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COOPERATIVE MANAGEMENT OF THE DUNGENESS WATERSHED TO PROTECT SALMON IN WASHINGTON STATE[1]

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ABSTRACT: Over the last decade, the Jamestown S'Klallam Tribe has formed partnerships with their neighboring county government, irrigation districts, property owners, and state and federal agencies in an effort to save the dwindling runs of Dungeness River salmon. Although considerable progress has been made to begin the recovery process, the watershed is included in recent listings of Pacific Northwest salmon under the Endangered Species Act. Under the coordination of an active watershed council, significant improvements have been made in water conservation and the protection of instream flows. Cooperation between the Tribe, irrigation districts and the Washington Department of Ecology resulted in a trust water rights agreement and the reduction of late summer water withdrawals by one-third.
(KEY TERMS: water resources planning; watershed management; instream flows; irrigation; water conservation; Indian water rights.)

INTRODUCTION

It is a tribal saying that "Every River Has Its People" and the Dungeness Watershed has been the home of the Jamestown S'Klallam people and their ancestors for thousands of years. In 1855, the S'Klallam (meaning "Strong People") ceded over 438,000 acres of land to the United States government in a treaty negotiated at Point No Point in Washington State (Gorsline, 1992). They reserved rights to fish and hunt and negotiated other provisions essential to their continuation as a viable community. By 1874, white settlers were pressuring the government to relocate the remaining S'Klallams to a distant reservation. Tribal leaders thus pooled $500 in gold coin and purchased 200 acres near the river to remain in their traditional territory. They named the community "Jamestown" for their leader James Balch. They constructed housing, a school and a church, and used the harvest of fish and shellfish as the basis of their subsistence and livelihood.

Unfortunately, the Dungeness River is not the abundant source of fisheries that it was in the last century with chinook and summer chum salmon now listed as threatened under the Endangered Species Act. The returning run of adult Dungeness chinook in the 19th century has been estimated as high as 26,000 fish (Lichatowich, 1992), but less than 300 chinook now straggle back to their home watershed to spawn annually. In 1998, only 44 nests, or "redds," of chinook eggs were counted in the river. Other species of Dungeness salmon, including pink and wild coho, are also considered to be depressed or critically low (State of Washington Department of Fish and Wildlife, 1994). Although the S'Klallam have a right to harvest salmon reserved in their 1855 treaty with the U.S. Government, this right has thus increasingly been an empty promise.

TRIBAL CLAIMS TO WATER AND FISHERIES RESOURCES

One of the most contentious environmental issues for America Indians throughout the west is the management of water quantity. The competition for scarce water resources between cities, agriculture, and industry, and the uncertain legal status of tribal claims to water parallel the legal and physical battles over land claims in the 19th century. A landmark legal decision in 1908 [Winters v. United States (207

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U.S. 564 (1908)], determined that reservations of land set aside for indigenous people by the United States Congress implied that an adequate supply of water to support their communities was likewise reserved (Western Water Policy Review Advisory Commission, 1998). Although the Winters decision was largely ignored for 50 years, it opened the legal opportunity for tribes to challenge water rights held by non-native farmers and cities, and launched a multitude of legal cases and negotiations over water supply with tribes in the American West (McGuire *et al.,* 1993).

In Washington State, the uncertainty of tribal claims to water is connected not only with tribal lands, but also with treaty-reserved rights to fisheries resources and the instream flows necessary to support fish habitat. The 1974 "Boldt Decision" held that the tribes who had signed treaties in 1855 had reserved the opportunity to catch half of the harvestable salmon and steelhead returning to off-reservation fishing grounds (U.S. vs. Washington, 384 F. Supp. 312 1974). A subsequent decision held that the right to harvest fish implies a right to protection of fisheries habitat; otherwise, "the right to take fish would eventually be reduced to the right to dip one's net into the water and bring it out empty" [506 F. Supp 187, 203 (1980)]. Although later decisions left this finding unclear, it is generally recognized that tribes in Washington State have a right to the protection of fish habitat (Cohen, 1986; Northwest Indian Fisheries Commission, 1991). Tribal leaders, the modern descendants of treaty signatories, now play a strong role at local, state, national, and international natural resource forums to protect their interests (Singleton, 1998). This participation has taken the form of a cooperative approach by the Jamestown S'Klallam Tribe for water resources in the Dungeness watershed.

STATUS OF COMMUNITY WATER RESOURCES AND SALMON

Draining an area of 270 square miles, the Dungeness and its primary tributary, the Gray Wolf originate high in the Olympic Mountains of Washington State and exit after 53 mainstem river miles into the Strait of Juan de Fuca (Figure 1). While the upper watershed may receive 80 inches of precipitation a year, the lower 10 miles are located in the Olympics' rainshadow and the Sequim area receives only 17 inches annually. The scenic beauty of the Olympic Peninsula, combined with the relatively dry climate of Sequim and flat terrain in the river delta, have made the area highly attractive for development. The population of the watershed has grown to over 14,000, of which only four percent are descendants of the original S'Klallam residents. Irrigation began in the valley over 100 years ago and is still celebrated in the annual Irrigation Festival that has as its slogan "Where Water is Wealth." A web of approximately 150 miles of irrigation canals, ditches, and laterals is spread throughout the river delta (Figure 2).

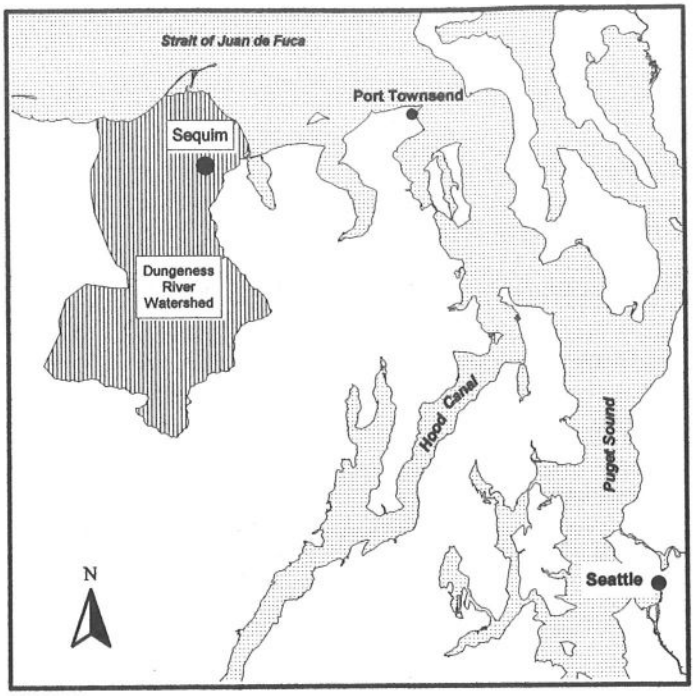

Figure 1. Map of the Dungeness River Watershed.

A number of interrelated factors have led to the decline of salmon runs, which include logging, development along the riverbanks, construction of bridges and dikes, and water withdrawals for irrigation (Haring, 1999). While the number of commercial farms in the area has dwindled to a handful, the irrigation system is still used by a multitude of small hobby farms and residences, which enjoy the ready availability of water for stock water, lawn/pasture irrigation, and landscaping. The aesthetic contribution of the ditch system in the dry climate is a significant property feature as well.

Dungeness River adult chinook salmon begin to return to the river in late spring, with the peak of spawning in late August and early September. Unfortunately, this timing, dictated by an evolutionary process that knew no irrigation, coincides with the lowest flow in the river and the highest demand

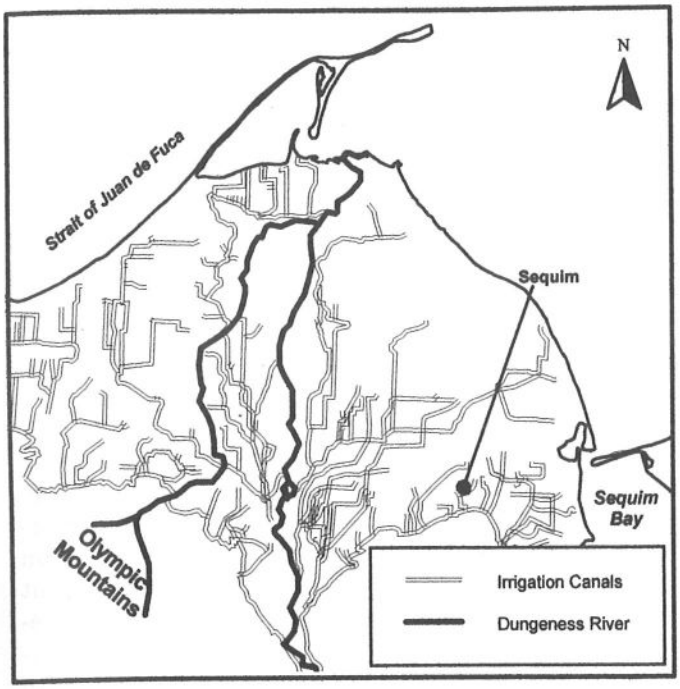

Figure 2. Location of Irrigation Canals.

for agricultural water. Water rights to Dungeness River surface water, which were granted by Washington State at the beginning of the 20th century, exceed the actual streamflow in all but one month of the year (Figure 3). In a 1924 adjudication, the agricultural water users were awarded 581 cubic feet per second (cfs) of water rights, with no minimum instream flow established. Stock and domestic water rights were granted year-round, with an irrigation season from April 15 to September 15. The average instream flow during early September, measured above all withdrawals is approximately 185 cfs, with flows below 150 cfs for nine out of the last 12 years. Although the irrigators never fully used the adjudicated 581 cfs, the Montgomery Water Group reported an average withdrawal of 100 to 110 cfs during the late summer months (Montgomery Water Group, Inc. 1993). In the late 1980s, biologists measuring the river and irrigation out-takes found that at times over 80 percent of the river was being diverted during the chinook spawning period. Instream flows during the late summer were identified as a major factor limiting the production of chinook salmon, and an instream flow of 180 cfs was recommended by the U.S. Fish and Wildlife Service in a study using the Instream Flow Incremental Methodology (Hiss, 1993).

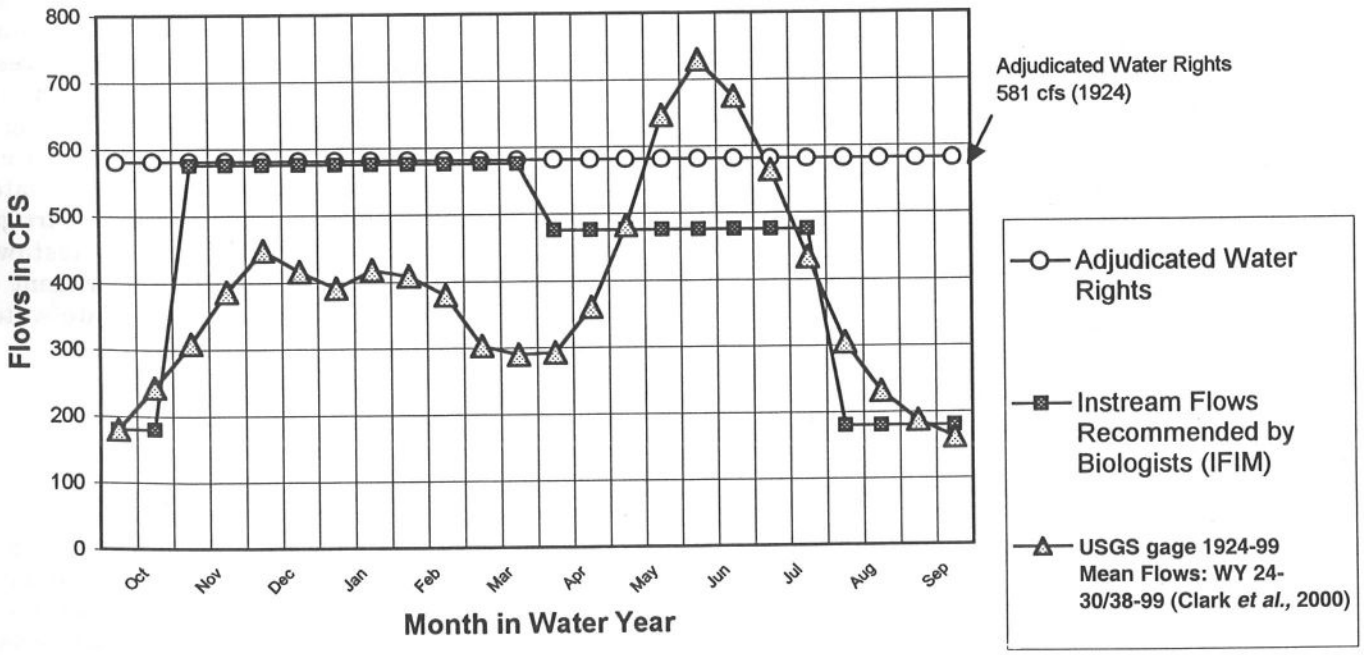

Figure 3. Dungeness River Approximate Mean Monthly Flows and Recommended Instream Flows.

WATERSHED PLANNING

Early discussions between tribal representatives and agricultural water users were contentious, as both groups felt that their livelihood and way of life depended on management of scarce Dungeness water. However, neither side desired a prolonged and expensive court battle over water rights and tribal claims, particularly in light of the urgent situation for Dungeness River salmon runs. In 1991, the Jamestown S'Klallam Tribe, Clallam County, and the local irrigation association nominated the Dungeness as part of a pilot project to prepare a regional water quantity plan. The Dungeness-Quilcene, or "DQ," plan was prepared under the auspices of the 1990 Chelan Agreement between the State of Washington, area tribes, and other key water user groups (Northwest Indian Fisheries Commission, 1991). After three years a locally driven consensus-based plan for watershed management was produced (Jamestown S'Klallam Tribe, 1994).

During preparation of the DQ Plan, the leader of the irrigation association coined the phrase "Shared Sacrifice" to describe the solution to the gap between the needs of farmers and fish. Both parties recognized that the Dungeness River simply lacked the water supply to satisfy everyone's optimal water objectives, but through cooperation and sacrifice the gap could be substantially closed. Despite their legal water rights, water users voluntarily agreed to withdraw no more than 50 percent of the river flow on an instantaneous basis and committed to a long-term program of conservation and efficiency. The agreement does not substantively affect the water users during the early summer when runoff is at its peak, but necessitates significant water conservation in the late summer in most years. In abundant water years, both agriculture and fish will share the water bounty, while in drought times the pain and sacrifice are likewise to be shared. The agreement was contingent on several provisions: (1) the development of a legal mechanism to protect the irrigators' water rights from the use it or lose it provisions of Washington water law; (2) the agreement by the Tribe to assist the irrigators with water conservation as much as possible; and (3) a commitment by the Tribe and others in the community to work toward salmon habitat restoration, since instream flows are only one of several factors limiting salmon survival in the Dungeness (Haring, 1999).

PLAN IMPLEMENTATION

Several key recommendations of the Dungeness-Quilcene Plan have been implemented in the ensuing years. These activities include a trust water rights agreement, improvements to the efficiency of the irrigation system, the development of a habitat restoration plan by a technical team, and continuation of a single watershed council.

Trust Water Rights Agreement

In 1998 the Dungeness Agricultural Water Users Association and Washington Department of Ecology signed the first ever Trust Water Rights (TWR) agreement in Washington State (State of Washington Department of Ecology, 1998). The TWR agreement helped to institutionalize the informal water management plan, which had been developed by the community. The agreement encourages water users to undertake long-term water conservation without being punished by losing their water rights. Irrigators agreed that two-thirds of conserved water would be transferred to instream flow, with one-third reserved for future agricultural needs. The TWR agreement also effectively relinquished over 300 cfs in unused water rights, limited the total allowable acreage for irrigation, and restricted instantaneous withdrawals to 50 percent of the total flow as measured at the U.S. Geological Survey gage upstream of the outtakes. The TWR was subsequently defended successfully by the State of Washington Department of Ecology in an administrative appeal. Water sharing is primarily monitored and enforced by the water users themselves, with a full-time water use coordinator employed by the Association. Measurements of irrigation out-takes are conducted by the Jamestown S'Klallam Tribe and the Washington Department of Ecology to monitor compliance and calculate water savings.

Water Conservation and Efficiency

One of the greatest areas of success following the completion of the DQ Plan has been in water conservation and the protection of instream flows. To date, the Jamestown S'Klallam Tribe has raised over one million dollars in grants for the irrigators to improve their infrastructure and make the system more efficient. Engineering studies pinpointed areas of leakage, and ditches, ponds, and siphons have been replaced or lined. New screens were constructed to

keep juvenile salmon out of agricultural intakes, and overall irrigation management has been streamlined. Although farmers have had to cut back during dry periods, the Dungeness Agricultural Water Users have developed a way to establish priorities for water users during shortages so that those who depend most on agriculture for their livelihood are assured the highest priority. This is a dramatic departure from the way that water rights are legally allocated in the West, which gives the highest priority of use to those who have the oldest dated water right regardless of efficiency, crop type, or economic importance. Disputes that cannot be handled internally are generally referred to the Washington Department of Ecology. An ongoing area of dispute at this time is the impact of water conservation on ground water supplies, which is the focus of additional study and discussion.

With assistance from the Washington Department of Ecology, irrigators completed a comprehensive water conservation plan (Montgomery Water Group, 1999). The average seasonal use of water has declined by 15 percent since the early 1990s; however, improvements in conservation and instream flows in the critical late summer period are more dramatic than the seasonal average. In 1987, water users withdrew 82 percent of the flow during the first week of September, resulting in a severe loss of available habitat for chinook and other salmonids. Eleven years later, the river experienced similar flow levels, but the irrigators removed only 44 percent (Figure 4). Although a portion of salmon habitat remains lost when water is withdrawn during any low streamflow year, the improvements are making a significant contribution to the salmon recovery effort and were instituted without litigation.

In 1999, the Jamestown S'Klallam Tribe and the Dungeness Water Users Association jointly received the Governor's Environmental Excellence Award from Washington State, as well as a national award from the President's Council on Sustainable Development for the Dungeness water-sharing program. The long-term commitment of both parties to cooperate, the coordination of community resources in support of the salmon, and the clear and measurable results in improved stream flows were cited as reasons for the awards.

Habitat Restoration Efforts

From 1994 to 1997 the Tribe convened a group of state, tribal, federal, and county fisheries biologists, engineers, and planners – as well as a property owner

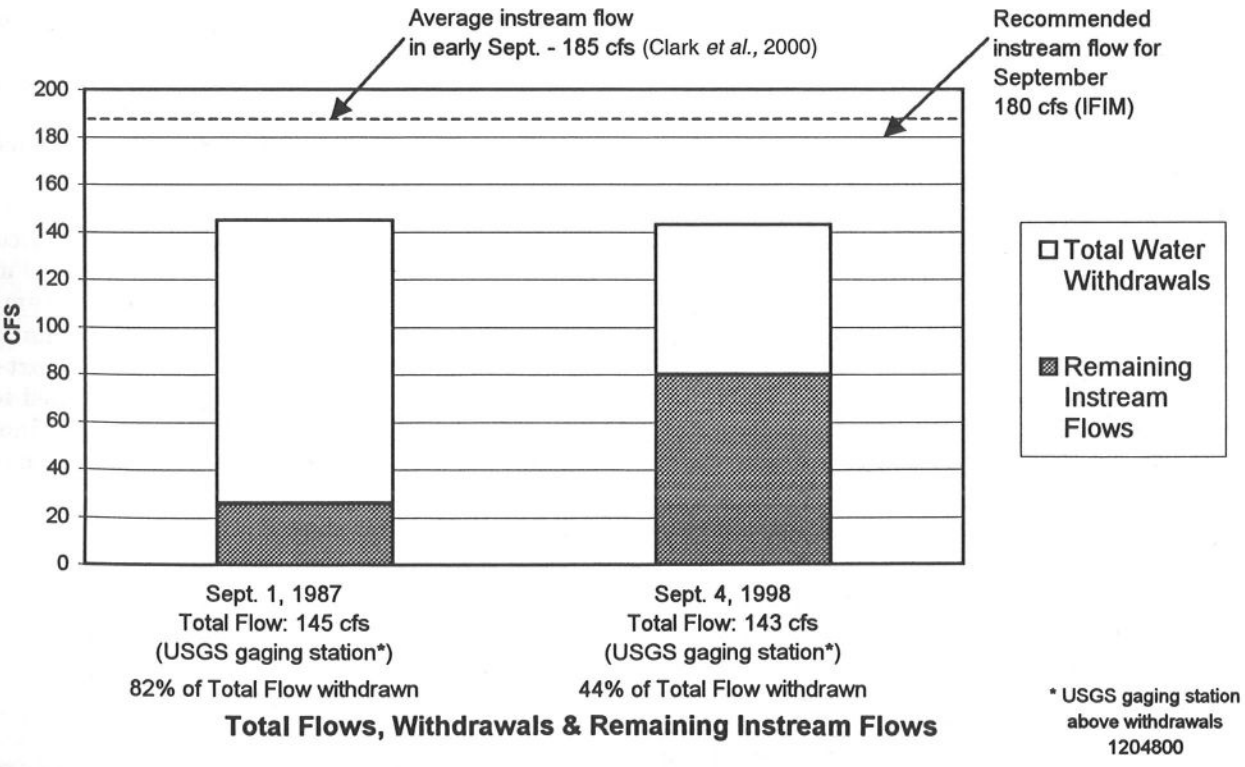

Figure 4. Comparison of Water Withdrawals From the Dungeness River in September 1987 and September 1998.

representative – to analyze other habitat factors limiting salmon production. The resulting habitat restoration plan (Dungeness River Restoration Work Group, 1997) identified vertical and horizontal channel instability and the lack of large woody debris in the lower river as important parameters limiting salmonid habitat, in addition to low flows. A number of long-term projects including dike setback, riparian revegetation, large woody debris placement, and estuary restoration were identified. Habitat biologists refer to these proposals as "pillars of restoration" to convey the concept that all the factors must support a healthy river ecosystem for true restoration to succeed. While smaller projects such as engineered log jams have been implemented, larger projects are still in the analysis or design phase.

Operation of a Watershed Council

In addition to the controversy over water quantity, local residents have had heated discussions for many years over flood control, floodplain and riparian development, logging practices, preservation of agricultural lands, and related natural resource issues. To improve the local community's ability to solve these issues, Clallam County, the Jamestown S'Klallam Tribe, and others formed an ongoing watershed council with additional representatives from agricultural water users, environmentalists, sport fishers, riparian property owners, retired scientists, and key state and federal agencies. Participants of the Dungeness River Management Team (DRMT) meet regularly to define problems, identify data gaps, and continue to plan and implement projects focused on habitat restoration, water quality and quantity, and flood control.

The DRMT was chartered by an unusual joint resolution between the Clallam County Board of Commissioners and the Jamestown S'Klallam Tribal Council and continues to operate under a piecemeal collection of operating grants and contributions by its members. The DRMT's meetings have been occasionally stormy, and the group has absorbed considerable criticism by groups opposed to nongovernmental consensus processes. However, a significant benefit of this long-term watershed council has been the continuity it provides during turnover by elected officials, agency staff, and volunteers. As DRMT members drop out and are replaced, remaining members maintain a strong institutional memory of the content of previous plans and the success or failure of past projects. This allows the group to continue their coordination and work on a wide variety of issues. The DRMT and its individual members (Figure 5) are working with the community to formulate a response to Endangered Species Act listings and to take advantage of funding opportunities with well thought-out projects for salmon recovery. Numerous public education efforts have been initiated, including a theatrical production and a river festival. The DRMT also operates a website at www.olympus.net/community/dungenesswc. Through these efforts the Dungeness River has achieved an identity to its residents, and a commitment from them to protect its future.

CONCLUSIONS

Residents of the Dungeness River have succeeded in resolving major water management issues through data collection, analysis, and negotiations. The small size and personal nature of the community are considered by many to be important factors in this success, as well as constructive leadership by key stakeholder groups. Another factor for this success was the presence of substantial incentives, positive and negative, to participate. In the case of Dungeness water, the Jamestown S'Klallam Tribe sought immediate action to improve streamflows for salmon. The agriculture community, themselves avid sport fishers anxious to preserve the fish, were motivated by the fear that their use of water would be legally challenged.

The presence of appropriate data in understandable formats on instream flow needs for salmon, water use during the year, and historical streamflows helped frame the discussion around practical considerations of season and need, rather than rights. There was a shared sense that the community could reach a consensus without resorting to outside agencies or courts for resolution.

However, it is important to note that consensus is fleeting. The ongoing nature of a watershed council may help provide continuity or an institutional memory of previous studies, plans, and agreements. Although the participants of a watershed council may be able to reach agreement, it will be short-lived unless contracts or regulations are established to preserve the key principles. The necessary financial resources are also essential for actually implementing projects to solve the problem that brought them together in the first place.

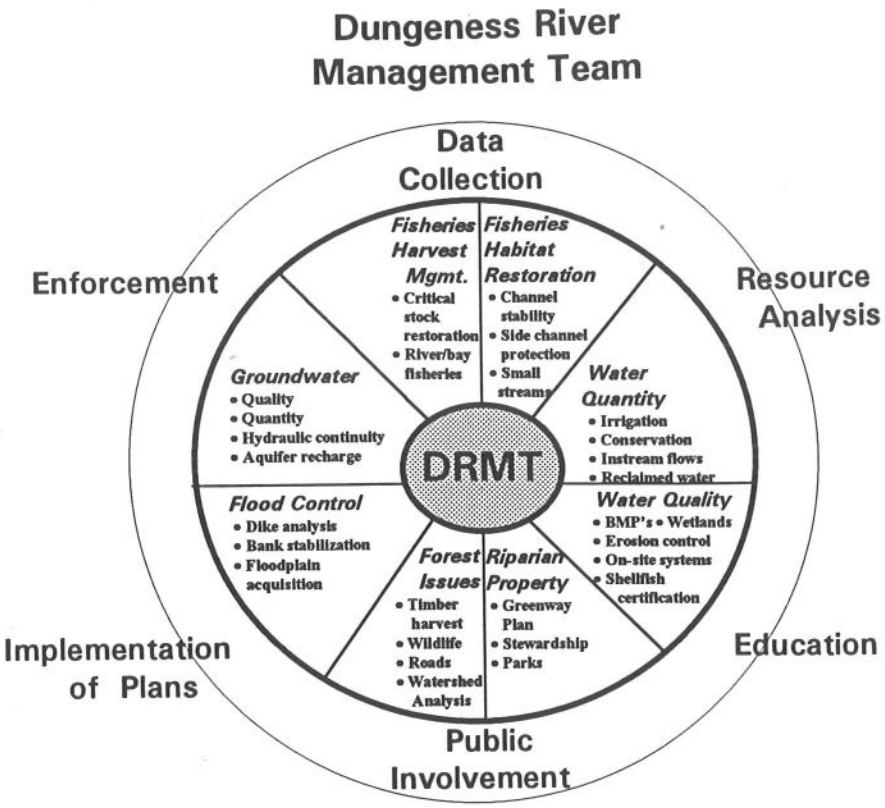

Figure 5. Dungeness River Management Team.

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