionmaking system may be hypothesized
to function as follows (see Figure 2):

  (1) the community has evolved a delegative, decisionmaking struc-
      ture to process problems;
  (2) the allocation of power, authority, control and procedure is
      specified by laws, statutes, etc;
  (3) problems occur which confront the community and have to be

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3. *See* R. Bish & R. Warren, *Scale and Monopoly Problems in Urban Government Ser-
vices*, 8 Urban Affairs Q. 97-122.

4. *See e.g.*, J. Wolpert, *Departures from the Usual Environment in Locational Analysis*,
60 Annals of the Association of American Geographers, 220-29 (1970).
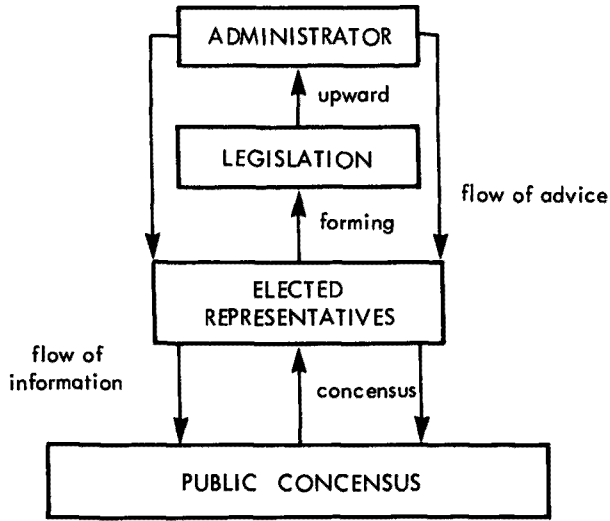
The Upward Forming Concensus (after Maass)
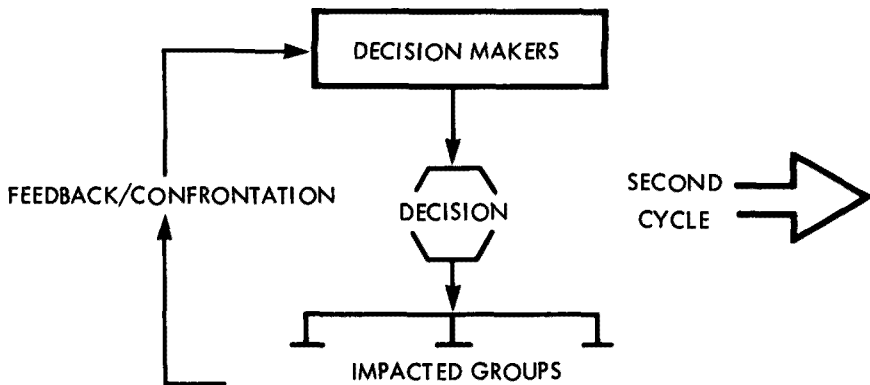
Decision Makers as Elitists and the Gaming Confrontation

FIGURE 1

Concepts of Community Decisionmaking

FIGURE 2

Response to Environmental Stress

    resolved and are "processed" according to responsibilities designated under (2);
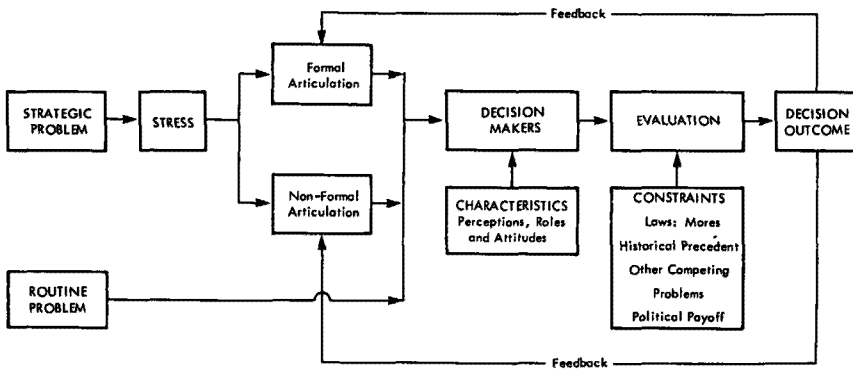(4) the decisionmakers may be ignorant of (3), ignore them, classify them as "routine," or treat them as a strategic problem and attempt to solve them;
(5) the public responds according to the degree of perceived threat.

Many types of conflict can exist in a community; we are concerned here with the conflict which can emerge between the community and the decisionmakers to whom they have delegated power. Thus, conflicts may develop if politicans are ignorant of, ignore, or misread the public's wishes. For example, a city council may designate and deal with a problem as a "routine" matter, for example, letting the executive bureaucracy solve the problem without evaluating the reaction of affected groups. As a result, the groups may respond by contacting and pressuring aldermen, petitioning or even demonstrating. A differentiation can be made between the "routine problem," which can be dealt with according to existing procedures, and a nonroutine or "strategic" problem, which requires evaluation and decisions and a potential departure from existing policies.[5] Where strategic problems confront a community decision-making system they are described as "stresses," and when they are perceived as potential threats to the actor or system, politicians respond to them as "strains." Such problems constitute a crisis when the strains become hazardous.[6] The occurrence of a particular

5. This may be compared with "programmed" (routine) and "non-programmed" (strategic) problems suggested in H. Simon, The Shape of Automation for Men and Management 58-68 (1965).
6. R. Kasperson, *Environmental Stress and the Municipal Political System,* The Structure of Political Geography, 581-96 (Kasperson & Minghi eds. 1969).

strategic problem may generate debate and controversy between decisionmakers and impacted groups. Questions then arise as to (1) the nature or object of conflict and (2) the nature of interaction between the opposed groups, i.e., the *conflict behavior.*

It must be emphasized that if crisis and conflict were the usual pattern of activity in a community, it would be in perpetual turmoil. Fortunately, extreme conflict situations are abnormal events in the context we are discussing, but they do occur occasionally and exact considerable economic, social and political costs. Thus, such situations need to be analyzed and understood. We can turn now from generalities of community decisionmaking to the actual object of conflict and the conflict behavior involved.

THE OBJECT OF CONFLICT AND CONFLICT BEHAVIOR

Conflict can be defined as a disagreement between two or more parties over a matter of common interest.[7] The areas, types and degree of conflict behavior can assume a multiplicity of forms, ranging from verbal exchange to physical violence. Procedures may exist whereby the incompatabilities can be resolved without resort to force; at a macro scale these are the general processes of government and at a micro scale, courts and tribunals. The outcome of conflict resolution procedures may result in one party winning and the other losing, a sum zero situation, but more often than not, particularly where a publicly owned resource is at issue, a form of compromise, sharing, compensation or trade-off occurs. It is useful to differentiate between the object of conflict and the actual conflict behavior.

The Object of Conflict

A situation can be described in respect to the object of conflict:[8] what are the parties fighting about? We already assume that the physical object is a natural resource and that the conflict stems from its allocation. Although the resource may be a clearly defined object, e.g., water, it may be perceived and valued differently by the groups involved, creating a further dimension to the conflict. Thus, the object of conflict could be viewed in terms of any, or a combination of any, of the following ways:

(1) As a conflict in perception; if the decisionmakers are unaware that a problem exists, they misread the public's response. This is perhaps encapsuled in the phrase, "What is all the fuss about?"

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7. While there are many kinds of conflict situations there is no real agreement over the meaning of the concept, *see* K. Boulding, Conflict and Defense (1963); Bergstrom, *What is a Conflict of Interest?*, J. of Peace Research 197-217 (1970).

8. Bergstrom, *supra* note 7.

(2) As a conflict in attitude and values; the decisionmakers are aware of a problem, but treat it as a relatively minor one that can be dealt with by the bureaucracy in a routine fashion, whereas the public or an interest group views it as a strategic issue, e.g., "They're making mountains out of molehills;"

(3) As a conflict of interest; decisionmakers, aware of a problem, classify it as stategic but choose a solution discordant with the wishes of the majority or, more commonly, fail to communicate their rationale or reasons for the choice, e.g. "We know what's best for you."

Much recent research into perceptions and attitudes has investigated the subjective variations which can occur between different individuals and groups. The mental structuring of the external world is, however, only one part of the problem, since groups in conflict are interacting, a process which itself could modify their perceptions and behavior.

Forms of Interaction among Groups: Conflict Behavior

A conflict situation may be described in terms of the forms of interaction between the opposing groups, the conflict behavior.[9] If the response of an affected party is weak, poorly organized or non-existent, there may be no conflict behavior, even though an object of conflict is present. This has frequently been the case in the areas of urban redevelopment, minority rights and environmental quality.

Several conceptual models describing the behavior of parties in conflict have been proposed. The simplest is the reaction process model in which conflicts are described as the escalation of reactions between two opponents.[10] Similarly, models of negotiation portray the conflict process as one of making, accepting or rejecting bids.[11] Where players maintain control over their moves, have a range of options, a scale of utilities and a set of expectations, game theoretical models are relevant. A further differentiation is made between the "fixed sum game," in which one player loses if the other wins, and "mixed motives" games, in which players as a group may win or lose to a banker or "nature" as well as from each other.[12]

Gaming concepts are normative in that behavior is assumed to be rational and that players wish to maximize gains or minimize losses.[13] The way in which a player acts in a game is linked to two

9. For geographical implications *see* Eyles, Space, Territory and Conflict (University of Reading, Department of Geography Discussion Paper, No. 1 1969).

10. I. Richrdson, Arms and Insecurity (1960).

11. *See, e.g.,* J. Cross, The Economics of Bargaining (1964).

12. A. Rapoport, Fights Games and Debates (1961).

13. *See, e.g.,* R. Wyer, *Prediction of Behavior in Two Person Games,* J. of Personality and

other concepts, one based on cognition of expected events and the other on accumulated experience. Also determinative of acts are the player's perception of risk and the amount of information available.

Each of these ideas represents an attempt to understand the actual process of interaction, whether it be negotiation or conflict. They can be viewed as specific submodels relevant to understanding the confrontations which may occur in a community where decisions flow down from the top. Yet, a common deficiency of them appears to be that little attention is paid to the actual nature of interaction between conflicting parties, that is, the communicative act itself, a surprising neglect in view of its possible influence on subsequent interaction.[14] This is of particular concern in the present context, since communication is the nexus between the public and their decisionmakers.

Wolpert in his analysis of interdependence in locational behavior has drawn attention to the framework proposed by Lazarus of linking threat with stress response to understand the linkage between parties involved in a conflict. Lazarus hypothesizes a two stage appraisal of environmental cues about potential threats based first on "initial evaluation" and second on the "subsequent appraisal" as an appropriate coping strategy. He suggests that the latter may be accompanied by various dysfunctional stress reactions related to the effectiveness of the strategy, for example, less adaptive behavior; more tendency to aggression; fixation on untested hypotheses; increased error rate; stereotyped responses; disorganized activity; problem solving rigidity; less belief in benign environment and reliance on *ad hoc* communications channels.[15]

The idea of threat and stress response not only bears on understanding selection and use of tactics by the parties involved in a confrontation but also clearly has some value for explaining the success of certain tactics and the outcome of particular games.

This conceptual review provides a framework for understanding the processes of confrontation which can take place between decisionmakers and the public. The remainder of the paper is concerned with examining the Goldstream River conflict in terms of this framework. The structure of the allocation of control over the resource is described, followed by the way in which the issue developed. The conflict is analyzed as a gaming situation in which community leaders and conservation groups are the chief players. An

Social Psychology, 222-238 (1969); A. Rapoport & A. Chammak, Prisoner's Dilemma: A Study in Conflict and Cooperation (1965).

14. Patchen, *Models of Cooperation and Conflict,* Conflict Resolution 389-407 (1970).

15. R. Lazarus, Psychological Stress and the Coping Process (1966).

assessment of the use of threat as a tactic explains the outcome of the game.

CONFLICT IN WATER RESOURCE MANAGEMENT

The Issue

As the population of the Greater Victoria region increased from 90,000 in 1941 to 175,000 in 1968, so did the demand for water. The Greater Victoria Water Board, which manages the water system on behalf of the constituent municipalities of the metro region, has responded to this demand by increasing the supply system. Until the early 1960's enough water was left after supplying the needs of the urban areas to maintain an adequate flow of water in the Goldstream River, one of the streams in the Board's catchment area, for salmon spawning (Figure 3).

As population and water consumption continued to increase, more water was abstracted from the Goldstream River. This, coupled with below average precipitation in several years, reduced water levels, endangering spawning salmon.[16] A major conflict flared in fall 1970 when the Water Commissioner announced that no water would be released for salmon spawning in that year. Although a major extension to the catchment system was under construction, it was still incomplete, so that water supplies were very low.

As might be expected, there was intense opposition from conservation groups within the community. They eventually brought enough pressure to bear on the decisionmakers that the latter agreed to release sufficient water to ensure the migration of the salmon. The object of conflict was the allocation of water and the values placed on it as a resource. The conflict behavior took the form of a gaming interaction in which threats were an important tactic.

Control over the Allocation of the Water Resource

In Canada several levels of government with their associated executive agencies have jurisdiction over water use. The Federal government concentrates on those aspects of water resource management assigned to it by the British North America Act, particularly sections 91, 92, 95 and 132. It has sole jurisdiction over use of water for navigation and fisheries, cojurisdiction over agricultural uses and authority to intervene in interprovincial disputes or those arising over a water body shared with the United States. The provinces have jurisdiction over uses not assigned to the federal authority, for

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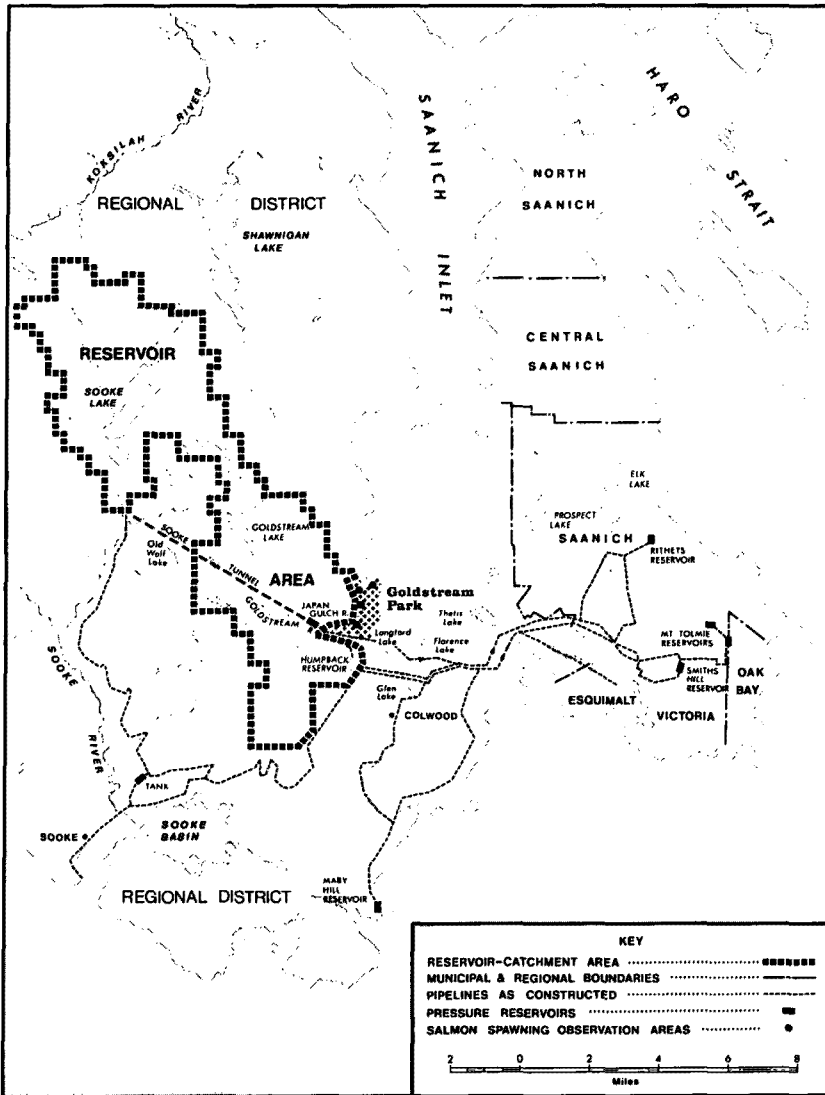16. These are returning adult salmon from fingerlings spawned four years previously.

FIGURE 3

Victoria: Location and Water Supply

Source: Leversedge (1974).

example, hydroelectric power.[17] Since some overlap of responsibilities inevitably occurs between the two government levels, special federal-provincial agencies have been established to coordinate management of water where this seems appropriate. At the local level water supply is controlled by municipalities as a utility or private companies. Such local bodies are not required to consider the impact of their decisions on other types of water use unless a license to abstract water, issued by the provincial government, was required at the inception of the use. Furthermore, formal channels of communication do not usually exist between this and the two other levels of government.

The Greater Victoria Water District

Population growth in the Lower Vancouver Island area and the concomitant increase in demand for water, mainly for residential purposes, led to amalgamations of local water supply systems, culminating in the formation of the Greater Victoria Water Board in 1949.[18] It was formed to construct and maintain facilities for supplying water to the several municipalities which comprise the metropolitan region. The system is managed by a full time Water Commissioner under the control of a Water Board. The Board has seven members, the Mayor and three aldermen from Victoria, and the mayors of Esquimalt, Oak Bay and Saanich. The Board makes policy decisions and relies on the Commissioner for technical advice and routine operation of the system.

Since its establishment in 1949, the only decisions required of the Board seemed routine, related to maintenance and gradual expansion of the system, neither of which seemed to necessitate an elaborate policy making procedure, in view of accessible and relatively abundant supplies of water. Decisions were made by the board, whose members were not directly responsible to the public or municipalities, financially or otherwise.

At the time of the conflict the Board also exercised a certain independence from the various provincial and federal agencies because, unlike most bodies which withdraw water from streams or lakes, the Board did not have to apply for a water license from the B.C. Comptroller of Water Rights, and therefore was presumably not subject to the rules and regulations to which other water abstractors must adhere under the B.C. Water Act. The City of Victoria was

17. In 1970 the Federal Government passed the Canada Water Act (Bill C.142), a declaration of intent to manage the waters of Canada more effectively. The Act recognizes the need for cooperation between federal and provincial authorities.

18. An Act to incorporate the Greater Victoria Water District. Stat. of British Columbia C.28 (consolidated 1961).

granted sole rights to the waters in the Sooke and Goldstream areas under a special Act of the Legislature, enacted in 1909.[19] Because it is a publicly-owned corporation, the water district, through its Board, sets its own prices for water. It does not have to submit its rates to the Public Utilities Commission for approval, as private water utilities do.

While the Board can be held responsible for any harmful effects that the operations of the District's water supply system may have on individuals or groups, it is under no obligation to assist them in the pursuit of their own objectives, especially if these conflict with the District's goals and perceived responsibilities. The Board feels, for example, that it has no obligation to provide recreational facilities. Moreover, because it believes that use of its reservoirs for bathing, boating, or fishing would increase costs of operation, the Board bans use of reservoirs for such purposes.[20] It also feels it has no responsibility to preserve fish runs by the release of water from its reservoirs, despite suggestions to the contrary by fisheries management agencies, particularly at the federal level.

There are no formal channels of communication between the Water Board and other government agencies at the municipal, provincial or federal level. While there are sometimes informal contacts between personnel of the Commission and those of other agencies, these are usually of an *ad hoc* nature. Nor are there any formal communications channels between the Board and the public at large. While policy making in water management agencies often involves some form of public consultation, such as public meetings or hearings, the Water Board does not consult the public in this fashion. It relies instead on the judgment of its members and the advice of the Water Commissioner to determine the public wants and how it is likely to react to policies. From this brief description of the allocation of control of water we can now examine the conflict which arose over its use.

THE CONFLICT AS A GAME

The chronological development of events in the conflict over water use is shown in Figure 4.[21] The problem first appeared in the early 1960's. Conflict between the water managers and the conserva-

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19. Greater Victoria Water Board, Growth and Development of Greater Victoria Water Supply (undated mimeo). The city was actually given the right to negotiate with the Esquimalt Waterworks Company who held the water rights, for its expropriation.

20. Interview with R. Upward, Water Comm'r, Greater Victoria Water District.

21. This information is based on interviews with the water commissioner and the mayor, and press statements in the Victoria Daily Times, 1964-1970.
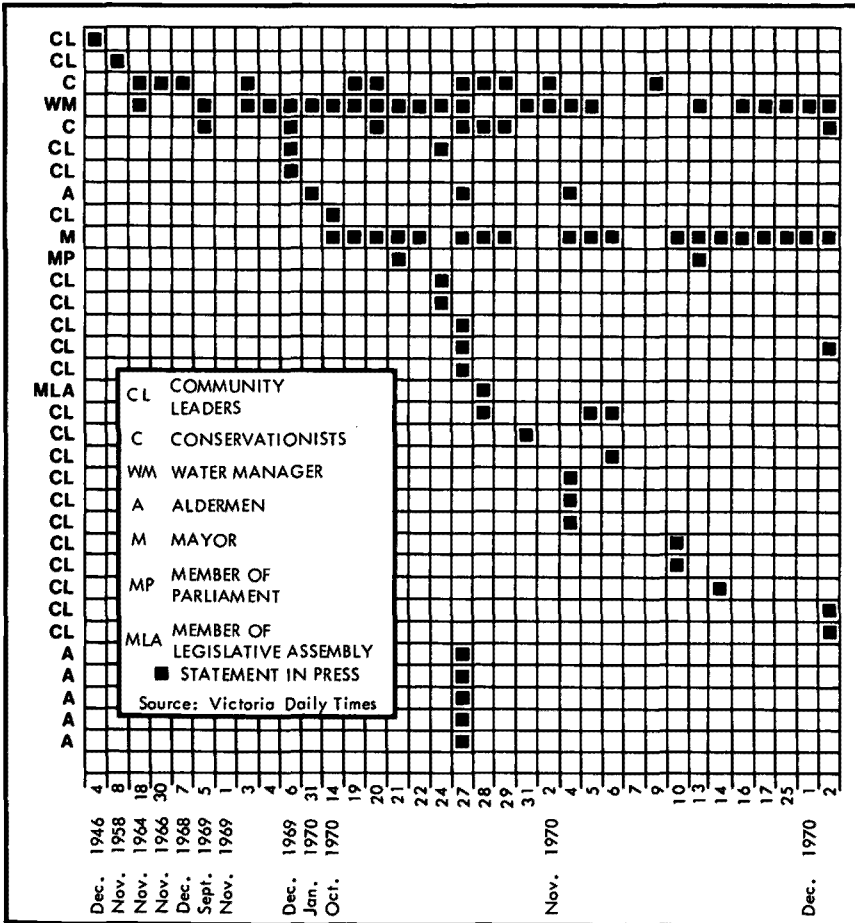
FIGURE 4

The Growth of Involvement in the Goldstream Controversy

tionists, two groups with well-defined goals and a common interest in the resource, gradually increased. The water managers had legitimate power to act in terms of managing the resource, but the conservationists seemed to have little. The game had certain predictable elements, such as that the demand for water would continue to grow and that the salmon would need a specific volume of water at critical periods in their life cycles.

In 1970 the amount of precipitation that could be expected, particularly prior to and during the spawning period, was uncertain. The conservationists were uncertain whether water would be re-

leased, and the water managers whether saving water by the community would be possible. Neither group was sure how much water was needed for the fish, although the Water Commissioner suggested it might be 250,000 to 500,000 gallons a day. Each group had strategies for attaining their goals and reducing uncertainty. As the dispute became more intense, each group evaluated the uncertainties and the activities of the other group and adopted more specific tactics. For convenience in this discussion, the various groups are *dichotomized into the water managers (the* Water Commissioner, the Water Board members) and the conservationists (environmental groups, individuals, segments of the public).

The Water Managers: Goals and Strategies

The goals of the water managers were stated throughout the affair as selling water to the community and ensuring that an adequate reserve capacity was always available. This basic function is set out by the Greater Victoria Water District Act. A strategy of expanding the system to ensure increased supplies has been pursued. Municipalities who purchased water from the Water Board concurred in this policy because they themselves relied on revenue from water sales and hence encouraged consumption.[22] In 1964 it was decided to expand supplies to meet projected demand until 2000 by constructing a new pipeline scheduled for completion in 1970. At the time of the 1970 crisis the extensions were incomplete. While the expansionist policy did mean that water would *eventually* be available, it placed a constraint on what could be done with *existing* water. Water had to be sold to raise revenue to help finance expansion of the system.

Conservationists: Goals and Strategies

The goal of the various conservation groups was to protect the salmon stocks of the Goldstream River.[23] The strategy of this group was based on educating the general public to gain support for the conservationists' viewpoint, particularly by encouraging local school children to tour spawning areas and by increasing the stock of salmon.[24] In this way the perceived importance of maintaining the

22. Water pricing varies among the four large municipalities who buy water from the GVWB and then sell it to consumers. Victoria and Esquimalt have a decreasing block rate, with a seasonable price variation. Oak Bay has a decreasing block rate. Saanich has a metered flat rate. All buy from the GVWB at a flat rate.

23. This information is based on interviews with local conservationists and press statements in the Victoria Daily Times, 1964-1970.

24. The salmon stock which spawns, consists of annual runs estimated at 8,000 chum, 19,500 Coho and some Chinook. The sports value of this population has been placed at $100,000 per year, based mainly on expenditures of fishermen in catching the fish.

salmon resource was gradually increased. More people were encouraged to see the fish and more fish were available to be seen.

The first strategem was successful. The degree of community response appears to have been the critical influence which changed the attitudes of the Mayor and Water Commissioner and persuaded them to release water for the fish. The second tactic was probably successful too, in that as stocks were increased, more salmon returned to spawn and provided an even greater spectacle for the public.

Interpretation

Decisions made by the water managers are representative of the "downward flow" community decisionmaking process, in which a decision is made at the top and threatened groups bargain in a game-like situation to alter it to their advantage. Yet, the interaction between the two groups cannot be explained simply as one group reacting mechanically to the actions of another because of the following uncertainties.

A choice of strategies was available to each side. The water managers could control demand by rationing and pricing, thus enabling water to be released for the fish. However, there was probably insufficient time to institute such measures, and, as mentioned earlier, they were dependent on the revenue from sales of water.[25] The conservationists as a group depended on the successful cooperation of several community subgroups and public support, often tenuous at best. Resolution of the issue was also partly dependent on the weather, since it would have been resolved immediately if sufficient precipitation fell; this had been the case in incipient confrontations between the groups prior to 1967.

Arranging the confrontation as a game situation aids in describing the conflict behavior of the two sides. If the options available to the community as one player and the water managers as the other are arranged as a simple 2 x 2 strategy payoff matrix, some insight is gained into the interaction and choices made. The potential interactions are set out in Figure 5. Each player has a choice of two strategies, cooperating or defecting (not cooperating). The water managers (B) could supply water for the salmon or withhold it; the community (A) could use water or save it.

If both parties cooperate (C,C) there is a certain reward; the community saves some water and the manager releases a sufficient

25. The GVWB debt is $3.25 million, requiring $400,000 in interest payments per year. Water was sold to the municipalities at 13.5 cents per 1000 gallons. If 5 m.g.p.d. were released it would mean a loss of $675 per day in revenue.

WATER MANAGER

strategy

C   D

		C	R, R	S, T
COMMUNITY	C		R, R	S, T
	D		T, S	P, P

R   reward of cooperation

T   temptation of defection

S   sucker's pay-off

P   punishment for double defection

PHASE 1.

water managers cooperate but no saving by the community

GIVE   KEEP

PHASE 2.

water managers apprehensive: switch to withholding water no saving by the community

PHASE 3.

conservationists encourage water saving:water managers intransigent

PHASE 4.

widespread pressure and threats result in change of attitude by water managers
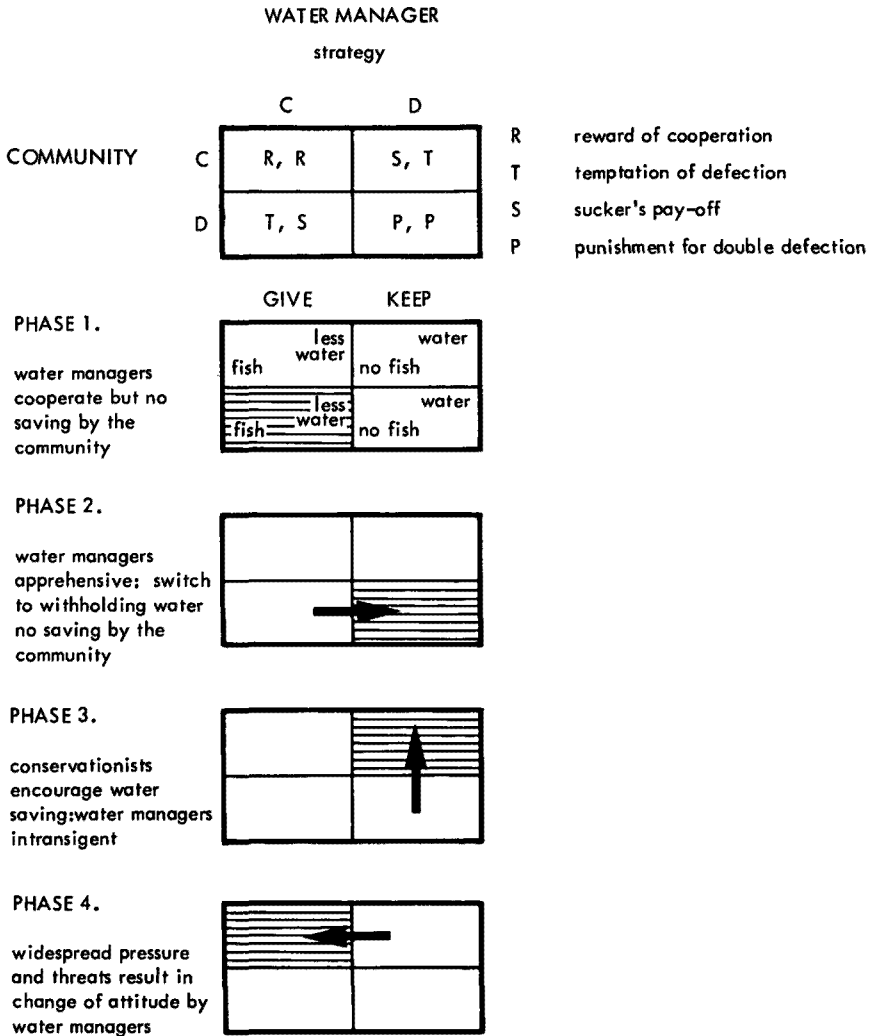
FIGURE 5

Interaction Between the Decisionmakers and the Community
as a Simple 2 x 2 Game

amount to maintain the fish, but there are some costs: The managers have less revenue and the consumers have dried out lawns! Joint action defeats the perversity of nature. There are, however, strong temptations *not* to cooperate. The community as a whole may be quite apathetic and not bother to save water, or may think that someone will look after the problem at no cost to themselves while

they continue to use water (D,C). The manager may keep, not release, water irrespective of some saving by the public because of the revenue factor (C,D). If both sides do not cooperate (D,D), the community has clean cars, green lawns, and the water managers revenues, but the salmon of the 1970 cycle are eliminated, a greater long-term social loss to the community.

<div align="center">THE GAME AS PLAYED</div>

In the early phase of interaction between the two sides the community was using water, while the managers were persuaded by the conservationists to release water (D,C). As the resource diminished in quantity and the managers' perception of risk increased, they switched to withholding water, strategy D. Consequently, the two sides were locked into a double-defection situation (D,D). On the one hand, the community was apparently apathetic about the fate of the fish, while the managers were more interested in the short-run value of the game (D,D). The water managers were defecting (D), and in the absence of any other information (that the community as a whole wanted fish) were acting rationally. The penalty for releasing water for fish, if the community did not at the same time conserve it, (D,C) was too high to entertain.

The community was using water (D) because, in the absence of any other information, there was no real reason to save. The role of the conservationists, who could see the implications of the (D,D) trap, was only too clear. On the other hand, they had to encourage the community to adopt a "save" tactic but avoid a "sucker's payoff" situation (C,D); in which water was saved but still not released by the water manager. The manager, in fact, used the likelihood of the sucker's payoff situation as a threat to the conservationists. The conservationists had to offset the water manager's threat by using political threats and other pressures to encourage him to give water so that a cooperative situation would occur (C,C).

The Use of Threats

During the game the strategies used by both sides changed. An important communicative act which can be linked to these changes was use of threats by both sides either to reinforce a strategy and thereby influence their opponents or to counter a threat. These threats, which were exchanged almost entirely via the mass media, varied in frequency and degree (Table 1).[26] During the early phases

26. For a more detailed discussion of the content analysis aspects see W. Sewell & C. Wood, *Environmental Decision Making and Environmental Stress: the Goldstream Controversy*, Proceedings of the Canadian Association of Geographers (1971).

of the game (in the year preceding 1970 and early 1970) the threats were general in content, "people before fish" (managers) or "protect the fish against people" (conservationists), and low level.

TABLE 1

Frequency and Type of Statement Made by the Two Principal Groups to the Press, Which Could Be Interpreted as Threats By Their Opponents

Threats Leveled by Water Managers		*Total*	*Threats Leveled by Conservationists*		*Total*
People before fish	1964 1969(2) 1970(2)	5	Save water	1970(7)	7
			Fish have economic value	1964 1969 1970(3)	5
Future threat	1964 1967 1970(2)	4	Discredit opposition	1970(4)	4
Discredit opposition	1970(3)	3	Political threat	1969(2) 1970(2)	4
Threat to property	1970(2)	2			
Economic threat	1970(2)	2	Protect fish v. people	1964 1969(2)	3
			Future supplies are good	1970	1

Source: *Victoria Times* (1964-1970)
N.B. Figures in brackets indicate the number of times the threat was used in one year.

As it became apparent to the conservationists that the managers' strategy of not releasing water was unchanged, they campaigned to encourage the community to save water to protect the fish. This represented not only a direct economic threat to the water managers, but also brought into question their perception of what the public wanted: they believed that most people preferred water to fish. The managers responded with more direct counter threats, referring to the economic cost to the community, the potential damage to unwatered lawns, the credibility of the conservationists, and the probable failure of a water saving campaign.

Public response to the conservationists' plea was considerable (estimates vary, but probably there was a reduction in daily consumption of close to one million gallons, sufficient in terms of the Water Commissioner's estimate of spawning and migration requirements to maintain the fisheries) and meant that the game had moved to the (C,D) cell of the matrix.[27] The enthusiastic public response

27. The results of a questionnaire survey of a sample of schools in the Greater Victoria area showed that there was a significant, active response by children who had visited Goldstream Park. Teachers were also instrumental in encouraging children to take an interest in the water saving campaign.

partly represented the success of the conservationists' strategy of encouraging educational visits to the Goldstream River, since school children in the region became particularly keen on saving water and encouraged their parents to do the same, and resulted partly from the proconservation coverage of the media. The relative success of the campaign not only muted the threats leveled by the managers but showed that they were out of touch with a significant proportion of the public. The managers responded to the water saving campaign by expanding the reasons for not releasing water, arguments which seemed rational to them but were further threats to the conservationists, e.g., the fish were not worth saving, economic cost. Thus, the water managers, who seemingly had legitimate power over allocation of the water, could couple the specific action of withholding water with a variety of stated threats, either to the community as a whole or to the conservationists, but they could not escalate action as, for example, by cutting off water from those people who favored the fish. Nor could they level any kind of political threat.

As support for the water saving campaign grew, the conservationists felt confident enough to appeal to other levels of government and local politicians to champion their cause. The combination of public support and encouragement from other levels of government (the Federal Minister referred the Water Board to the Fisheries Act, Section 120, Part 10, which compels the owners of dams and persons altering the natural flow of streams to provide sufficient water for fish), represented a political threat to the water managers aimed from above and below. In addition, the Mayor received many letters favoring release of water. Not surprisingly, the water managers changed to a cooperative strategy (C,C), and the game had gone full cycle.

IMPLICATIONS OF THE RESULTS

In what ways do interactions between the parties fit in with the concepts of threat exchange and coping strategies described earlier? Although the conflict over allocating water was low level, in the sense that there was no personal danger to safety or health and that violence was absent and personal abuse minimal, the conflict exhibits many of the characteristics of stressful situations such as city housing, race relations and poverty. Initially, the water managers did not see the conservationists as a serious threat; consequently, their coping strategy consisted of repeated slogans, "people before fish." The real threat to the water managers appeared to be the falling reservoir levels and the need to sell water to help finance the expanded supply system. Public attitude was viewed as supportive.

However, as possible elimination of the salmon cycle in 1970/1971 loomed, the magnitude of the threat to the conservationists increased, hence, the coping tactic of direct action through an appeal to the public to save water. This strategy was viewed by the managers as a greater threat, particularly when some public support was forthcoming. The water managers' response was to expand the range of threats and appeal to the economic values of the community. The conservationists' response was to issue counter-threats and appeal to other levels of government, local politicians and the public. Undoubtedly, pressure from several sources (see Figure 6) led to the water managers' attitude change. After their change in attitude, the water managers progressed through a "face saving" phase, saying that all along they favored protecting the fish but also had to think of the community's economic interests. This in itself represents a further coping strategy, attempting to communicate their rationale for action and restore their esteem in the public's eye.

Finally, it appears that the behavior of the water managers during evolution of the conflict did exhibit the types of dysfunctional stress
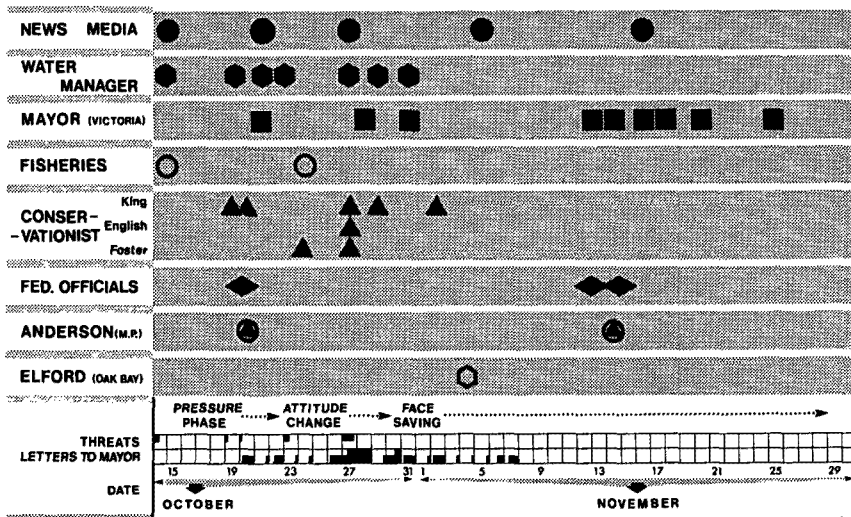

FIGURE 6

Statements in the *Victoria Times,* October-November 1970, urging the Mayor and Water Commissioner to "save the salmon." Note the varied sources of information, and the response by the water managers to try and justify their actions (up to October 31). Also shown are the statements which can be classified as threats and the letters received by the Mayor.

reactions posited by Lazarus. As the confrontation developed, the water managers clung to the idea that people came before fish (fixation on untested hypotheses); this response was repeated many times (stereotyped response). They would only act according to the Greater Victoria Water Board Act, despite the federal legislation (problem solving rigidity) and finally yielded when pressure came from several sources. Since there was no provision for public input, they had to rely on *ad hoc* communication channels. The use of threats as a communicative act can be related perhaps to their increasingly aggressive tone as the issue evolved.

CONCLUSIONS AND IMPLICATIONS FOR PUBLIC INVOLVEMENT IN WATER MANAGEMENT

It is possible to draw a number of conclusions from this examination of a resource use conflict which pertain to public decisionmaking in general and water management in particular. Where decisions flow down from the top and sections of the community respond negatively, gaming terminology provides a realistic framework for understanding the processes of interaction between the groups involved. The concepts of threat, threat appraisal and coping enable one to describe the communicative act and its influence on use of strategy.

While it is not suggested that a direct input of public views into the public decisionmaking process would eliminate conflict, the fact that threats are used as a major form of communication where no provision for citizens' views are made indicates that some form of public input would at least mitigate conflict. It would seem unlikely that stress will be eliminated from out society, but in view of the costs involved (for example, the links between psychological stress and physiological stress cannot be overlooked) any attempt to reduce it should be welcomed. The critical question, *how much* stress can be tolerated and is actually needed, remains to be answered.

This case study affirms the theory that the role of the public in environmental decisionmaking is becoming increasingly important, especially as the competition for resources increases. Public resource managers must be prepared to recognize and accommodate this phenomenon. In so doing, the present methods of gauging the public's views and incorporating them into the decisionmaking process will be inadequate. While the public is a loose and often mythical concept, a step in the right direction would be to broaden the base of representation on bodies such as water boards. Doing this might

make decisionmakers more aware of changes in public values and conscious that water is not simply an economic commodity.

The public reaction to the Goldstream issue not only illustrates their keen awareness of environmental quality but also means that indirectly people are questioning the general purposes of growth. Thus, one of the direct implications of the issue should be a thorough examination of pricing policy and demand management.