Locally Based Water Quality Planning: Contributions to Fish Habitat Protection

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Successful fish habitat protection occurs in areas of urban/industrial development when responsible citizens in rural watersheds can produce and implement local water quality plans binding on all agencies. In 1985, legislation in the state of Washington, USA, authorized a central planning agency — the Puget Sound Water Quality Authority — to initiate local watershed planning exercises through counties or other local agencies. The essential elements of community mobilization to the goals and activities of water quality planning were analyzed by comparing key factors in highly successful planning processes with factors in less successful ones. This permitted generalizations about basic organizing principles, educational procedures, and techniques of consensus building in the planning and implementation of water quality rehabilitation and protection for watersheds. The analysis contributed to a general theory of how and why community participation can improve the effectiveness of fish habitat protection.

Dans les régions de développement urbain et industriel, un habitat des poissons bien géré lorsque des habitants responsables, dans les zones rurales des bassins hydrographiques, peuvent formuler et mettre en œuvre des plans de protection de la qualité de l'eau mettant à contribution tous les organismes concernés. En 1985 dans l'État de Washington (E.-U.), un organisme de planification central, la Puget Sound Water Quality Authority, a été autorisé par la loi à entreprendre la planification à l'échelle des bassins hydrographiques par l'entremise des administrations de comté ou d'autres organismes locaux. Afin d'analyser les grands défis de la mobilisation de la collectivité en vue de la réalisation des objectifs et des activités de planification, nous avons comparé les principaux facteurs des processus de planification qui ont réussi à ceux qui ont donné de mauvais résultats. Il a ainsi été possible d'esquisser les règles générales de l'organisation, des processus d'éducation et des moyens de faire le consensus dans la planification et la mise en œuvre de la restauration et de la protection des bassins hydrographiques. Cette analyse s'inscrit dans une théorie générale portant sur les raisons pour lesquelles la participation de la collectivité peut augmenter l'efficacité de la protection de l'habitat des poissons et sur la façon dont cette amélioration se fait.

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Although habitat protection is a key component of fishery management, it has seldom received a large share of management attention. Harvest management, allocation, enforcement of harvest regulations, and even hatchery production receive more funding and staff time than habitat protection. Especially in regions undergoing industrial or urban expansion, habitat protection agencies tend to have inadequate staff and data, while industrial activities harmful to fish habitat tend to have more support from other government agencies and seemingly more clout.

Yet without adequate habitat protection, there will be no sustainable harvest of fisheries resources (Williams et al. 1989).

1 Jim Lichatowich (pers. comm.), the former Assistant Chief of Fisheries of the Oregon Department of Fish and Wildlife, noted that at least until 1988 when he left the Department, the budget of a single Oregon state hatchery was greater than the habitat protection budget for the entire citizen half of the state.

The habitat protection innovations described in this paper are of special interest because they occur in areas of rapid urban and industrial expansion. They can thus be considered successes in the worst-case scenario. This analysis focuses primarily on why and how the strategies adopted are workable and effective.

A motivating locally based watershed planning exercises which involve communities in the planning and implementation of water quality protection. Watershed planning focuses primarily on the cumulative effects of nonpoint sources of pollution, e.g., pollution from many diverse and diffused sources (see below). Watershed planning to control nonpoint pollution is one of 13 programmes initiated by the Puget Sound Water Quality Authority (PSWQA) in the state of Washington, USA, and has received national recognition in the United States as an innovative and effective model for addressing nonpoint pollution (Hansen 1990).

The explanation for the success of this planning rests on two levels of analysis. The first level contrasts the new watershed-based planning and implementation with past state planning and implementation, seeing the former as a potential improvement over the latter. At this level of analysis, a general explanation is offered as to why watershed-based planning has the potential to be more successful than centralized state planning in dealing with nonpoint pollution. I examine how the local plan became binding on all the central agencies and how it reinforced and extended the capacity of the fisheries management agency to protect habitat effectively by building a local constituency to support habitat protection. This constituency both ensured that the local plan would be implemented and also assisted in habitat protection activities at the local level. The central thesis at this level of analysis is that, although protective legislation is a necessary condition for successful protection, it is an insufficient condition without organized local community activism.

The second level of analysis concerns the specific conditions which permit this potential to be realized. Highly successful locally based water quality planning is contrasted with less successful cases in order to draw out the necessary conditions at the local level for successful watershed planning.

The successful cases are important for more than the mechanics of effective habitat protection they illustrate. Just as significantly, they epitomize the increased public demand for participation in management decision-making and the changing constituencies of management agencies (Lichatowich 1990a). The traditional commercial and recreational stakeholders and users of fish, wildlife, and even forest resources are no longer the only constituencies with whom policy must be discussed. A much broader public is now concerned. People want habitat protection not simply in order to have more fish, but also in order to enhance other values, such as water quality, sustainable ecosystems, disappearing wildlife, and quality of life. Management agencies no longer have a monopoly on setting management goals, as the public now has a stronger leadership position and is prepared to decide which management risks are acceptable (Kellert 1980; McEvey 1986; Lichatowich 1990a, 1990b, Rees 1990). Furthermore, on the local watershed level, participation in planning allows local knowledge and concerns about the watershed ecosystem to be articulated as community values and choices in management decisions. The community focus of public leadership in habitat protection can be a particularly effective way of organizing and mobilizing public opinion and action on habitat protection.

After briefly presenting the genesis of recent government policy on habitat protection in Washington State, I analyze the elements of habitat protection planning in Sequim Bay, Clallam County, where a highly successful and supported watershed plan is being implemented. I compare the planning process in Sequim Bay with elements of other successful cases and contrast them with the elements of the planning process in three other areas which were less successful. I consider watershed plans "less successful" when they did not involve a broad spectrum of watershed residents, nor mobilized a local constituency which became educated about nonpoint pollution issues and energetic in pressing for remedies. These represented two thirds of the 12 "early action" watershed plans initiated in Washington in 1987–88.

Background of State Policy on Fish Habitat Protection

Effective government policy on habitat protection in Washington State originated in a general sense from the 1980 Phase III decision of U.S. v. Washington ("the Bold decision"). The 1974 Phase I decision ruled that the treaties signed by western Washington tribes guaranteed them the opportunity to catch 50% of the salmon runs pasting their "usual and accustomed" fishing places, i.e. their traditional fishing places and usual fishing stations. The Phase II 1980 judgment reasoned that the first right was meaningless unless the tribes also had the right to protect the habitat on which the salmon depended to spawn and rear: freshwater streams, bays, and estuaries. Although the exact force of the Phase II decision has since become unclear because of legalities (see Cohen 1986), it precipitated a series of irreversible events. One of these was the 1987 Timber, Fish, and Wildlife (TFW) Agreement, which established both higher standards and a local participatory process for implementing habitat protection for fish and wildlife in riparian zones and in certain uplands. This agreement is peripherally relevant to this discussion and is discussed elsewhere (Pinkerton 1990). Most importantly for the present analysis, the original court decision recognized a general tribal right to protect fish habitat. This right has since been expressed in several ways: (1) tribal representation on the PSWQA board (described below) and on the Forest Practices Board, which regulates fish and wildlife protection from logging and silviculture, (2) funding for six tribal water quality biologists to work in Puget Sound,7 (3) mandatory tribal participation on a policy and technical level in local watershed planning processes, and (4) tribal court cases against the Washington Department of Ecology, when the later was alleged to be falling short of its mandate to protect water quality. In general, the tribal right to protect fish habitat has been a catalyst for tribal alliances with environmental and other public interest groups and for the generation of greater public pressure on state agencies to provide greater habitat protection. The formation of the PSWQA is one response to the focusing of greater public pressure on environmental protection.

Puget Sound Water Quality Authority

In Washington State, industrial and household impacts on water quality in salmon streams and shellfish beds are regulated by standards set by the Department of Ecology under the Water Pollution Control Act and also by the state departments of Fisheries, Wildlife, Natural Resources, Health, and Parks under other laws, including the State Environment Policy Act (SEPA). Federal laws and agencies also play a role. However, in the early 1980s, industrial and real estate development was outstripping the ability of these agencies to play a significant role in water quality protection. The populations of some counties in western Washington were growing at a rate of 20%: 20 000 to 50 000 new homes per year (1988 figure).

Washington Department of Fisheries8 (WDF) inability to deal with these developments is illustrated in the following example.

7Through the Centennial Clean Water Fund, created by an $0.08 per pack tax on tobacco products, the Department of Ecology funded six regional positions to allow new treaty tribes in the state to participate in water quality planning.


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The habitat protection division of the WDF had only one full-time staff person for the area of 3500 km² surrounding the Sequim Bay watershed planning project to be described below. One person cannot adequately monitor all the ongoing and past habitat damage. As a matter of fact, several agencies involved in water quality protection. While the pollution from one industry might be at an acceptable level when viewed in isolation by one agency, the cumulative effects of all sources of pollution on one watershed might be unacceptable. Regulation loopholes, like the single family dwelling exemption under the Shorelines Management Act compounded the problem. In addition, current regulations were not enforced in many cases. Environmentalists believed that development pressure on the local regulatory process (e.g. for building permits and logging permits) was so great that only an organized and coordinated program could successfully mobilize and focus the political will to effectively protect habitat.

The worsening of water quality in Puget Sound, and the lack of effective institutional arrangements to deal with this problem, was a major concern of the environmental groups which organized the Puget Sound Alliance in 1984. Through their efforts, the PSWQA was set up and funded by 1986 and produced its first water quality management plan in 1987. The PSWQA's plan, which is periodically revised, proposes specific remedial actions; the PSWQA then works with various existing agencies to produce budgets for carrying out the actions, using these agencies' staff. In some cases, the plan's budget permits additional funds are provided by other agencies; for example, the budget for carrying out the plan's activities has been supported through fees paid to the Department of Ecology for nonpoint pollution programme. The PSWQA has the authority to carry out the plan's activities.

As part of its 1987 plan, the PSWQA launched a new major initiative to address "nonpoint source" pollution, i.e. pollution from sources other than major point sources such as agricultural runoff, sewage, and urban runoff; this is now an active area of research. The PSWQA's plan addresses the need to understand the combined and cumulative effects of pollution from different sources within a particular watershed and to prevent or mitigate water quality protection.

Regulations regarding stormwater management systems did not apply to the recreational use of single family homes. Yet a large number of these homes along the shoreline have an unacceptable cumulative effect.

In February 1990, Engrossed Substitute Bill 2482, reenacting and amending the Puget Sound Water Quality Act, Chapter 90.70 RCW, was passed by the state legislature. The legislative changes focused on point pollution and have not affected the nonpoint pollution program.

The Sequim Bay watershed management plan is comprehensive and includes a variety of initiatives to address water quality issues. The plan identifies sources of pollution and develops strategies to reduce these sources. The plan also promotes public education about water quality issues and encourages community involvement in pollution control efforts.

The key aspect of PSWQA's conception of successful water quality planning on a watershed level was public involvement in the creation of plans and in the education of citizens of the watershed. Public involvement thus created the political will to implement the plan through public pressure on agencies. Just as important, it created the political will and widespread local involvement necessary to get significant compliance and support for the practices that are most effective for water quality.

The PSWQA's regulation governing the watershed planting process — Chapter 400-12, Washington Administrative Code (WAC) (State of Washington 1988) — went into effect in April 1988. This regulation called for counties to rank watersheds of greatest concern and to solicit meaningful and substantive participation by the general public and affected parties. Before the regulation was completed, however, the PSWQA selected six "early action" watersheds which were identified as requiring immediate attention. Six additional early action watersheds were selected through competitive applications to the Department of Ecology for funding to complete the first round of community-based planning. Department of Ecology staff provided technical and advisory assistance during the planning process. After the county, watershed community, Department of Ecology, and other review agencies gave final approval of the plan, the county applied to the Department of Ecology for funding to take the actions called for in the plan. The next section analyzes how the process operated successfully by focusing on one such community planning exercise.
will. To some degree, watershed planning did occur with a concern that "the state may do it if we don't do it first." It will be obvious from the following account, however, that a state-imposed plan could not possibly have garnered the support and volunteer effort which resulted from the community planning process. It is community ‘ownership’ of a project through a consensus planning process which makes local planning effective as a habitat protection instrument.

Watershed planning in Sequim Bay was complex, however. Residents of Clallam County were known as the front-running financial contributors to organizations opposed to Indian treaty rights. The Sequim watershed was formerly an agricultural community, but now, 45% of its 5445 residents are over age 55. The population is running increasingly to retirement and tourism. These local groups had never met with a tribe, and most had never met with each other. Some observers predicted a planning process would not last three months.

Principles for Effective Community-Based Watershed Planning

The analysis which follows drew generalizations from comparing the Sequim Bay process with five of the other nine successful projects and contrasted the successful processes with three which were acknowledged by all interviewees as less successful. I interviewed key participants in all planning processes, in the PSWQA’s nonpoint programme, in the Department of Ecology’s nonpoint programme, as well as some county officials and coordinators. I observed the Sequim Bay planning meetings at several points and interviewed the coordinator repeatedly over the two-year period of planning, plan review, and plan approval. A set of principles for effective community-based planning was generated, and each is discussed below.

(1) The local lead agency must have a clear sense of purpose and the authority to assure implementation of plan recommendations. In all but two cases, the county was the lead agency and had a clear intention to benefit from available funding by initiating a viable local planning process with outside professional help. In two less successful cases where the county was not the lead agency, the local agency which applied for the planning grant did not have a strong commitment to the local planning process, but was persuaded to attempt the exercise by a closely allied federal agency, which facilitated the planning grant application. The local agency already possessed a study of local water quality problems and viewed the planning process as an extra "frill" between the study and implementation of the study recommendations. As officials were reluctant to engage a professional planner or trained coordinator for this process of perceived lesser importance, the local agency used its own staff. Many potential supporters of and participants in the planning process abandoned the process at an early stage when time and credibility were lost before the Department of Ecology felt forced to require that more experienced staff be hired. Eventually a professional plan was written for both watersheds, but with minimal community education and involvement in the process. Although both plans will probably be implemented to some extent, they will not enjoy the degree of support of the more successful plans whose perceived legitimacy and authority guarantees them a high level of participation and complianc. In these two cases, the local agency may feel it has been successful, but has forfeited the possibility of a much greater success.

(2) The coordinator of the planning process must be highly experienced in interest-based planning. The most successful projects had coordinators who were also experienced in the issues. The PSWQA has now produced a handbook (Gordon 1989) detailing the most effective ways to guide the group process and has provided some training for coordinators. However, these aids should be considered supplements rather than substitutes for experience. In particular, skills in providing private caucuses, establishing a sense of fairness, and building consensus are critical (see below). A qualified coordinator is the single most important factor in the success of a planning process. In all three less successful plans, the lack of a coordinator with previous training and experience in group process was a key factor. One remarkable successful case managed without a qualified coordinator because two group members representing opposite perspective alternated the role and had enough experience between them to keep a fair process going. This should be seen as a lucky exception to the rule.

(3) The selection of watershed committee members must include a balance of representatives from all the affected local interests. The negative way of stating this rule is that any group with the power and influence to significantly damage community support must be included. In most successful cases, the planning committee and/or other county staff selected the committee members. In some cases, the county commissioner added another member. The balance was such that no single sector could have a majority, but would have to work with other sectors. The selection process was advertised in the local media, by mailings, and in some cases by directly soliciting representatives from key affected organizations. Volunteers for the watershed committee filled out a form or wrote a letter explaining their interest, whom they believed they represented, and the nature of their commitment to the process. The letters were screened and, in some cases, candidates interviewed. During interviews, the coordinator explained the consensus decision-making rule (see below) and tested the candidate for open-mindedness or willingness to consider a variety of options. The candidate would then be asked about his/her commitment of time and energy to the process of attending meetings regularly for over a year. In some cases, attendance of meetings was taken, and two consecutive absences disqualified a committee member. Such rules reflected the quantity and seriousness of the information committee members were asked to absorb. In other cases, the coordinator generated so much interest and enthusiasm for the project that attendance remained high without rules. A committee member’s previous experience in a community planning process was also considered valuable, and at least some candidates were selected for this reason.

The need to keep this balanced mix of representatives working together further underlines the need for an experienced coordinator. Two of the less successful watershed committees started with a talented and experienced mix of members who were very excited about the idea of bringing salmon back to their watershed. However, most of them ceased coming after the first three meetings because the inexperienced coordinator “talked down” to committee members in an attempt to educate them and did not know how to involve them in the process. The final product of the committee therefore had a much smaller base of support and more limited credibility. The third less successful committee was located in a sparsely populated area and had few experienced committee members to draw upon. This increased the requirement for a highly qualified and experi-
enced coordinator. With both positive factors absent in this case, the committee had a lower chance for success.

(4) Technical and educational resources must be available to the coordinator and must be used judiciously by the coor-
dinator. The experienced coordinators spent a great deal of time on education during at least the first two or three months of the process. In some cases a technical committee, composed of the professionals from the constituent organizations, met sepa-
rately and helped develop a series of educational presentations for the watershed committee. The Department of Ecology also made materials and technical assistance available, although some were still on prepublication when the early action projects were beginning to meet. The experienced coordinators gathered, organized, and presented educational materials in a series of discussions of the water quality problems of the par-
ticular watershed. Some coordinators used an early educational meeting as a workshop on group process. Guest speaker experts on both process and substantive issues were also effective.

In the three less successful processes, the inexperienced coordinators either spent too much time attempting to educate the committee without interactive techniques ("an uninterrupted monologue") or they did not sufficiently assemble and present available educational material. While education is key, it must be combined with open discussion of the problems and concerns of local residents. watershed committee members must become active participants in the educational process.

(5) The coordinator must provide guidance to the watershed committee in how to set and reach long-term goals. The coor-
dinator must be able to present the educational materials described above while eliciting the concerns of the different community interests. All interest groups should have a clear understanding of the educational needs and goals. In other words, the problem of how the community was (or soon would be) in violation of state water quality standards was set in the context of interests understanding and respect for the views of different interest groups. The successful coordinators presented the pro-
cess as an opportunity for the community to solve the problem itself, rather than giving open the possibility that government might eventually impose a "solution" they would find less acceptable. Through a process of consensus-building (see below) the coordinator helped the committee to define a common goal or set of goals and develop a strategy and action plan for achieving these goals. In the process of defining the level of water quality improvement wanted, the coordinator provided steps that must be taken that achieve that level, the committee was gradually led to consider and evaluate a range of options for achieving their goals.

Key to this process was the way the problem of pollution was defined. Skilled coordinators were able to get the committee members to focus on the solution (the goal) rather than on who was causing the problem. This enabled a more objective view of how all committee members and all sectors of the community could contribute to the solution. It also encouraged good will and voluntary compliance on the part of polluters. On one creek in the Sequim Bay watershed, for example, the five most important cattle farmers who created 90% of the bacteria in the creek adopted best management practices to reduce or eliminate runoff from their pastures into fish streams. One year later, there is already a 10% reduction in fecal coliform levels. County officials also adopted a new policy on septic system surveys after only 12 weeks of meetings. In contrast, in one less suc-
cessful planning process, committee understanding of the prob-
lem and committee identification of common goals did not occur. As a result, one farmer was denying even at the end of the planning process that his cows were polluting the stream, even though it was clear that they were.

(6) The coordinator must help build consensus among com-
mittee members. Most planning committees settled with a col-
llection of interests which were either polarized or potentially polarized. The coordinator of the Sequim Bay planning process drew upon her experience working with industrialists and tribes who had agreed to cooperate in order to stay out of court after the Phase II U.S. v. Washington decision. She had also been a mediator with the TFW Agreement negotiations. This expe-
rience led her to develop incremental steps in cooperation through a series of cooperative projects in which team members participated throughout the planning process. These coopera-
tive projects often included other community members and became part of educating the community at large and creating a constituency in the community which supported water quality planning. They also helped committee members get out of for-
mal public roles and recognize their ability to work toward committee goals.

Cooperative projects in the Sequim Bay process included participation by 100 citizens in marine debris clean-up on five beaches, a day dedicated to the collection and sale disposal of toxic chemicals, and joint application by the tribe and the farm-
ers to stabilize a major landslide which threatened to continue eroding into a creek. Volunteers and landowners also jointly rehabilitated a half-mile of creek through construction of mean-
ders and restoration of bank vegetation; they constructed five spawning pools in another creek through the joint efforts of the tribe and a local sportsmen's group, with assistance from WDF.

After this last project, a sportsman who had formerly worked against the tribes stated: "We see now that we have more in common than we thought we did, and we're all looking down the same tunnel and we all hope the same light is at the end: more fish for all of us." The act of working together on specific projects to accomplish a common purpose is a useful tool for building consensus. It creates a sense of a shared goal and focuses people not on placing blame but on developing solutions.

Another method of focusing on solutions rather than blame was to identify the pollution by type rather than source. The Sequim Bay coordinator divided pollution into "sediments" and "bacteria," for example. Since bacteria come from both people and cattle, the coordinator could focus on cattle. This method of describing pollution is now reflected in the revised regulations.

Another method of developing consensus was to explore issues in smaller groups or individually, either by doing some small group work during meetings or by encouraging people to visit the office outside of meetings. Outside caucusing has always been an important mediation tool, as it provides an opportunity for quieter group members to express their deepest fears and concerns to the coordinator. The coordinator can then discuss the issue in depth and help the concerned party to articu-
late it more clearly. The issue can then be aired with the group.

This process helped committee members get to the point of expressing their real needs, rather than their "positions" (Fisher and Ury 1981). A publicly stated position does not always help a group arrive at a solution because it often does not assist in an understanding of what is really behind the position.

Once the members recognized a physical illustration of the possibility and the benefits of cooperation, and better under-
stood different parties' needs, it became possible to think of
solutions which could incorporate the needs of all parties. This allowed people to stop focusing on each other and begin collaborating to meet mutual success. Such a solution then had a good possibility of having high credibility and of winning broad support in the community.

(7) Community support for the plan will be strongest where a local constituency is built through community education and participation in volunteer projects. Another factor in the strong community support for the Sequim Bay plan was the degree of community participation. Volunteer efforts included 350 youths who assisted in removing the trash and debris that had accumulated. 50 teachers involved in water quality education inside and outside the school, and six major stream projects, including rechanneling of two streams to avoid major pollution. Other volunteers included "Baywatchers," a core group of watershed residents who took a nine-week course on water quality issues and then preformed a variety of community service projects. This group then became a resource for the rest of the community (see Hansen et al. 1990). This concept, based on the 1930s "Master Gardener" model used by the U.S. Department of Agriculture Co-operative Extension to teach food growing and preservation, was pioneered in Sequim Bay for water quality, has now been adopted by other counties, and is being considered as a model nationally. The Baywatchers became the core of the local community constituency which supported the plan, helped educate the community, and will apply political pressure to fully implement the plan.

(8) The plan developed by the committee must include a strategy for improving water quality, expressed in a series of recommendations which lead to an action plan. The recommendations produced by the Sequim Bay watershed committee emphasized technical assistance, public pressure, and preservation, was pioneered in Sequim Bay for water quality, has now been adopted by other counties, and is being considered as a model nationally. The Baywatchers became the core of the local community constituency which supported the plan, helped educate the community, and will apply political pressure to fully implement the plan.

(9) The plan developed by the committee must include a strategy for improving water quality, expressed in a series of recommendations which lead to an action plan. The recommendations produced by the Sequim Bay watershed committee emphasized technical assistance, public pressure, and preservation, was pioneered in Sequim Bay for water quality, has now been adopted by other counties, and is being considered as a model nationally. The Baywatchers became the core of the local community constituency which supported the plan, helped educate the community, and will apply political pressure to fully implement the plan.

In addition to 11 recommendations for education-related actions, the Sequim plan recommended 28 actions related to keeping bacteria out of the water from agricultural sources, siltation system sources, and marine sources. Nineteen recommendations were made for actions to reduce sediment out of the water from landslides, forestry sources, culverts, inadequate stream corridors, log yards, grading and clearance, and storm water drains. Eleven recommendations were made for actions to prevent sewage from entering the water. Nine recommendations were made for actions to improve the quality of the habitat. The Sequim Bay plan was the first in the state to specifically target fisheries habitat protection in recommendations for its watershed. A specific habitat protection objective was considered for inclusion in the 1991 PSWQA plan. Agency review of the preliminary draft plan produced an impressive map of interagency initiatives and responsibilities and a schedule for implementation and ongoing monitoring of each recommended action (Baril et al. 1989).

The plan strongly advised creation of new ordinances to control grading and filling and to allow inspection of septic systems by county officials. Just as important, the plan recommended that current current laws be enforced properly at the state and county levels and that adequate penalties be attached to noncompliance. These included the proper enforcement of regulations concerning point pollution from the Sequim sewage treatment plant and enforcement of logging road building and maintenance standards. The significance of these recommendations is that they focus public attention on the problem and force agencies to work out ways — including securing more funding or cooperation from other agencies — to address them. The plan in fact specified which agencies were responsible for meeting each of the recommendations.

Watershed planning also allows agencies and citizens to identify site-specific concerns which need more effective responses than mandated by agency regulations. The state law is prescriptive.

In other words, each logging permit cannot be considered in isolation, but in terms of how it, in conjunction with previous logging in the same area (and, by implication, future plans for the entire area), will affect water quality. The recommendation is tantamount to the community being able to comment on the size of clearcuts in its watershed, a consideration which the timber industry insists could not come under negotiation in the TFW Agreement. Therefore, the makers of the plan have forced the council into a position where it was either faced with taking a front seat in insisting that timber interests be responsible for their impact on other public resources. In the Sequim watershed, water quality issues have led to be a constraint on those practices which put issues such as timber harvesting in a new perspective.

(5) The agency overseeing the planning grant should be willing to intervene in a project which is not proceeding success- fully, but should avoid creating rigidities. The community planning concept requires senior levels of government to take an oversight and supportive stance once the project is approved and funded. In the case of the three less successful early action projects, however, hindsight has made many observers believe that the ill feeling over government intervention would have been preferable to the ill feeling and alienation left in the communities from the less successful process. Once a supervisor sees it: "It may be a decade before that community will be willing to try anything like this again."

State intervention was probably desirable in at least two projects because of the lack of qualifications of the coordinator. One weakness in the process was that the local agency hired in practice, the TFW cooperators have not been able to avoid considering cumulative impacts. The public concern with this issue forced the Department of Natural Resources (which regulates logging practices) to reverse an earlier intention to log Gibbs Lake on the Olympic Peninsula (see Pinkerton 1990), to take seriously the opposition to logging around Lake Rosier in Smoohim County (see Hubert and Lee 1990), and to finally convene a Sustainable Forestry Roundtable to consider cumulative effects and rate of harvest. It is significant to note that the problem of cumulative effects was being addressed in the Sequim Bay plan in January 1989, about seven months before these other crises.
the coordinator with no guidelines or minimum qualifications required. The problem could have been corrected by simply requiring a sufficient level of experience in this position. Creating this loophole would have addressed virtually all the serious problems which emerged in the early action projects.

Unfortunately, government agencies are easily tempted to avoid the problems of interference with poor coordinators by writing much more rigid guidelines for conducting the planning process. One of the strengths of the community-level process was the flexibility to develop different ways to conduct the process. The regulation allows an experienced coordinator the freedom to adapt to local ideology and circumstance and discover the most effective methods of guiding the process and mobilizing interest and support. Greater rigidities introduced into the process may increase the problem of antigovernment feeling which already makes some processes more difficult. A brief application of this principle to government reaction to the Sequim Bay plan will illustrate the advantages of flexibility.

During review of the plan in spring 1989, the Department of Ecology expressed concern that there were no specific plans to limit population growth and land use through zoning ordinances. Sequim committee members insisted that they disliked the rigidities of zoning ordinances and that they had other ways of dealing with the problems. There appeared to be a consensus in the community that alternatives to zoning were feasible, although they would require more participation and funding. Rigid application of zoning ordinances in Clallam County in the past had resulted in a rush to subdivide for denser housing and to harvest timber, producing habitat loss. The Department of Ecology has offered funds for two more years to implement the plan recommendations, and a 20% matching contribution from local funds has been supported for long-term monitoring and community involvement. Because the Department of Ecology was eventually willing to accept the Sequim plan, rather than imposing its own, strong community support of the plan was possible.

Synthesis and Conclusions

In rural or transition areas such as Sequim Bay, habitat protection efforts by state agencies will be largely overcome by development pressure unless a local planning and implementation process can mobilize and focus local political will and activism. This paper has examined how a state program empowered local communities to participate in habitat protection and why this was far more effective than state planning and regulation alone. The creation of legitimacy, accountability, and a sense of control were the key factors in mobilizing the local community to take a large role in habitat protection. Below I briefly synthesize and restate the argument presented.

Development of the Sequim Bay Watershed Management Plan, and other successful PWWMP action plans, was a consultative process involving extensive community education, consensus, and constituency building. Local groups and agencies in rural or transition areas were challenged to preserve and enhance endangered fisheries habitat, as well as other perceived "quality of life" values. In the process the community was able to consolidate, articulate, and put into action a set of values and priorities regarding habitat protection which won widespread support in the community.

The focusing of collective community will into a plan resembles the adaptive process by which small-scale, preindustrial (and, in some situations, modern) societies depend on key resources adjust their behavior to conserve these resources (Dehham 1976, Williams and Hunt 1982, Freeman and Cary 1989). The nature of resource "dependence" can be thought of in the modern context as a perceived requirement for quality of life or the continuance of a chosen livelihood. The dependence was given recognition by the willingness of the community to contribute financially to solutions. Even more important, the community generated these values and activities because of the perception that it has some real control of the situation that it could actually protect its own watershed. A large body of research in psychology indicates that people are able to mobilize energy and perform optimally and rationally under conditions of perceived high "self-efficacy," or ability to exert effective control (e.g. Bandura 1982). This finding is consistent with ethnographic evidence that people are willing to contribute major volunteer effort when they feel they have control.

One result of the community's perceived need for control and involvement has been a community insistence that water quality be improved "our way," with an emphasis on education and site-specific considerations before standardized regulation and enforcement from outside. The benefit of this possibly higher-risk and more labor intensive route has been that the Sequim plan enjoys widespread support from all sectors of the community, such that the county officials charged with implementation must take it seriously. Elected officials responded positively when they could be seen as supporting a popular agenda over specialized sectoral interests in logging, agriculture, or real estate. A 1989 poll of households in the watershed showed not only universal support, but a majority said "We haven't gone far enough yet." Ninety percent of the respondents supported more tax for implementation and recommendations. The county has set up a new Water Quality division to coordinate plan implementation and recommended grant funding for the next five years of further planning and implementation. This level of support, and the structure of accountability to the local lead agency (the county) and the local political constituency (the community), has created a situation far more favorable to the enforcement of existing regulations (currently unenforced) and of plan recommendations. Community controlled planning and implementation creates a legitimacy and accountability which is more powerful than conventional state planning.

The most important insight emerging from these case studies is that the effectiveness of habitat protection can be enormously increased because of the way the local plan's legitimacy and accountability mechanisms combine with the mobilization of local volunteer efforts. With modest funding — one coordinator for the Sequim Bay planning process, seed money for projects — considerable volunteer effort can be generated and the major groundwork in habitat protection, enhancement, and rehabilitation can be carried out. The legitimacy created by the local production of a focused and coordinated programme enables the generation of the political will to turn community recommendations into action. Regulations are now backed up at the community level, and government agencies are not allowed to respond to special interest group pressure; they are also accountable to the community. In this situation, government habitat biologists play an important role overseeing activities, applying standards, providing seed money, and carrying out their mandated role with support rather than interference. Government alone, however, is clearly unable to do all the work that is needed to protect habitat. The involvement of local
groups should be seen as an enormous asset for the responsible, long-term, sustainable protection of fish habitat.

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