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Environmental Governance in Watersheds: The Importance of Collaboration to Institutional Performance

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Tahoe Regional Planning Agency

The Evolution of Collaboration

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Copies of the report and the supporting case studies can be obtained from:

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List of Tables and Figures

List of Acronyms Used in this Report

APC	Advisory Planning Commission
BMP	Best Management Practices
CBW	Consensus Building Workshop
CEQA	California Environmental Quality Act
CTC	California Tahoe Conservancy
CTRPA	California Tahoe Regional Planning Agency
CTS	Coordinated Transit System
EIP	Environmental Improvement Program
EIS	Environmental Impact Statement
ETCC	Environmental Threshold Carrying Capacity
FACA	Federal Advisory Committee
IAD	Institutional Analysis and Development
IPES	Individual Parcel Evaluation System
LTAC	Lake Tahoe Area Council
LTBMU	Lake Tahoe Basin Management Unit
LTIMP	Lake Tahoe Interagency Monitoring Program
MOU	Memorandum of Understanding
NDOT	Nevada Department of Transportation
NEPA	National Environmental Policy Act
NGO	Nongovernmental Organization
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NTRPA	Nevada Tahoe Regional Planning Agency
ONRW	Outstanding National Resource Water
PUD	Public Utility District
SEZ	Stream Environment Zone
SWQCB	State Water Quality Control Board
TDR	Transferable Development Right
TEGIS	Tahoe Environmental Geographic Information System
TRG	Tahoe Research Group
TRPA	Tahoe Regional Planning Agency
TRPC	Tahoe Regional Planning Commission
UCD	University of California at Davis
URRQG	Uniform Regional Runoff Quality Guidelines
USFS	United States Forest Service
USGS	United States Geological Service
VMT	Vehicle Miles Traveled

I see the clear waters of Lake Tahoe -- I see forests of majestic pines,
Centuries after thou art laid in thy grave,
The shore thou foundest verifies thy dream!

Walt Whitman, 1872
Passage to India

Lake Tahoe demonstrates, that the environment is the economy and the economy is the environment

Vice President Al Gore, 1997
Presidential Summit
Incline Village, Lake Tahoe

The model of cooperation you have established will be a model we will want to use across the country

President Bill Clinton, 1997
Presidential Summit
Incline Village, Lake Tahoe

Tahoe Regional Planning Agency: The Evolution of Collaboration

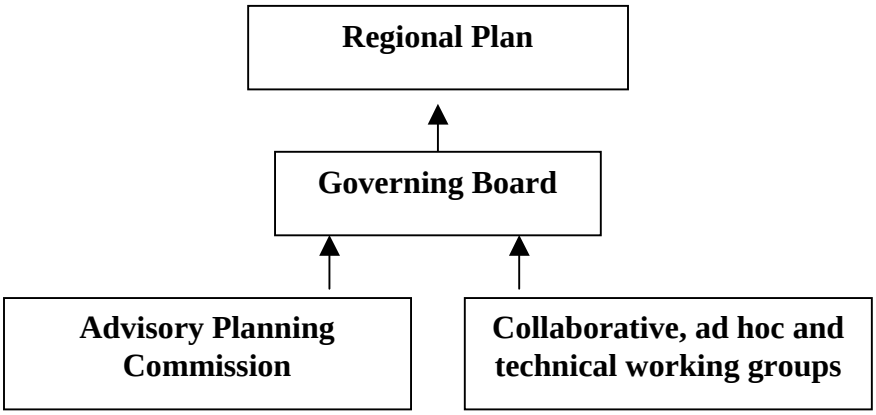
Abstract This case study examines the Tahoe Regional Planning Agency's (TRPA) development and implementation of a regional land use plan for controlling water quality decline and the collaborative efforts that occurred as a result of these efforts. We begin by examining the environmental problems in the Lake Tahoe Basin and the governance framework developed to address these problems. The history of watershed management efforts are then analyzed with special attention paid to recent collaborative efforts and the mechanisms used to manage development such as the Environmental Threshold Carry Capacities (ETCC), Individual Parcel Evaluation System (IPES) and the system of Transferable Development Rights (TDR). The watershed management efforts were then evaluated using criteria provided by the National Academy of Public Administration. We concluded that efforts in Lake Tahoe satisfied many of the Academy's criteria. Moreover, while planning efforts in the 70's and 80's typically met with fierce opposition and conflict, recent efforts have been much more cooperative in nature. We attribute these developments in part to the maturation of the governance framework and the dense networks of interaction and communication between the various agencies and interest groups that developed during the 1990s as a result of efforts to address the watershed's environmental problems.

Introduction

This case study examines the Tahoe Regional Planning Agency's (TRPA's) efforts to develop and implement a complex regulatory framework for the Lake Tahoe Basin. The Lake Tahoe basin includes portions of Washoe and Douglas Counties, a small portion of Carson City in Nevada, the incorporated area of the City of South Lake Tahoe, and El Dorado and Placer Counties in California. The exceptional water clarity is recognized both nationally and internationally as being ecologically important. Therefore, the management decisions in the watershed are often of interest to stakeholders outside the basin. Due to the deterioration of water quality, the TRPA was created in 1969 via a bi-state compact between California, Nevada, and the US Congress.[1] Interstate compacts are legally binding agreements between two or more states and the US Congress created to address problems that transcend state lines.[2] The process of interstate compact creation is often lengthy since all parties must agree to a common compact and they can only be amended if all parties to the original compact approve the amendments.

The Tahoe Regional Planning Agency (TRPA) was created through a bi-state compact in 1969 because the resources in the basin began deteriorating rapidly in the 1960s. The TRPA is a regional planning agency with broad regulatory authority to preserve environmental and recreational attributes in the basin. It has the authority to adopt regional environmental standards, issue permits, take enforcement actions, and ensures that federal and state and air quality standards are met. The TRPA's staff work directly for a governing board composed of seven delegates from California and seven from Nevada. There is one nonvoting federal presidential appointee to the Governing Board. The 1980 amendments to the Tahoe Regional Planning Compact[3] resulted in a number of significant changes to the TRPA. The amended compact re-emphasized the threatened resources of the lake and established a

Figure 1: The TRPA's Planning Process



unique system of environmental threshold carrying capacities.[4] It also mandated that the TRPA develop and enforce a new regional plan with implementing ordinances that would achieve a series of environmental thresholds (i.e., environmental goals). These thresholds were adopted by the TRPA in August, 1982.[5] The *Regional Plan*[6] guides decision-making concerning growth and development in the Tahoe Basin and affects a wide range of federal, state, and local agencies. The *Regional Plan* is comprised of the following:

- A comprehensive land use plan outlining the criteria and standards for the uses of land, water, air, space, and other natural resources within the region
- Transportation plan for the integrated development of a regional system of transportation
- Recreation plan for the development, utilization, and management of the recreational resources of the region
- Public services and facilities plan for the location, scale and provision of public services and facilities [7]

The *Regional Plan* is periodically reviewed and updated as necessary to achieve the environmental threshold carrying capacities and to incorporate new data and scientific information. Progress towards the environmental thresholds is also evaluated every five years with the most recent evaluation report, *Environmental Threshold Carrying Capacities and the Regional Plan Package for the Lake Tahoe Region*, issued in 1996.

The development of the *Regional Plan* and the early history of the TRPA was contentious and filled with conflict. The development of the plan involved numerous scoping meetings with other local and regional agencies and public participation [Figure 1]. This input was incorporated with feedback from the Advisory Planning Commission (APC), the Steering Committee, and the Governing Board. Pursuant to the requirements of the National Environmental Policy Act (NEPA), *An Environmental Impact Statement For Adoption of a Regional Plan for the Lake Tahoe Basin* was released in 1983. The environmental impact statement (EIS) presented a series of alternative formulations for the *Regional Plan* ranging from

maximum regulation of all developmental activities in the basin to massive redevelopment. The TRPA's first *Regional Plan* was adopted by its Governing Board in 1984 and it met with tremendous resistance including lawsuits by both environmental and development interests. A federal court injunction was also issued that prevented the TRPA from implementing the 1984 *Regional Plan*. The TRPA then undertook extensive efforts to resolve the conflicts surrounding the *Regional Plan*. This included a consensus building workshop (CBW) that brought together the major stakeholders in the basin in an effort to reach agreement on the critical issues surrounding the conflict. This consensus building process was effective in resolving many of the conflicts. The product of the tradeoffs and agreements reached during these discussions include many of the unique features contained in the current *Regional Plan* (e.g., transferable development rights and individual parcel evaluation system). The TRPA's Governing Board approved the current Regional Plan in 1987 [Figure 1].

Objectives of the Case Study

This case study examines the development of the Tahoe Regional Planning Agency's (TRPA's) *Regional Plan for the Lake Tahoe Basin*[8] and its implementation. The analysis describes the planning process and collaborative efforts to maintain water quality in the Tahoe Basin. We then assessed these activities using evaluative criteria provided by the National Academy of Public Administration (hereafter referred to as the Academy). The criteria are described in more detail in our final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration to Institutional Performance*.

The case study begins with a brief discussion of the methods used to collect and analyze the data that provide the basis for our analysis. It briefly notes the literatures used to frame and guide our inquiry. The next section examines the planning environment where the TRPA is located. This includes a discussion of the Lake Tahoe ecosystem, the nature and extent of the environmental problems affecting the watershed, the changes in these problems over time, and the institutional arrangement responsible for managing Lake Tahoe. The next section discusses the historical development of the TRPA as an agency and the evolution of the planning process since its inception. The final section assesses the development and implementation of watershed governance efforts using the evaluative criteria provided by the Academy.

Methods

This case study was developed using systematic and generally accepted methods of qualitative research. Qualitative approaches[9] are often recommended when trying to understand how a process occurs or to examine complex relationships between decision-making processes, physical settings, community characteristics, stakeholders' interests, existing institutional arrangements, availability of resources, and the capacities of state, regional, and local actors.[10] It is best suited for complex situations where the process is in continuous evolution and quantitative variables are not available or are inappropriate to measure the phenomena. As a result, qualitative approaches tend to be descriptive and focus on explaining why a process is, or is not, effective and how different contextual factors influenced the success of that process.

Three distinct streams of research provide the general theoretical foundation for guiding our inquiry, and identifying potential cause and effect relationships, and making recommendations to the Academy. The first is the environmental policy research focused on place-based or community-based management, which includes the growing research on ecosystem-based management and watershed management as well as the literature on integrated environmental management, integrated coastal zone management, and adaptive management. Moreover, there is a great deal of environmental policy research in diverse areas such as collaborative decision making, stakeholder involvement and public participation, and the role of science in the policy process that will also inform this assessment. Unfortunately, this literature often ignores or downplays the administrative and institutional challenges associated with developing and implementing watershed management plans.[11] Accordingly, the second stream of research is the growing public administration literature on intergovernmental management and networks, which is broadly defined here to include the literature on policy formation and implementation, interorganizational theory, policy networks, social networks, and federalism. The final line of research is the institutional analysis literature. In particular, the study draws on the Institutional Analysis and Development (IAD) framework developed by Elinor Ostrom and her colleagues.[12] Of related interest is research on assessing implementation "success" and measuring institutional or network performance. A more detailed review of this literature can be found in Appendix A of the final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration to Institutional Performance*.

Data for the study was collected from two primary sources. Examining different data sources was important because it allowed the investigators to use a strategy of triangulation when formulating answers to the research questions.[13] The first data source involved collecting a wide range of documents and archival records about the programs and planning efforts discussed in the case study. A bibliography of these materials can be found in Appendix C of the final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration to Institutional Performance*. Field interviews with 41 individuals representing 27 organizations were the second source of data. A snowball sampling technique was used to identify the individuals. The interviews were confidential and recorded on tape to ensure the accuracy of the data collected. Follow-up telephone interviews were also conducted with individuals who could not be reached in the field. They were also used to clarify responses from earlier interviews. Some direct observation of interorganizational events and meetings during the site visit was also used as a source of data for the analysis.

Systematic qualitative techniques such as coding were then used to examine various documents, field notes, and interview responses. Codes were derived both inductively and deductively from the data and generated based on a start list derived from previous research and the evaluative criteria provided by the Academy. As coding continued, patterns emerged and codes were then used to dimensionalize concepts. When coding data, quotes and short vignettes were identified for inclusion in the case studies and the final evaluation report to provide some context to the observations. As data analysis continued, tables, figures, matrices, and network displays were used to identify trends and make observations. Some of these displays have been modified for inclusion in the case study. A detailed timeline was also prepared to assist in the analysis and to evaluate potential causal linkages [Appendix A of this report]. Some of these are modified and included in the case study. The case study report was then pre-structured in order

to ensure comparability with the other case in this study. When completed, the case study was sent to several of the principal informants for factual verification. A more detailed discussion of these methods and procedures for data collection and analysis can be found in Appendix B of the final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration to Institutional Performance*.

The Planning Environment of the Lake Tahoe Basin

In order to understand the development and implementation of the Tahoe Regional Planning Agency (TRPA) it is important to have some familiarity with the planning environment. The following sections discuss the Lake Tahoe ecosystem, the nature and extent of the environmental problems in the watershed, and the institutional framework of programs that manage these resources.

The Lake Tahoe Ecosystem

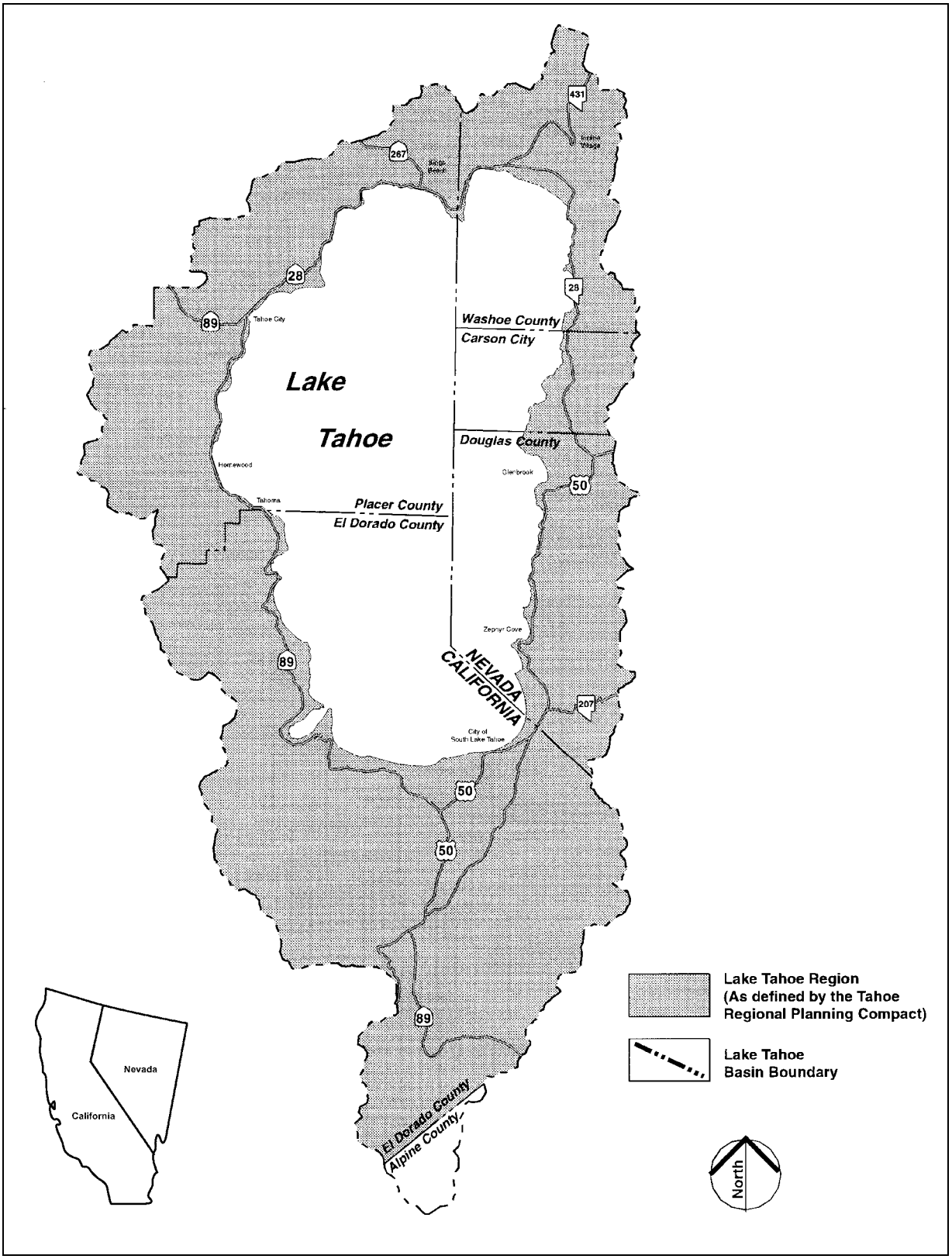
The Lake Tahoe Basin straddles the California/Nevada border with approximately two-thirds of its land area in California and one-third in Nevada [Figure 2]. The location of the basin, 150 miles from San Francisco Bay and 90 miles from Sacramento, places its recreational opportunities within a short drive of more than 8 million people.[14]

Lake Tahoe formed less than 3 million years ago when extensive faulting caused a landmass to drop below the land surface forming a trough.[15] The lake was created when a volcanic mudflow blocked the outflow of water from the Truckee River. During the past 3 million years, uplift, volcanic activity, and glaciation have continued to alter the region.[16] Within the last 10,000 years, silts and sands left behind from glaciers have eroded, resulting in sediment loading into Lake Tahoe. This sediment has deposited and formed deltas, the largest of which is the flat area on the South end of the lake, presently occupied by the city of South Lake Tahoe.[17]

The basin occupies a valley situated between the Sierra Nevada mountains to the west and the Carson Range to the east with elevations from 6,200 to 10,800 feet.[18] Sculpted peaks surround the lake in every direction providing a striking visual boundary of the watershed. The watershed comprises 506 square miles of which 192 square miles (38 percent) is occupied by the surface of the Lake.[19] Most land in the basin is mountainous with slopes greater than 20 percent, which limits developable land to relatively flat areas along the shores of the lake.[20]

Lake Tahoe is renowned for its clarity and crystalline blue waters. It is 22 miles long and 12 miles wide, which makes it the largest alpine lake in North America. The bottom of the lake plunges to a depth of 1,636 feet, the third deepest lake in the United States. [21] The clarity of the water currently exceeds 70 feet and is matched only by Russia's Lake Baikal and Oregon's Crater and Waldo Lakes. Lake Tahoe's water volume is equally impressive. It contains 40 trillion gallons of water, an amount that would submerge the surface area of the entire State of California with 14 inches of water.[22] The enormous capacity of the lake combined with the relative small outflow creates a 700 year hydrologic residence time.[23] This refers to the amount of time the average drop of water resides in the lake. The long residence time contributes to the

Figure 2: The Lake Tahoe Watershed, California and Nevada



Source: TRPA. *Regional Plan for the Lake Tahoe Basin: Goals and Policies.* (Lake Tahoe, CA: TRPA. April 1999).

overall ecological response to nutrient loading. The unique quality of the water clarity contributed to its dedication as an Outstanding National Resource Water (ONRW) under the Clean Water Act.

The Lake Tahoe Basin is characterized by long, cool winters (average 35° F) and short, warm summers (average 68° F). Most of the precipitation occurs in the winter when warm marine air from the North Pacific Ocean sheds large amounts of snow, with the greatest amounts occurring at high western elevations.[24] In the spring, melting snow replenishes the flow of the 63 streams contributing water to Lake Tahoe. The thaw brings not only water but also significant quantities of sediment into the lake. On occasion, thunderstorms occur during the summer months, but the precipitation is relatively insignificant.[25]

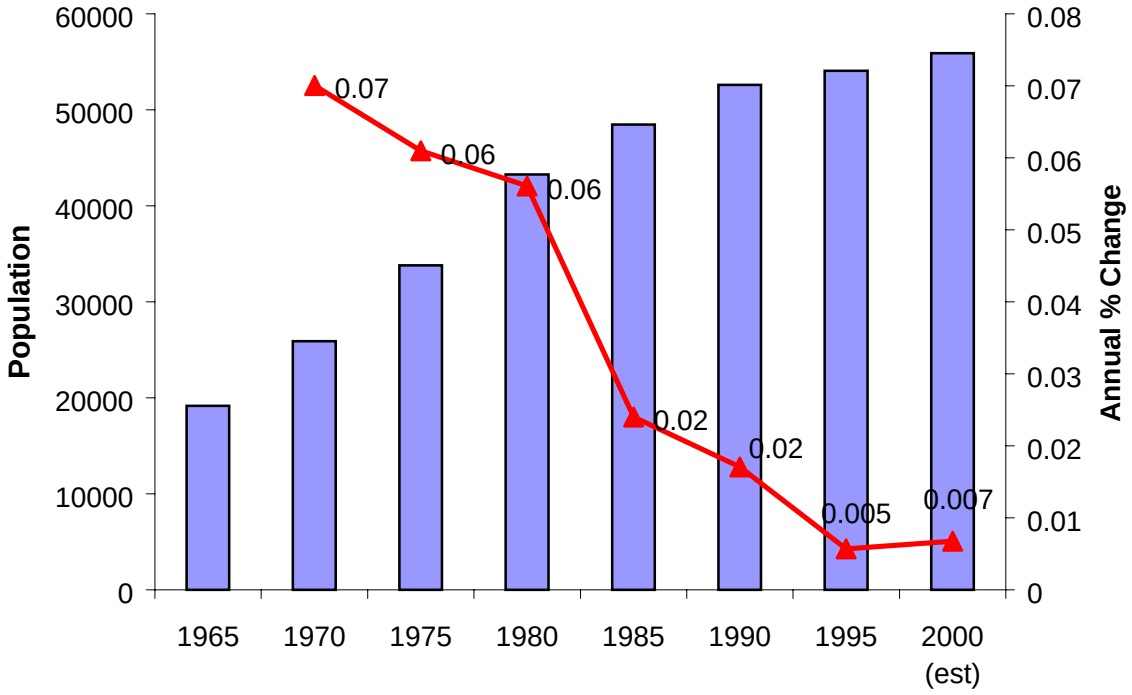
Microclimates are distributed across the basin. For example, the western portion of the basin receives more than 80 inches/year of precipitation whereas the eastern portion receives only 30 inches/year.[26] This is due to the rain shadow effect of the Sierra Mountain Range. Differences in local climate are due to varying altitudes (6,200-10,800 feet) within the basin and the prevalence of storm systems originating in the Pacific Ocean.[27] The microclimates create a diverse array of natural habitats in the Basin. Meadows, wetlands and riparian areas, coniferous and deciduous forests, scrublands, and other communities are prevalent.[28] The density, composition, and age of tree species changed dramatically over time. Historically, variably aged Jeffrey Pine, White Pine, and Sugar Pine co-dominated. During the mid-1800s, the Basin was extensively logged to provide timber for the Nevada silver mines of the Comstock Lode. The logging led to the gradual replacement of the original forests with even-aged lodgepole pine, red fir, white fir, incense cedar and Jeffrey Pine. Only at high, difficult to reach elevations does the historical forest composition remain. The similar ages of most trees in the basin coupled with high mortality from Bark Beetle infestations increases the potential of forest fire in the basin.[29]

Once stripped of trees, the land use pattern shifted toward agriculture and ranching, large private estates, and commercial resorts, with a large portion of the land remaining relatively undeveloped and under federal ownership.[30] Presently, over 80 percent of the land area is publicly owned and used for recreational or conservation purposes. Agriculture and ranching have slowly been phased out of the basin and many of the early large private estates were subdivided.

Due to inaccessibility, Lake Tahoe was primarily an exclusive summer vacation destination for the wealthy until the early 1900s. In the 1950's, Lake Tahoe had a residential population of only 2,850 with a yearly visitation of around 30,000, primarily from San Francisco and California's Central Valley.[31] However, the population of the Lake Tahoe Basin increased more than 500 percent since World War II [Figure 3].[32] Rapid development during the late 1950s and the 1960s was fueled by four principle factors:

- Casino development in the south of the lake near the Stateline area
- Improvements in accessibility to the basin via new interstate highways and year-round snow removal

Figure 3: Population Dynamics in the Lake Tahoe Basin from 1965 – 2000



Source: Mark Nechodom, Rowan Rowntree, Nick Dennis, Jamie Goldstein, Hank Robison, and Mary Small, "Chapter 6: Social, Economic, and Institutional Assessment" to be published in *Lake Tahoe Watershed Assessment*. (South Lake Tahoe, California: LTBMU, Unpublished June 1999 Draft).

- Development of ski areas and other winter sports facilities development triggered by the 1960 Winter Olympics held at Squaw Valley
- Stable business area and residential development[33]

In the past 20 years, growth has slowed in the basin, at times even coming to a complete halt due to building moratoriums. However, the Post-War boom triggered an awareness amongst basin residents of the drawbacks of rampant uncontrolled growth as the basin evolved into a year-round tourist destination.

The summer population of 1995 was estimated to be 102,000, of which approximately 80,000 reside on the California side of the basin. Approximately 60,000 permanent residents call the Basin home.[34] Ethnic diversity has varied dramatically over time.[35] Today, Whites comprise 90 percent of the population with Hispanics 14 percent [Figure 4].[36] The City of South Lake Tahoe remains the most ethnically diverse area with a 35 percent minority population.[37] There are approximately 42,800 year-round homes and 9,600 vacation homes surrounding the lake.

Figure 4: County Ethnic and Racial Distributions (in percent)

Ethnicity/Race	El Dorado	Placer	Washoe	Douglas	Basin
White	86.0	89.7	94.4	88.3	8 9.6
Black	0.9	0.4	0.3	0.6	0.6
American Indian	1.2	0.8	0.4	1.2	0.9
Asian	6.5	0.7	1.4	5.1	3.4
Other	5.4	8.4	3.5	1.8	5.5
Hispanic*	18.6	16.8	9.0	11.8	14.1

* The US Census considers "Hispanic" an ethnic category and not a race. Hispanics are distributed throughout the five races above.

Source: Nechedom, Mark et al. "Chapter 6: Social, Economic, and Institutional Assessment" in *Lake Tahoe Watershed Assessment*. (USFS, Unpublished Draft, 1999), 14.

The City of South Lake Tahoe is the only incorporated city in the basin but there are almost 20 towns and small communities along the shoreline. About two-thirds (67.6 percent) of the basin's population is concentrated on the south shore of the lake, in the City of South Lake Tahoe, El Dorado and Douglas Counties.[38] South Lake Tahoe is the largest community in the basin (pop. 23,319) followed by the Incline Village/Crystal Bay/Brockway (pop. 7,856) cluster of communities on the Nevada side. Incline Village in Washoe County consist of exclusive private homes and condominiums overlooking the Lake. Stateline (pop. 3,153), situated across the Nevada border from South Lake Tahoe, is comprised primarily of a core group of casinos and hotels, with scattered private residences located away from the lakeshore. The communities of Tahoe City (pop. 2,587) and North Tahoe (pop. 2,630) are popular tourist centers located on the north shore of the California side.[39] The Carson City portion of the watershed is essentially unpopulated and covered completely by Forest Service and Lake Tahoe Nevada State Park lands.

Seven highways provide easy access to and within the basin: four in California and three in Nevada [Figure 2].[40] Within the basin, transportation is limited by topography, with the steep mountains surrounding the lake forcing a single road network around the lake's perimeter.[41] The dominant mode of transportation is the automobile, but increased frequency of traffic congestion and limited parking in and around urban centers has slowly increased ridership on busses. Area agencies have begun upgrading public transportation facilities and are exploring the possibility of alternative modes of transportation, such as water taxis and extensive bike trails in an effort to decrease vehicle miles traveled (VMTs) in the basin.[42] Alternative forms of transportation, including the Coordinated Transit System (CTS) which will direct both public and private bus services, is scheduled for implementation in Fall 2000. Discussions pertaining to the use of waterborne lake transportation are still in their early stages. [43] The geographic constraints and distribution of population centers and tourist resources around the Lake make transportation a perennial policy issue. It is also an issue around which coalitions of civic actors, business interests, and government agencies have formed (see section of this report on the Tahoe Transportation and Water Quality Coalition).

Figure 5: Employment in the Lake Tahoe Basin

Industry	Jobs	Percent of Total Basin Jobs	Total Earnings (x1000)	Percent of Total Earnings
Motels/ eating and drinking	18,640	38.3	424,952	36.1
Amusement and recreation	6,598	13.6	87,688	7.5
Trade	4,519	9.3	98,461	8.4
Finance, insurance, and real estate	4,124	8.5	83,475	7.1
Construction	3,276	6.7	130,409	11.1
Medical/education/social services	2,864	5.9	80,257	6.8
Local Government	2,431	5.0	73,273	6.2
Business Services	2,264	4.7	80,353	6.8
Consumer Services	1,480	3.0	40,906	3.5
Transportation	739	1.5	19,949	1.7
Misc. Manufacturing	384	0.8	10,345	0.9
Agricultural	360	0.7	3,631	0.3
Publishing and communications	352	0.7	11,973	1.0
Federal Government	314	0.6	9,916	0.8
Public utilities	233	0.5	16,779	1.4
State Government	103	0.2	4,190	0.4

Source: Nechedom, Mark et al. "Chapter 6: Social, Economic, and Institutional Assessment" in *Lake Tahoe Watershed Assessment*. (USFS, Unpublished Draft, 1999), 8-9.

Tourism has been the life-blood of the Lake Tahoe Basin economy for over a century. It is now a $1 billion dollar industry employing more than 20,000 people.[44] There is a transient visitor population exceeding 200,000 on peak holidays. Annual visitor days exceed 23 million.[45] Visitors frequent the 11,500 tourist accommodation units and 2,500 campsites situated around the lake.[46] The three industries with greatest earnings are motels/eating and drinking services (36.1 percent), construction (11.1 percent), and trade (8.4 percent) [Figure 5].

Lake Tahoe's Environmental Problems

The earliest tourists to the region recognized the uniqueness of the lake's clarity. In 1861, Samuel Clemens wrote, "So singularly clear was the water, that where it was only twenty or thirty feet deep the bottom was so perfectly distinct that the boat seemed floating in the air! Yes, where it was even eighty feet deep. Every little pebble was distinct, every speckled trout, every hand's breadth of sand…Down through the transparency of these great depths, the water was not merely transparent, but dazzlingly, brilliantly so." [47]

The exceptional clarity of Lake Tahoe is due to low algal growth. Like all plants, algae need sunlight and nutrients, primarily nitrogen, phosphorus, and iron, to live. Under natural conditions, the lake receives only small concentrations of nutrients due to natural filtering mechanisms such as wetlands, shoreline habitat areas and native vegetation all of which slow down the transportation of sediment and absorb a significant proportion of nutrients before they reach the Lake. If Lake Tahoe were left undisturbed, algal growth would occur so slowly that changes would be undetectable over a lifetime.

Figure 6: Sources of Water Quality Problems in Lake Tahoe

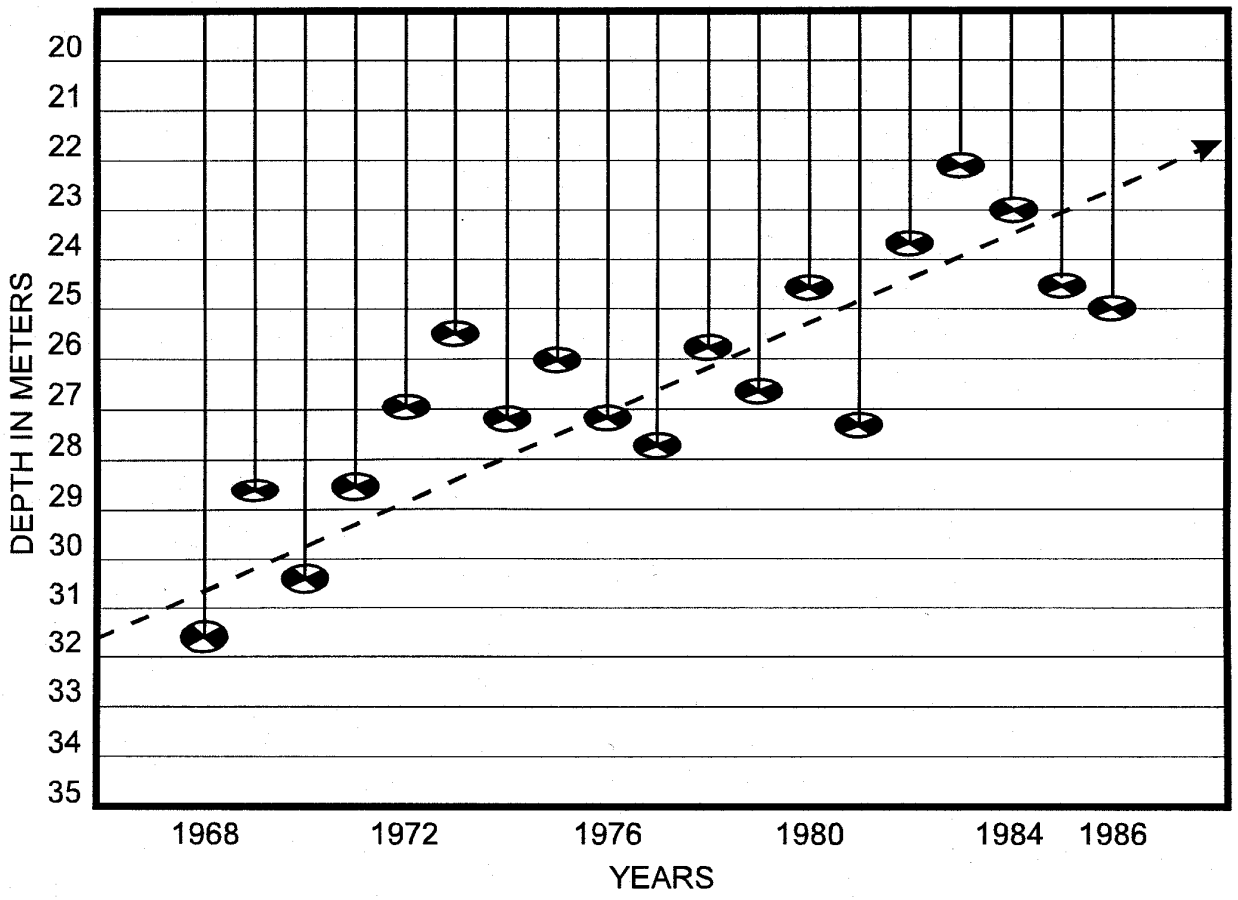
Cause	Effect
Roads (construction and maintenance)	▪ Land disturbance increases soil susceptibility to erosion ▪ Sand applied to roads during winter maintenance contributes to sediment load into the lake, including loading of small colloidal particles which suspend in the water column ▪ Flat, smooth surfaces allow runoff to travel at higher velocities which results in increased sediment loading and increased flooding
Stream Environment Zone (SEZ) Destruction and Disturbance	▪ Increased nutrient and sediment loading to the lake due to removal of a very effective filtering mechanism ▪ Source of nutrients and sediment when disturbed ▪ Increased flooding
Vegetation Removal	▪ Increased nutrient loading to the lake from sediments and precipitation, of which natural vegetation removes significant quantities of both ▪ Increased velocities of runoff
Fertilizer Use	▪ Nutrient loading to surface water and groundwater
Leaking Sewer Systems	▪ Nutrient loading to ground and surface water
Industries Located West of the Basin	▪ Atmospheric deposition of nutrients into the watershed and directly into the lake
Impervious Surface/ Urbanization	▪ Increases runoff ; increases yields of sediments and dissolved nutrients

Sources: TRPA, *Summary and Draft 1996 Evaluation Report: Environmental Threshold Carrying Capacities and the Regional Plan Package for the Lake Tahoe Region* (Zephyr Cove, NV: TRPA, 1996), 1 - 10.

California Regional Water Quality Control Board—Lahontan Region (SWQCB), *Water Quality Control Plan for the Lahontan Region* (Sacramento, California: SWQCB, 1995), 5 - 8.

The combination of steep slopes, erodible soils, and a short growing season make the Lake Tahoe Basin extremely sensitive to human disturbance. Many factors contribute to increased sedimentation and nutrient loading including artificially high lake levels, erosion from land development activities and stormwater runoff, historic land development activities that resulted in the loss of wetland habitat, logging, atmospheric deposition,[48] controlled burns, and the existence of erosion prone dirt logging reads weaving across the mountains [Figure 6].[49] Further exacerbating the affects of these disturbances is the 700-year residence time for water within the Lake. There is little flushing action to counter continued nutrient loading and sedimentation. Instead, the lake acts as a huge sink, with nitrogen and phosphorus remaining in the lake for centuries. Accordingly, the addition of approximately 67,000 tons of sediment to the Lake each year is estimated to represent a 1,900 percent increase over natural background sedimentation levels.[50] The increased sedimentation and nutrient loadings increased

Figure 7: Decline in Lake Clarity for Lake Tahoe from 1968-1998



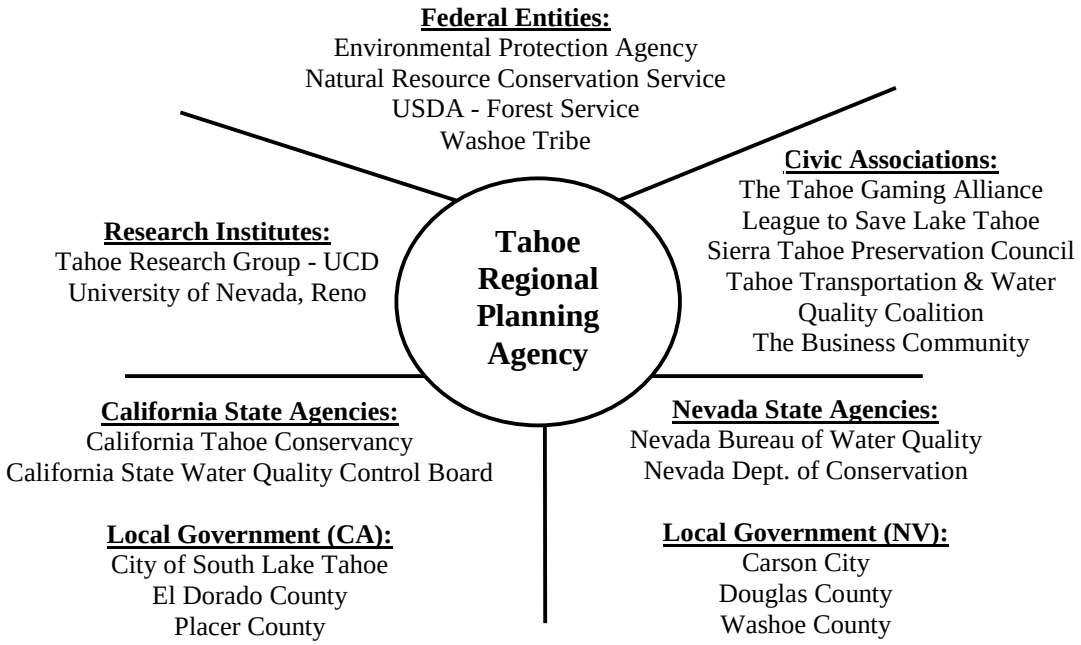
Source: California Regional Water Quality Control Board—Lahontan Region (SWQCB), *Water Quality Control Plan for the Lahontan Region* (Sacramento, California: SWQCB, 1995), 5-8.

phytoplankton productivity which in turn decreased water clarity.[51] In 1968, when consistent measurements were first taken, transparency was measured at 100 feet. It is currently around 70 feet [Figure 7]. Research suggests that this trend needs to be reversed within the next 10 years if the current 70 feet of lake clarity is to be maintained.[52]

Institutional Framework Managing Lake Tahoe

The institutional network of Lake Tahoe is a complex web of plans, polices, regulations, intergovernmental relationships, agency and collaborative programs and interest group coalitions [Figure 8]. This complexity arises due to the multiple political jurisdictions, large number of private parcels within the watershed, and multiple sources of environmental problems. The overlapping institutions also serve to protect different interests and constituencies and allow more opportunities for the public to be heard and influence decision-making processes. This

Figure 8: Key Stakeholders and Government Agencies



complexity is an important part of federal system of government. Moreover, the overlapping jurisdiction and scope of activities creates numerous opportunities for these actors to collaborate and work together to address common problems and to more effectively carry out their respective missions.[53]

Governance of the Lake Tahoe Basin has existed since earliest beginnings of natural resource management in the United States. For example, the first state Forestry Board was created to address deforestation in the Tahoe Basin during the Comstock silver rush.[54] A plethora of local, state, and federal government and non-government organizations currently address environmental management in the Lake Tahoe Basin [Figure 8]. In an effort to simplify the discussion, only the key actors are discussed in this report. These organizations include: Tahoe Regional Planning Agency (TRPA); United States Forest Service - Lake Tahoe Basin Management Unit (USFS-LTBMU); California State Water Resources Control Board and the Lahontan Regional Board; California Tahoe Conservancy (CTC); Local Governments; The Business Community; League to Save Lake Tahoe (the League); The Tahoe-Sierra Preservation Council; The Tahoe Gaming Alliance; Tahoe Transportation and Water Quality Coalition; and the Tahoe Research Group (TRG). The role of other actors such as the United States Environmental Protection Agency (EPA), Natural Resource Conservation Service (NRCS), Washoe Tribe and others will be discussed when appropriate. The following sections provide a brief overview of these actors and their programs.

Figure 9: TRPA's Governance Structure

California Local Government
- City of South Lake Tahoe Council Member
- El Dorado County Supervisor
- Placer County Supervisors' Appointee

California State Representatives
- California Assembly Speaker Appointee
- California Senate Rules Committee Appointee
- Governor of California Appointee
- Governor of California Appointee

Nevada Local Government
- Carson City Supervisor
- Douglas County Commissioner
- Washoe County Commissioner

Nevada State Representatives
- Designee for The Director of Nevada Dept. of Conservation and Natural Resource
- Governor of Nevada Appointee
- Nevada At-Large Member
- Nevada Secretary of State

Presidential Appointee, Non-voting member

Tahoe Regional Planning Agency (TRPA)

The Tahoe Regional Planning Agency (TRPA) is a bi-state planning and regulatory agency in the Lake Tahoe Basin. It was created in 1969 by California, Nevada and Congress through the Tahoe Regional Planning Compact[55] making it the first bi-state regional environmental planning agency in the US.[56] The TRPA was established to oversee land use planning and to manage environmental impacts. The agency maintains environmental standards, issues permits, has enforcement powers, and is charged with attaining state and federal water and air quality standards.

The TRPA's staff ranges from 50 to 60 people and the agency is organized according to its main functions: 1) Project Review, 2) Long Range Planning, 3) Environmental Compliance, 4) Environmental Improvement Program Facilitation, and 5) Environmental Education. The staff is directed by a 15 member Governing Board (the Board) that consists of appointed officials that represent various federal, state, and local governments. The Board sets policy, oversees administration, approves amendments to the *Regional Plan* and approves all major projects and permits [Figure 9]. The Board is advised by a 19 member Advisory Planning Commission (APC) comprised of highly educated professionals with scientific or technical backgrounds. The members of the APC range from professional staff in planning and natural resource management agencies to lay members that represent the public.[57] Additional input comes from the many working groups organized around the diverse resource management issues in the basin.[58]

The TRPA faced a great deal of opposition during its formative years and was frequently criticized. The compact and its regulatory programs were substantially revised in the 1980s to address these criticisms and provide more specific direction to the agency. This included a mandate to preserve environmental and recreational attributes of the region by adopting a system of Environmental Threshold Carrying Capacities (ETCC). The TRPA adopted the thresholds in 1982. The thresholds consist of a combination of environmental indicators and policy goals. Each threshold was established to identify a particular event or condition that created an

Figure 10: Threshold Categories

Air Quality	**Water Quality/Soil Conservation**
CO	Turbidity
O_3	Clarity
Particulates	Phytoplankton
Visibility	Tributary Water Quality
US 50 Traffic Volume	Runoff Water Quality
Wood Smoke	Groundwater
Vehicle Miles Traveled	Other Lakes
Atmospheric Nutrient Loading	Impervious Coverage
	Naturally Functioning SEZ
Vegetation	**Scenic resources**
Relative Abundance and Pattern	Travel route ratings
Uncommon Plant Communities	Scenic quality ratings
Sensitive vegetation	Public recreation area scenic quality rating
	Community design
Fisheries	**Wildlife**
Lake Habitat	Special interest species
Stream Habitat	Habitats of special significance
In-stream Habitat	
Noise	**Recreation**
Single event (aircraft)	High quality recreation experience
Single event (other)	Capacity available to the General Public
Community noise	

unacceptable change or degradation of a resource. Resource areas include water quality, air quality, soils, wildlife, fisheries, vegetation, scenic quality, and recreation [Figure 10]. The ETCCs are intended to guide all aspects of the TRPA's decision making and ensure that the *Regional Plan's* goals and policies are achieved. The TRPA set a lofty goal of attaining the thresholds by the year 2007 and is required to review the progress towards achieving these thresholds every five years.[59]

USFS - Lake Tahoe Basin Management Unit

The United States Department of Agriculture (USDA) Forest Service (USFS) Lake Tahoe Basin Management Unit (LTBMU) manages 77 percent of the land in the watershed.[60] The USFS presence in the basin began in 1899 with the creation of the Lake Tahoe Forest Reserve, which set aside 37,555 acres of the glaciated southwestern section in the area now known as Desolation Wilderness. The 1910 creation of the Eldorado National Forest increased the land area controlled by the USFS. Over time, National Forest land has gradually increased through land exchange and purchases and now comprises 132,772 acres.[61] The ubiquitous presence of the USFS casts a long shadow on the debate and direction of resource management in the basin. The potential for federal management of the entire basin has not been an idle threat.

At the height of the TRPA's criticism in the 1970s, the main central valley newspaper, *The Sacramento Bee*, suggested that perhaps the time had come to let the federal government take control of the entire basin.[62] There were also five attempts to make Lake Tahoe a National Park and two attempts to give it status as a National Lakeshore or Scenic Area.[63] The first occurred in 1900 by a Nevada Senator and failed under public outcry against proposed compensation to timber barons who had profited from denuding the timber from surrounding mountains. Two attempts in 1913 and 1918 were brought down by local landowners. Bills introduced in 1931 and 1935 were both opposed by coalitions of local development interests.[64]

Unlike many National Forest plans that emphasize resource extraction, the plan for the LTBMU emphasizes water quality protection. In addition to the LTBMU's 1988 Forest Plan, the USFS also implements the statewide Section 208 Plan for forestlands. As a result, the USFS has several ongoing watershed programs, activities, and research activities in the LTBMU. Included among these is the Wetland Restoration Program that dedicates a yearly investment of $500,000 toward correcting erosion problems on USFS lands. The focus of this program is wild land restoration and includes measures such as re-vegetation, meadow and stream stabilization, road removal and fish habitat improvements.[65] The USFS also administers an Erosion Control Grants Program that provides financial assistance to local governments for water quality improvements in the developed portions of the watershed. For the years 1984 to 1989, $9.6 million in USFS funds were spent on this program with local governments providing an additional $24 million in matching funds.[66] The USFS is also involved in the acquisition of ecologically sensitive private parcels through the Santini-Burton Act.[67] This program prevents the development of sensitive private lands by purchasing them from private landowners at market value. The Santini-Burton Act has provided $100 million for land acquisition.[68]

The USFS was a leading actor in the development of the threshold concept for basin management. It is currently completing a comprehensive *Watershed Assessment*, a study directed at evaluating the state of natural resources, socio-economic condition, and other issues in the Lake Tahoe Basin.[69] In addition, representatives from the USFS participate in the numerous committees and coalitions within the basin. As is the case with most federal agencies, USFS activities and permits in the LTBMU are subject to environmental review under the National Environmental Protection Act (NEPA). The TRPA and Lahontan Regional Board have final permitting and enforcement authority over all activities on National Forest Service lands.

California State Water Resources Control Board and the Lahontan Regional Board (SWRCB)

The California State Water Resources Control Board (SWRCB) allocates rights to use surface water and protects surface, ground, and coastal waters throughout the state of California. It implements federal and state laws through the promulgation of statewide policies and regulations. California is divided into nine hydrological regions that form the boundaries of the regional water quality control boards. The Lake Tahoe watershed falls under the jurisdiction of the Lahontan Regional Water Quality Control Board (the Regional Board). The Lahontan Region covers much of Eastern California and stretches from the Oregon border to the Northern Mojave Desert. The Regional Board implements the SWRCB's regulations and develops specific standards and policies for the region. [70]

The Regional Board implements the provisions of the federal Clean Water Act, the California Water Code (including the Porter-Cologne Act)[71] and a plethora of laws related to the control of solid, toxic, and hazardous waste in the basin. It has authority to set and revise water quality standards and discharge prohibitions. In addition, it may issue permits including federal National Pollutant Discharge Elimination System (NPDES) permits, Section 401 water quality certifications, and state waste discharge requirements and waivers. Planning and permitting carried out by the Regional Board must comply with the California Environmental Quality Act (CEQA). The Regional Board also implements a Section 208 plan pursuant to the Clean Water Act for the Lake Tahoe Basin.

The TRPA and the Regional Board work together on many fronts and have complementary missions when it comes to water quality issues. In the past, the overlapping regulatory authority led to disagreement. The two agencies have now signed a MOU that delegates review of water quality issues for residential development solely to the TRPA. Permits for commercial development of less than 2 acres are also reviewed by the TRPA while commercial development greater than 2 acres is reviewed by both agencies. Under state law, the Regional Board's authority in the basin includes more comprehensive enforcement authority than the TRPA has pursuant to its Compact. The Regional Board has the authority to impose "Administrative Civil Liability" fines to polluters on the lake while the TRPA can only impose fines through the judicial system. Accordingly, the Regional Board often assists the TRPA in its enforcement efforts.

California Tahoe Conservancy (CTC)

The California Tahoe Conservancy (CTC) is an independent state agency within the Resources Agency of the State of California that was created in 1984.[72] The CTC develops and implements programs focused on site improvement and land acquisition designed to improve basin water quality, provide public access and improve wildlife habitat. The CTC is focuses on:

- Preserving the scenic beauty and recreational opportunities of the region
- Providing public access
- Preserving wildlife habitat areas
- Managing and restoring lands to protect the natural environment
- Purchasing environmentally sensitive private parcels
- Providing implementation funds toward environmental restoration projects

Funding for these activities comes from the Santini-Burton Act[73] and the CTC's decisions are made by a seven-person board consisting of representatives from the City of South Lake Tahoe, El Dorado County, Placer County, the State Secretary for Resources, the Director of the State Department of Finance, and two California Legislature appointees. A USFS representative sits on the board as a non-voting member.

To date, the CTC funded more than $175 million on land acquisition and restoration projects. More than 5,450 undeveloped and environmentally sensitive private parcels covering more than 6,000 acres on the California side of the basin have been acquired. The agency's goal is to acquire as many sites as possible on a willing-seller basis.[74] The CTC works closely with

Figure 11: Local Government Characteristics

County / City	Percent of Basin Jobs	1990 Population[1]	Average Household Income	Median Household Income
South Lake Tahoe, CA	n/a [2]	23,319	n/a	25,596 [1]
Douglas, NV	54.6 %	6,115	67,719	46,525
El Dorado, CA	26.4 %	6,333	40,437	33,752
Placer, CA	8.3 %	9,257	46,606	36,604
Washoe, NV	4.6 %	7,567	65,650	49,835

[1] U.S. Census data. Only includes basin portion of the county; [2] Since the Incorporated City of South Lake Tahoe is located entirely within the watershed, this is likely to be near 100 percent.

Modified from: Mark Nechodom, Rowan Rowntree, Nick Dennis, Jamie Goldstein, Hank Robison, and Mary Small, "Chapter 6: Social, Economic, and Institutional Assessment" to be published in *Lake Tahoe Watershed Assessment*. (South Lake Tahoe, California: LTBMU, Unpublished June 1999 Draft).

the USFS, which also implements land acquisition programs, to identify appropriate parcels. The CTC has also been instrumental in facilitating land use planning through mitigation credits and transferable development rights (TDRs) and developed a land bank. The CTC also provides funds to federal, state, and local agencies to conduct restoration and water quality improvement projects and has funded more than 375 projects.[75]

Local Governments

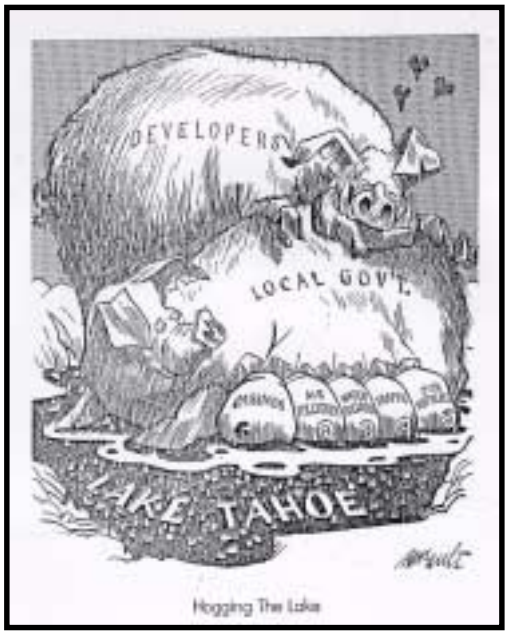
There are six local governments in the basin: Placer County (CA); Douglas County (CA); City of South Lake Tahoe (CA); Washoe County (NV); El Dorado County (NV); and, Carson City (NV). Local government participation is essential in the management of the Lake Tahoe basin. However, the relationship between the TRPA and local government has been a source of conflict.[76] Historically, local governments were opposed to many of the TRPA's planning efforts. However, the relationship between the TRPA and local governments has improved dramatically in recent years. Statements by local officials comparing working with the TRPA as, "like enrolling in the Iraqi army"[77] now tend to be the exception rather than the rule. The strengthening of the TRPA and its maturation over the last 30 years has led to its gradual acceptance by local officials. Many local officials now support the TRPA and utilize it strategically to shift the burden for denying controversial projects.[78]

There are significant differences between local governments in the basin [Figure 11]. California's two counties, Placer and El Dorado mostly contain scattered, smaller lakeshore communities. The exception is South Lake Tahoe. It is the only incorporated city and the largest and most densely populated and urbanized community. Across the state line is Douglas County, Nevada. It includes the community of Stateline with its dense core of casinos, hotels,

and related tourist facilities along with several small, exclusive lakeshore communities. The area under the jurisdiction of Carson City is covered primarily by public lands. Washoe County, Nevada, is on the northeast end of the basin and stretches from Lake Tahoe to the Oregon border. It includes Incline Village, a community composed of exclusive condominiums and some of the region's most expensive homes. In the early 1990s, residents of Incline Village attempted unsuccessfully to secede from Washoe County and form their own administrative district by arguing that their needs were not being meet by county officials. Washoe represents the worst problem of political representation having the highest per capita number of millionaires in the United States inhabiting a small corner of a single county. Other counties have found representation to be a less difficult issue with branch offices for many county services located within the basin.

In addition to typical responsibilities, the local governments in the watershed are also responsible for: 1) Conforming with any MOUs entered into with TRPA, such as review of single-family dwellings;[79] 2) Implementing remedial projects for water quality problems; and, 3) Preparing "community plans" for urban areas in the basin[80] During the early days of the TRPA, local capacity for addressing environmental problems was extremely limited and most local governments lacked a professional planning staff. Today, all of the local governments have professional planners with similar professional and educational backgrounds as their TRPA counterparts. The increased professionalism of local planning departments helped improve the relationship with the TRPA. As one county planner stated, "planners tend to think alike". One manifestation of the changing relationship between local governments and the TRPA is the Memorandums of Understanding (MOUs) between the TRPA and county governments. The MOUs represent the formalization of informal relationships and social norms that developed over the years. Although this often includes activities that agencies may already be doing defacto, the institutionalization of decision-making power is an important step. It creates a formal benchmark against which stronger commitments can be built and helps to institutional the social norms and interpersonal relationships that developed.

This pattern of formal and informal relationships between the TRPA and local government has important implications for the TRPA's efforts to streamline its permitting activities. The City of South Lake Tahoe, while not formally adopting the codes and ordinances of the TRPA as local ordinances, is currently using the TRPA's code as informal guidelines. This emerged out of the close interaction of TRPA planners with those of the City of South Lake Tahoe on recent projects such as the current redevelopment efforts. While attempts to formalize the use of TRPA regulations failed to find support with local government representatives, the close interaction between county officials in South Lake and the TRPA has led to their defacto utilization. This proved to be a more efficient solution



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for both parties.[81] Prior to the delegation of authority through informal arrangements or formal ones such as the MOUs, the TRPA was responsible for permitting many local zoning issues such as sign ordinances and residential housing improvements. This led to the accusation that the TRPA was an overly intrusive and hindered the its ability to address issues of greater regional importance. Accordingly, the delegation of TRPA permitting to local authorities allows the TRPA to focus additional resources on regional problems.

The Business Community

The local Chambers of Commerce are very active and are important actors in the governance of the Lake Tahoe Basin. The economy of Lake Tahoe is dominated by tourism, with 4 out 5 jobs directly or indirectly related to the tourist industry.[82] Visitors from the state of California dominate the tourist population.[83] The mix of tourist activities includes winter skiing, gambling and summer vacationers. This creates a diverse set of tourist facilities and related businesses. Historically, Chambers of Commerce were some of the TRPA's most ardent critics. Today, there is much greater collaboration between business and government agencies such as the TRPA.

The willingness of the business community to collaborate with agencies such as the TRPA was not the result of a sudden growth of environmental concern by business leaders. Instead, the shift occurred when there was greater recognition of how closely their interests were tied to the survival of Lake Tahoe as a unique resource. In the late 1980s, the tourist industry began to notice a decline. The aging infrastructure was beginning to show and affected the region's reputation as a tourist destination. This was perhaps best exemplified in a newspaper editorial that noted that "if you don't like gambling you can drive and look at the ghetto in the mountains."[84] This type of press coverage stimulated activity by the business community. A series of studies in the early 1990's by private consulting firms pointed to some disturbing trends.[85] As one study stated, "Despite certain competitive advantages…economic performance substantially trails that of other western US mountain resorts. Critical destination business is stagnate. Peak period utilization patterns remain a problem."[86] Casino operators were noticing increased competition from the general relaxation on gambling laws across the county.[87] A series of surveys conducted in the area highlighted that few of Tahoe's tourist were repeat visitors and many complained of the lack of a tourist-friendly infrastructure.[88] Tahoe's most significant disadvantages in the national tourist market included:

- Traffic, parking and transport systems
- Signage and tourist communication
- Pedestrian access and movement
- Absence of definable core area

While one report cited that the "TRPA regulatory process presents significant barriers to redevelopment and disincentives to private investment" it also reported that "there is wide spread support for the environmental protection policies administered by the Tahoe Regional Planning Authority". [89] The results presented in a 1995 report stated, "despite current Congressional backlash, environmentalism will play a central role in the future" [90] and that this will likely help to define the unique comparative advantage the lake has to offer. The result of these

developments was that business leaders now recognize that their local economy is tied to a healthy environment and the clarity of the Lake.

The League to Save Lake Tahoe (The League)

The League to Save Lake Tahoe (the League) is the oldest environmental organization dedicated to protecting the Tahoe Basin. The League was created in 1957 in a response to increasing development and it continues to serve as a "watchdog" by monitoring the activities of government agencies charged with managing Lake Tahoe's watershed. The League states that it is dedicated to preserving the environmental balance, scenic beauty, and recreational opportunities of the Lake Tahoe Basin. It is committed to vigorous advocacy, leadership, and support of actions that will cause the Lake Tahoe to meet defined air and water quality standards and other regional environmental thresholds adopted by the TRPA.

The League scrutinizes every major plan or project brought before TRPA. If a proposed plan or project will have unacceptable environmental impacts, they work to have it modified or stopped. The League has been responsible for a number of critical events affecting basin management. It has been involved in numerous lawsuits including the lawsuit against the TRPA 1984 over the Regional Plan, charging that the TRPA failed to meet its legal obligation to maintain water clarity.[91] In 1989, the League helped form the Tahoe Transportation and Water Quality Coalition, a diverse group including representatives of major businesses, which lobbies for stronger basin funding for environmental projects. The League also helped form the Forest Health Consensus Group, which works to develop consensus among major stakeholders on issues affecting Tahoe's forests. In 1995, the League opened the Environmental Information Center in the South Shore to promote environmental education and awareness. [92] The League was also a leader in encouraging the TRPA to take action to stop the pollution and disturbance resulting from jet skis and other two-stroke engines. Some carbureted 2-stroke engines have now been banned from Lake Tahoe by the TRPA since June 1999, with stricter guidelines to be enforced after October 2001.[93]

The Tahoe-Sierra Preservation Council

The Tahoe-Sierra Preservation Council was formed in 1981. This organizations represents the rights of private property owners in the Tahoe Basin.[94] It advocates the protection of private property rights and the interests of property and business owners as well as the preservation of environmental resources. The organization has filed a number of lawsuits challenging the TRPA's regulations. There is currently a lawsuit still pending from 1984 that was filed by 600 private parcel owners affected by TRPA's regulations[95] and they recently filed a second lawsuit challenging the IPES system. Its most famous lawsuit is perhaps *Suitum v. TRPA*. In this case, the organization joined a private landowner that received an IPES score of zero and claimed a constitutional takings by the regional agency.[96] The case was recently settled out of court with $515,000 in compensation.[97]

The Tahoe Gaming Alliance

The Tahoe Gaming Alliance was formed in the early 1980 by six casinos on the South Shore in response to the perceived threat of the TRPA's re-organization resulting from the revised Compact. It advocates the interests of the gaming industry in local forums and represents casino interests in various meetings. However, its role in the basin extends beyond issues that affect only the gaming industry as it was instrumental in helping form the Tahoe Transportation and Water Quality Coalition.

Tahoe Transportation and Water Quality Coalition

The Tahoe Transportation and Water Quality Coalition was initially established in 1989 as the Tahoe Transportation Coalition with a focus on developing a stronger basin transit program. It represents a coalition of basin actors that have traditionally been in fierce opposition: The League to Save Lake Tahoe; The Gaming Alliance; and, The Tahoe-Sierra Preservation Council. Its creation was recounted by several respondents. After a typical meeting with the TRPA, these three groups found themselves again at a common table facing the TRPA although with very different perspectives on its failings. There appears to have been some common understanding of the high cost imposed by resorting to the legal system for dispute resolution. Reportedly, the director of The Gaming Alliance called the other directors together and asked if there was not one single issue that they could all agree upon. They all perceived transportation as a crisis facing the basin community. This was supported by casino and ski interests for economic reasons, The League as an environmental issue, and the Tahoe-Sierra Preservation Council as a quality of life issue for local residents. This loose association of actors formed the Tahoe Transportation Alliance. The local press immediately dubbed it the "unholy alliance"[98]. As one member stated, "We were three points to a triangle and we represented different interests." This group of unlikely allies continues to meet to coordinate some of their activities and to discuss areas where there is common agreement.

The creation of the Coalition marked a general shift in attitude from conflict to collaboration that occurred in the basin. Since its inception, the Coalition has expanded its scope to include water quality issues. This diverse group is now focused on finding creative solutions to transportation and water quality problems that they can agree upon in the Lake Tahoe Basin. Its membership has now grown to include:

- Ski industry organizations
- Chambers of commerce
- Private-property rights groups
- Environmental organizations
- Visitors bureaus
- Casino groups

Individual leadership rather than a formal consensus structure may best explain the creation of The Coalition. Credit for the formation of the Tahoe Transportation Coalition was given to the director of The Gaming Alliance and the new director of the League to Save Lake Tahoe.[99] The League's willingness to negotiate and form a partnership with opposing interests in the basin is

said to have marked a dramatic change from previous positions. The director of The Gaming Alliance had been a local newspaper columnist who was also one of the first directors of the Tahoe-Sierra Preservation Council. As director of The Gaming Alliance, his former involvement with the property rights movement, and his prominent voice in the local community brought an enormous amount of social capital to the Coalition.

The Coalition has also helped the actors leverage different policy networks and lobby the federal government more effectively. In 1994, the Tahoe Transportation and Water Quality Coalition began concentrating on getting additional federal support for transportation and other projects in the basin and created the Lake Tahoe Joint Federal Legislation Agenda. The objective is a coordinated lobbying effort aimed at Congress and federal agencies. Prior to that, each group brought a separate lobbying agenda to their representatives. Given the diversity and contentiousness of the issues, these agendas often conflicted. Through the Joint Federal Legislation Agenda, the diverse organizations coordinated their lobbying efforts by focusing on common issues and communicating a shared set of priorities. Thus far, these efforts appear to have been effective. The Coalition obtained $2.5 million to assist in coordinating the public transportation systems along the South Shore. Some respondents claimed that it was primarily The Coalition that led the effort to get a presidential visit by enlisting the support of Senator Reid (D) of Nevada. [100] Regardless, the existence of The Coalition had powerful symbolic value for the presidential visit since it led credibility to the vision of watershed protection driven by the public, rather than government agencies.

These groups appear to be willing to work together in areas where there is mutual agreement and their interests coincide. This is evident in the wide range of working groups that exist such as the Forest Health Network, initiated by the League to Save Lake Tahoe and the working group on the Environmental Improvement Program (EIP) and the TRPA plays a leadership role in many of these groups.[101] Despite this cooperation, there are still important differences among the actors. However, The Coalition's members have learned to mutually respect these differences. On some issues they recognize their disagreement and approach it with an attitude of "see you in court on that one".[102] At the same time, they are willing to cooperate and work together in those areas where there is mutual agreement.

The Tahoe Research Group (TRG)

The Tahoe Research Group (TRG) has played a critical role in the evolution of scientific understanding the problems facing the basin and the development of resource management. It was established in 1959 at the University of California at Davis to conduct research on limnology. Its creation was in response to the its founder's, Professor Charles Goldman, discovery of the alarming decline in the lake's water quality. The TRG coordinates the Lake Tahoe Interagency Monitoring Program (LTIMP), established in 1979 to collect and analyze the water and air quality information necessary to support the extensive regulatory activities in the basin. The LTIMP publishes water quality reports on the Lake and its five tributaries and initialized research of atmospheric deposition of nutrients to Lake Tahoe.[103] During the late 1980s, federal and state funding cutbacks resulted in the pooling of TRPA, USGS, TRG, and LTIMP resources. This collaborative effort expanded the total number of monitoring stations to 30 in 1990. Basin monitoring cost approximately $1 million per year.

After analysis of decades of data, the TRG recently reported that there may be a brief 10 to 12 year window of opportunity to halt the decline in Water Clarity before the condition of the ecosystem is beyond repair. Research on Lake Tahoe has also been conducted by the Desert Research Institute and the Tahoe Research Section of the University of Nevada at Reno as well as the USDA Forest Service's Pacific Southwest Research Station. [104]

The Development of Regional Planning in the Lake Tahoe Basin

The history of regional planning at Lake Tahoe is long and complex. This study represents only a snapshot in time, or as one agency official put it "a single thread in the fabric" of an evolving process.[105] This section attempts to resolve the problem of only observing a single observation in a long process by providing a summary of historical events that shaped current planning efforts [Figure 12]. It is loosely adapted from Ingram and Sabatier.[106] An extensive timeline of events affecting management in the basin is included in Appendix A. The first sub-section, *The Technical Fix*, covers the period from 1960 to 1966 and describes early basinwide planning efforts. It is followed by, *Development of a Regional Agency*, a discussion of the time period from 1966 to 1972 that outlines the original impetus to create a regional planning agency, the development of the compact, and the first two years of the Tahoe Regional Planning Agency (TRPA). This includes the development of the original *Regional Plan*. The next section, *Disillusionment with the TRPA*, describes the early years of agency from 1972 to 1980 and characterizes the environmental and political problems that resulted from the TRPA's inability to enforce the original land use plan. These problems led to the Compact's revisions in 1980. The next section, *The Decade of Negotiation*, describes the era from 1980 to 1989 and covers the implementation of the new Regional Plan and the TRPA's reorganization. It explains three programs of interest to our larger study: Individual Parcel Evaluation System (IPES), the Transferable Development Rights (TDR) Program and the Environmental Threshold Carrying Capacities/Threshold Review. The last section, *The Era of Collaboration*, covers from 1989 to the present and describes recent TRPA activities. This includes a discussion of the use of delegation and exemption, Memorandums of Understanding (MOUs), the Environmental Improvement Program (EIP), the Best Management Practices (BMP) Program, redevelopment activities, and the Presidential Summit.

The Technical Fix (1960 - 1966)

Growing concern about water quality and development of the Lake Tahoe Basin escalated in the late 1950s and early 1960s as a result of a population and development explosion. Between 1956 and 1962 the permanent population of the basin increased from 2,850 to 16,000.[107] Two

Figure 12: History of the TRPA's Planning Process

The Technical Fix (1960 ~ 1967)
- Sewering as the solution

Development of a Regional Agency (1967 ~ 1974)
- TRPA Established

Disillusionment with the TRPA (1974 ~ 1980)
- New Casino and Mall Construction approved
- Environmental Groups, both State Legislators and the TRPA itself conclude the 1969 compact is fundamentally flawed.

The Decade of Negotiation (1980 ~ 1989)
- 1980 TRPA Compact revised
- 1984 Court Injunction on Development in Basin
- 1984 Nevada Threatens to putout of Interstate compact
- 1985 California Tahoe Conservancy established
- 1985 Consensus Workshop Group (CWG) implemented by TRPA
- IPES created
- TDRs built into 1987 agreement

The Era of Collaboration (1989 ~1999)
- 1989 The Tahoe Transportation Coalition formed
- 1996 TRPA five-year threshold review is released without significant opposition
- 1997 Presidential Summit
- 1998 EIP Released

large developments during this time period especially spurred concern. The first, Tahoe Keys, was a large subdivision that destroyed a significant portion of the 1,100 acre Pope Marsh on the Upper Truckee River, the largest wetland areas in the basin [Figure 13]. The second, Incline Valley, began construction of multi-unit condominiums on the steep slopes of the northeastern shores of the Nevada side of the lake.

Rampant development provided the impetus for the formation of the Lake Tahoe Area Council (LTAC) in 1959, a nonprofit organization representing an array of basin interests. Its goal was to encourage Lake Tahoe research and to act as a facilitator in resolving the contentious issues surrounding land development. Initially, the Council was greeted with wide support. The support dwindled as some factions became more concerned with promoting economic growth than preserving Lake Tahoe's water quality.[108]

One of the major accomplishments of the Council was the establishment of a regional planning commission in each jurisdiction surrounding the lake. Collectively, the commissions formed an umbrella advisory organization, the Tahoe Regional Planning Commission (TRPC). In 1964, the TRPC funded the creation of the *Lake Tahoe 1980 Regional Plan*.[109] It consisted of a master plan for the region that included a divided four-lane highway circling the lake, a bridge

Figure 13: The Tahoe Keys

Arial photo of Pope Marsh before construction of the Tahoe Keys, 1952.

The Tahoe Keys, 1983.

Source: Tahoe Research Group, http://riley.ucdavis.edu/ctg/tahoe/aerial.html.

over Emerald Bay (now an International Natural Heritage Site), and a population projection of over 313,000 people living in the watershed by 1980.[110] While no entity was identified to implement the plan, its view of the future frightened many basin residents. It also spurred individuals and agencies to take action to save Lake Tahoe from the scenario depicted in the "1980 Plan."[111] It also helped strengthen the League to Save Lake Tahoe.

Around the same time the "1980 plan" was created, LTAC funded a study addressing water quality in the basin entitled, *Comprehensive Study on Protection of Water Resources of the Lake Tahoe Basin Through Controlled Waste Disposal (1963).* Referred to as the "McCaughey Report," this study outlined the pollution issues related to nutrient loading from human activities due to the lack of adequate sewage treatment and erosion discharges from land development. The primary recommendation of the report was the removal of all sewage from the basin.[112] While direct discharge of sewage into surface waters in the region had been prohibited since 1915 in California and 1949 in Nevada, effluent was being sprayed on National Forest Service land, stored in septic tanks, and poorly treated sewage was discharged into rivers.[113] On Labor Day 1961, two million gallons of effluent flowed into Lake Tahoe from an overcapacity treatment plant.[114] All of these activities contributed to nutrient loading in the stream runoff and potential human health concerns in the basin.[115]

The McCaughey report, timed with the sewage overflow, triggered a chain of events. The President's Water Quality Advisory Board and the Governor's of California and Nevada

held meetings to focus public attention on declining water quality in the Lake.[116] By late 1965, California and Nevada passed resolutions calling for the export of all sewage out of the basin. Prohibitions were added to the state water quality plans in 1972.[117] The construction of the sewage treatment facilities necessary to export the sewage from the basin began in the 1960s and was completed in 1978. Treated effluent from the California side of the basin was first pumped 27 miles over the mountains into Indian Creek Reservoir, located in the heart of the Washoe-native land. Currently, it is directed into the Harvey Place Reservoir in Alpine County. North Lake Tahoe pumps its waste to Martis Valley near Truckee, while communities on the Nevada side pump their effluent into Carson City.[118] By the late 1970s, all wastewater was exported from the basin.

While sewering addressed an important water quality problem, it had deleterious effects as well. Sewering the Basin effectively removed important land development constraints and allowed increased urbanization because land that was not suitable for septic systems could now be developed. Moreover, there were virtually no growth restrictions imposed by local governments. During the 1960s, almost 20,000 building permits for housing units were issued, more than half of which were for high-density hotels and motels.[119] In addition, large tracts of land were subdivided into small lots, nearly doubling the number of parcels in the basin.[120]

While these early cooperative efforts among federal, state and local governments helped address these water quality problems, more complex land use problems remained unresolved. The focus would soon shift to increased nutrient loading resulting from the rapid urbanization and expansion of impervious surface.[121] Once sewage was eliminated as an issue and lake clarity continued to decline, the actors in the region were forced to redirect their focus towards land use planning and the creation of a regional planning agency.

Development of a Regional Agency (1965 - 1972)

By 1965, the California and Nevada legislatures had created the Lake Tahoe Joint Study Committee, a nine-member board composed of representatives from each Board of Commissioners/Supervisors, a member from a state agency active in the basin, and an at-large member, to develop recommendations for agency control of planning and development. The committee held public hearings and ratified a final report in 1967.[122] Their recommendations included the creation of a regional bi-state agency that would:

- Formulate and enforce land use management plans of region-wide significance
- Establish a 14-member governing board consisting of a Governor's representative from each state, 3 at large members from each state, one presidential appointee, and a member from each of the six local governments in the Tahoe Basin
- Promote preservation and maintenance of the environment of the Region for recreational, residential and economic purposes
- Supplement and coordinate local government efforts
- Institute a simple majority rules voting procedure [123]

Figure 14: Revisions to the 1969 Bi-State Compact

Provisions	Joint Committee Recommendations	Added by California	Added by Nevada
Goals	Preserve Lake Tahoe for all Americans	Adopt a Regional Plan of Resource Conservation and Orderly development	None
Agency Structure and Function	Governing Board membership: - 6 local - 8 state - 1 federal	Governing Board membership: - 6 local - 4 state - 0 federal	Dual majority decision rule Locally dominated APC
Legal Authority	Planning and permitting	None	Grandfather clause for many businesses (including casinos) Nevada public works projects exempt from permit review 60-day automatic approval
Financing	TRPA given right to levy extra property tax	TRPA budget from county general fund, California and Nevada state budget	Limit TRPA budget to $150,000/year

Source: Wes Ingram and Paul Sabatier, *A Descriptive History of Land Use and Water Quality Planning in the Lake Tahoe Basin*. (University of California, Davis: Institute of Government Affairs, Institute of Ecology, 1987).

In 1967, California assemblymen Edwin Z'berg introduced legislation calling for creation of a bi-state agency matching the structure described by the TRPC. California, Nevada and Congress decided to create an interstate compact to establish a regional planning agency. In 1969, after two years of negotiation, a compact was agreed upon by both states and approved by President Nixon [124] and the TRPA came into existence.[125] However, the negotiated compact was weakened significantly from the original proposals to ensure that power rested with local interests. Figure 14 outlines some of the modifications to from the original legislation. The TRPA had several significant characteristics:

Figure 15: Land Area Classified by the Bailey Land Capability System

Land Class Capability for Use	% of Total Area	% of National Forest Land	Relative Erosion Potential
7 – Highest	2	1	Slight
6	4	1	Slight
5	8	4	Slight
4	4	1	Moderate
3	6	3	Moderate
2	2	2	High
1 – Lowest	74	88	High

Source: Bailey, Robert G. *Land Capability Classification of the Lake Tahoe Basin,, California-Nevada: A Guide for Planning*. US Department of Agriculture-Forest Service: 1974.

- TRPA funding was limited to $150,000 per year provided solely by local government
- Projects were "deemed approved" if not acted upon within 60-days
- Project rejection required a "double-majority" or a majority vote in each state's representative to reject a project
- Both the Advisory Planning Commission and Governing Board was dominated by local representatives[126]

The result was an agency that was very different from the TRPC's recommendations. The TRPA's Governing Board was dominated by local interests and handicapped by the modifications made to the original proposed Compact.

While negotiating the Compact from 1967 to 1969, both Nevada and California created independent county-funded interim agencies, the Nevada Tahoe Regional Planning Agency (NTRPA) and the California Tahoe Regional Planning Agency (CTRPA). The formation of the two state agencies removed some of the control over development in the basin from the locally dominated TRPA. As a result, hostility towards the state regional agencies began almost immediately. Over the next 6 years, Placer, El Dorado and Douglas Counties withheld funds from the planning agencies and challenged their constitutionality in court, although failing in these attempts. This initial local resistance foreshadowed the relationship between local government and regional planning for the next 10 years as one of continued lawsuits, meager funding, and local opposition. In addition, it increased tensions between California and Nevada by the continued presence of independent state agencies alongside the single bi-state TRPA.

The TRPA was established in March 1970 with a total staff of five, a Governing Board, and the APC. Creation of the *Regional Plan* was constrained by time and limited resources. The Regional Plan had to be developed within 15 months while the TRPA also had to process an abundance of development applications.[127] The TRPA sought the cooperation and

recommendations of federal, state, and local entities as well as universities, the public, and to a great degree the USFS, to aid in creation of the plan.[128]

The first attempt at a regional plan, the "J.K. Smith Plan", was based on the Bailey land capability system.[129] The system ranked all land in the basin in terms of disturbability as measured by slope and soil type (which measure susceptibility to floods, landslides, and high water tables.). The capability of the land is correlated to maximum allowed impervious coverage. Impervious coverage is defined as any surface that does not permit the growth of vegetation or precipitation to reach the soil [Figure 15]. Examples of impervious surface include roads, buildings, driveways, and wooden decks. A land capability rating of 1 or 2 allows only 1 percent impervious coverage to be constructed on the site while the other extreme, 7, allows the construction of 30 percent impervious coverage.[130]

When the J.K. Smith Plan was unveiled to the public it was met with such intense local criticism that the APC declined to recommend the plan to the Governing Board. The public was concerned that the plan would have dire economic consequences and would impinge upon property rights, development plans, and the ability to generate the revenue necessary to pay off sewer and utility bonds. It was called a "cruel hoax" based on "alien philosophies."[131] Yet, a different sentiment was expressed in an editorial in the San Francisco Examiner, "The long awaited plan to save Lake Tahoe, revealed last week, contains all of the ingredients of strong medicine against the forces of pollution. Now the crucial question is whether the directors of the TRPA will administer the medicine prescribed by the staff . . ."[132]

In response to anti-Plan sentiment, the governing board funded an ad hoc committee chaired by Richard Heikka, Placer County Planning Director, and composed of planning officers of the City of South Lake Tahoe, Placer and El Dorado Counties. The "Heikka Plan" was similar to the J.K. Smith plan. While it also incorporated the Bailey Land Capability System, it down-zoned a smaller portion of private land and did not sharply curtail development. The population capacity of the Heikka plan was set at 280,000 people while J.K. Smith's was set at 136,000. An added measure of the Heikka plan was public land acquisition of 34,000 acres of private, environmentally sensitive land, as long as government funding of $50 to $100 million could be obtained.[133] The Heikka Plan was approved in February 1971 after an Environmental Impact Statement (EIS) found the plan was legally and environmentally acceptable. Due to the plan's inclusion of land capabilities, its adoption received widespread national attention. Public support for the TRPA also remained high, although some organizations began to doubt the whether the Agency would have the ability to implement the plan effectively.[134]

Disillusionment with the TRPA (1972 - 1980)

During the first 15 months of its existence, the TRPA approved 99 percent of development applications resulting in 13,500 additional housing units.[135] In order to enforce the land use plan, TRPA passed a Land Use Ordinance in 1972. The Ordinance did not strictly follow the Bailey system. In fact, many areas were exempt from the requirements:

- Coverage of impervious surface in Tourist Commercial areas could reach 50 percent
- Coverage of impervious surface in General Commercial districts could reach 70 percent
- Nearly all single-family residences with prior local government approval were exempt from TRPA review

The inability of the Land Use Ordinance to protect Lake Tahoe, local dominance of the Governing Board and APC, and lax project approval procedures led to TRPA decisions that left many groups disappointed and angry. Some of the more controversial decisions included: approval of major expansion of Harrah's Casino (1971); approval of the North Shore Mall at Tahoe Vista (1973); approval of Harvey's Resort Hotel expansion (1973); and Park Tahoe Hotel-Casino approval (1973).[136] All of these projects were approved by either the 60 day no action rule, requiring automatic approval if the TRPA failed to take final action within 60 days, or the double majority voting rule, requiring a majority in each state to *reject* a project. Given the rule structure and local government support for development, projects were rarely rejected.

During this period, the TRPA was simultaneously accused of being too stringent and too lax. Some felt the new regulations resulted in an unconstitutional taking of property without compensation and filed lawsuits against the TRPA totaling $260 million.[137] Others felt the TRPA wasn't doing enough to protect the lake. Three counties withheld their funding for the TRPA, questioning the constitutionality of local funding for the agency. The State of California threatened to discontinue the TRPA's funding while at the same time strengthening the CTRPA by re-instituting its funding.[138] The CTRPA worked to restore land use planning on the California side of the basin by drafting a more restrictive land use plan and more stringent ordinances. The CTRPA plan required review of proposed development on all parcels one acre or more. If a significant environmental impact occurred as a result of the development, a permit would not be granted. In addition to the creation of a land use plan, the CTRPA served as a watchdog to the TRPA. For example, the CTRPA filed an unsuccessful lawsuit against the TRPA for its approval of the North Shore Club Casino.[139]

The severity of TRPA's problems was documented in a 1979 report by the Western Federal Regional Council entitled, *Lake Tahoe Environmental Assessment*. It reported the following trends during the period 1970 to 1978:

- Algal concentrations increased 150 percent
- Urban Development increased 78 percent
- 75 percent of marshes, 15 percent of forests, and 50 percent of meadowlands had been converted to urban use or had been otherwise destroyed [140]

These occurred during the first eight years of TRPA's existence and are indicative of its lax efforts to curb development and improve water quality in the basin.

Dissatisfaction with the TRPA propelled the basin's actors to reexamine the original Compact. The TRPA also conducted a self-evaluation. The final report concluded that the TRPA was making progress yet faced some key problems. However, all of the recommendations designed to address the problems and improve the administration of the TRPA's programs were

opposed by local governments and none were acted upon. By 1975, California and Nevada passed separate state legislation amending the compact. Since each State's legislation approached the problem differently, the next 5 years involved much controversy and disagreement with respect to the Compact's amendments. California cutoff the TRPA's funding in response to the Nevada legislature's rejection of California's proposed amendments. Political leadership and support for the amendments waned and some California legislators proposed federal intervention by creating a Lake Tahoe National Recreation Area. Final agreement on amendments to the Compact was reached in December 1980.[141] The new compact directed the TRPA to:

- Establish Environmental Threshold Carrying Capacities (ETCC) within 18 months
- Amend the existing *Regional Plan* and enact ordinances assure the ETCC would be met
- Prohibit new approval of subdivisions, PUDs, condominiums and sewage plant expansions until the *Regional Plan* and ordinances were complete
- Prohibit new casinos or casino expansions (previously permitted casinos would be allowed to be built)
- Require that significant exterior modifications to a casino would need to be permitted
- Create a Tahoe Transportation district with a mandate of owning and operating a public transportation system and creating a regional transportation plan to reduce air pollution and traffic
- Produce an EIS for every project which may significantly alter the environment
- Expand the governing board from 10 to 14 members
- Change the voting procedures of the governing board to include approval from 5 members from each state and 9 members of the Governing Board to *approve* a project
- Increase action period for completed applications from 60 to 180 days
- Add four non-local members to the APC (including the Administrator of LTBMU, Executive Officer of California Air Resources Board, Director of Nevada Conservation and Natural Resources Department, Administrator of the Nevada Division of Environmental Protection)[142]

While this negotiated settlement satisfied the legislators in both states, the TRPA had already lost some of its most ardent supporters within the basin. Furthermore, the re-negotiation of the Compact spurred other interests in the basin to organize in response to perceived threats from stricter regulations. It was during this period that the Tahoe-Sierra Preservation Council and the Gaming Alliance were created.

The Decade of Negotiation (1980 - 1989)

The revised compact created several notable changes [Figure 16] and required the development of a new Regional Plan. This process was complicated by the changing makeup of the Governing Board, which varied with state gubernatorial changes. For example, the Governing Board representatives appointed under the administration of Governor Brown of California had a different ideological position from those of under Governor Deukmejian. In the latter instance, appointees were more sympathetic to property owners and local government than previous appointments. There were also significant differences in the positions of the State of

Figure 16: Changes to the Tahoe Regional Planning Agency

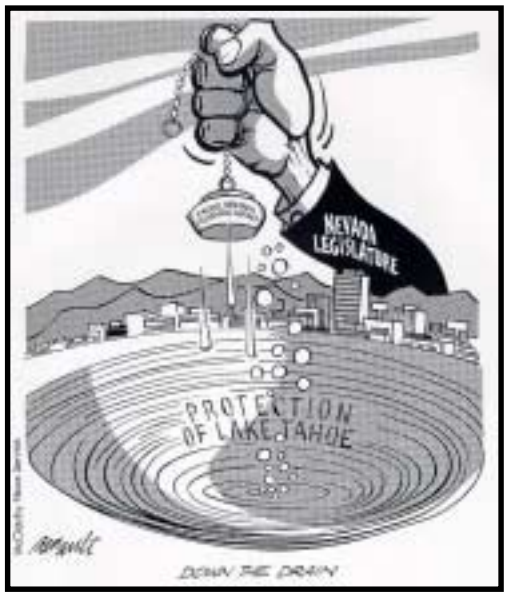
	1969 Original Compact	1980 Compact Amendments	1987 Regional Plan Amendments	Present Focus
Governing Board	▪ 3:2 local majority ▪ 10 members	▪ 4:3 state majority ▪ 14 members	▪ No change	▪ No change
APC	▪ Composed of primarily local planners	▪ n/a	▪ No change	▪ No change
TRPA staff	▪ 5	▪ n/a	▪ n/a	▪ 50-60
Gov. Board Voting	▪ Dual majority for project denial	▪ Dual majority for project approval	▪ No change	▪ No change
Permit Review	▪ 60-day deemed approval	▪ 180-day de facto denial	▪ No change	▪ No change
Authority over public works	▪ None	▪ Full	▪ No change	▪ No change
Casinos	▪ Grandfathered any approved prior to by Feb. '68 or any which could be constructed on land zoned for casinos	▪ Prohibited all new casinos in the Lake Tahoe Basin	▪ No change	▪ No change
Other	▪ California continued to fund CTRPA which had control over public works projects	▪ Required thresholds (ETCC) established	▪ IPES ▪ TDRs ▪ Coverage Transfer Program ▪ Regional Plan and Ordinances to address thresholds	▪ Focus on stream-lining (MOUs) ▪ EIP ▪ Ban on 2-stroke outboard motors

Source: Wes Ingram and Paul Sabatier, *A Descriptive History of Land Use and Water Quality Planning in the Lake Tahoe Basin*. (University of California, Davis: Institute of Government Affairs, Institute of Ecology, 1987).

Nevada and California. Nevada appointees typically voted the opposite of California appointees, resulting in a deadlocked board that rarely agreed.

When the new *Regional Plan* was approved in 1984, the League to Save Lake Tahoe and the California Attorney General immediately sued the TRPA. They argued the 1984 Regional Plan did not conform to the Compact due to the plan's inability to ensure that the newly formulated ETCCs would not be exceeded. They asked the courts to institute a building

moratorium until the plan was revised so that it could ensure future development would not cause environmental damage. In August 1983, a Federal District court imposed a 3-year building moratorium on all new construction in the basin. The only construction permits issued in the basin were those essential to public health and safety. Meanwhile, the Tahoe-Sierra Preservation Council filed suit claiming that the amendments restricted development in low capability lands was unconstitutional because it would result in a taking of property without just compensation.[143]



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The moratorium lasted until an agreement between the parties could be reached. This created an incentive for all parties to negotiate a new plan. However initial attempts by the TRPA, the League and the California Attorney General were unsuccessful at bridging their differences. The State of Nevada became frustrated and a bill was introduced in Nevada's legislature that would have ended Nevada's participation in the bi-state compact. While unsuccessful, it sent a clear message that a regional plan for the basin would be approved by January 1987 or Nevada would revisit the idea of pulling out of the compact.

The dire situation improved when Bill Morgan, former LTBMU head, was hired as Executive Director of the TRPA in 1985. The region was described at the time as a "war zone" with property rights advocates and development interests pitted against those favoring tighter restrictions to protect environmental quality. Amidst the chaos, Morgan made a brave effort to resolve the dispute by instituting a consensus-building process. The TRPA hired a facilitator to direct a sequence of meetings
spanned over the next year. Initially the consensus process was met with great skepticism, however, agreement on key issues eventually emerged. As one participant later noted, "Attitudes slowly changed. Provisional agreements emerged. Delicately balanced treaties were constructed. Guidelines for new ordinances were worked out and finally agreed to."[144] The product of the consensus building process was a series of compromises that eventually formed the foundation of the revised *Regional Plan* adopted in 1987. As Patricia Ronald, past president of The League to Save Lake Tahoe reported, "Although this was a low point in Tahoe Basin relationships, it led to a process of consensus which resulted in a new Tahoe Regional Plan which enforces these critical environmental regulations such as SEZ protection, coverage limitations, and urban boundaries."[145] Revisions included:

- The Individual Parcel Evaluation System (IPES) ranking all residential lots in the basin in terms of environmental sensitivity
- The Transferable Development Rights (TDR) Program
- Community Plans for each plan area in the basin to be approved by and consistent with the ordinances of TRPA
- Ban on all new subdivisions

- Limit on commercial development to 400,000 square feet over the first 10 years and allocation of commercial development rights
- Only 200 Additional Tourist Accommodation Units to be allowed over the first 10 years of the plan
- All new development projects in the basin having water quality impacts must offset these impacts by 150 percent with water quality improvement projects such as erosion control.
- Disturbances in 1-3 capability lands were prohibited with few exemptions
- Allocations for single and multiple-family houses built in the Lake Tahoe Basin limited to 350 per year for a six year period

Based on the success of the consensus building process, the TRPA has used similar processes to develop other ordinances and community plans.[146] This new set of rules provided a link between coverage limitations and regulatory efforts. It had been realized many years before that land coverage and disturbances to wetlands, slopes, and soil resulted in increased erosion, runoff and removal of native vegetation and eventually water quality decline, but it took the 1987 amendments to the *Regional Plan*[147] to directly connect regulations to limiting coverage. It provided a strong mechanism to slow development and to redirect it to areas more capable of handling disturbance.

The resulting regulatory framework may be one of the most complex and environmentally protective in the country. Three of the important components of this framework were the direct result of these negotiations: the Environmental Threshold Carrying Capacities (ETCC); the Individual Parcel Evaluation System (IPES); and Transferable Development Rights (TDR) and coverage transfers. Each of these will be discussed in more detail below since they are the core of the TRPA's current efforts to manage Lake Tahoe's resources.

Environmental Threshold Carrying Capacities (ETCC)

The agreement resulting in the Environmental Threshold Carrying Capacities (ETCC) was negotiated between California, who at the time was looking for stricter environmental regulations and Nevada, which preferred some allowance for development. Nevada only accepted the ETCC in exchange for a guarantee that development of single-family house construction could continue on the Nevada side provided there was a case-by-case review of environmentally sensitive lots.[148]

The Governing Board succeeded in adopting nine ETCCs in 1982 as required by the revised compact. The Compact also required the TRPA to amend the *Regional Plan* such that, " at a minimum the plan and all of its elements, as implemented through agency ordinances, rules and regulations, achieves and maintains the adopted environmental threshold carrying capacities. Each element of the plan shall contain implementation provisions and time schedules for such implementation by ordinance."[149] The ETCC are 9 regional environmental quality goals addressing scenic, recreational, water quality, air quality, noise, wildlife, soil conservation, fisheries, and vegetation issues. These include both numeric and qualitative standards. The TRPA reviews all projects to "ensure that the project under review will not adversely affect implementation of the *Regional Plan* and will not cause the adopted environmental threshold

carrying capacities of the region to be exceeded."[150] Accordingly, the thresholds are the fundamental guiding principles in the *Regional Plan*. The thresholds can be amended when scientific evidence and technical information shows: 1) two or more thresholds are mutually exclusive, 2) scientific evidence shows a basis for a threshold is non-existent, 3) thresholds cannot be achieved, 4) additional thresholds are required to maintain a significant value of the region, 5) a threshold is not sufficient to maintain a significant value of the region.[151] To date, no threshold has been amended.

The ETCC sets up a system of measurements to evaluate the impact and progress of the TRPA's activities. The thresholds are to be met by the year 2007.[152] Every 5 years, the TRPA is required to undergo a threshold review to evaluate the progress towards meeting these goals and the success of the *Regional Plan.*[153] This in-depth analysis requires analyzing significant quantities of data for each of the 9 parameters. The TRPA then provides recommendations on to sustain or improve future conditions. According to the threshold review released in 1996, fifteen of the thirty-four (44 percent) sub-elements within the nine major thresholds improved. Thirteen stayed the same (38 percent) and six declined (18 percent). Out of the nine major thresholds, not a single one was met entirely [Figure 17].

Individual Parcel Evaluation System (IPES)

Another innovation that emerged out of the new compact and subsequent negotiations was the Individual Parcel Evaluation System (IPES). The IPES was adopted in 1987 to replace the earlier Bailey System as applied to vacant residential parcels. It evolved out of negotiations from 1985 to 1987 with basin interest groups and other agencies to develop a more objective and accurate classification of the environmental sensitivity and suitability of an individual parcel for development. Eight characteristics of the parcel are evaluated and scored:

- relative erosion hazard (450 points max.)
- runoff potential (200 points max.)
- access (170 points max.)
- stream environment zone encroachment (110 points max.)
- condition of watershed (70 points max.)
- ability to re-vegetate (50 points max.)
- need for water quality improvements in the vicinity (50 points max.)
- distance from lake (50 points max.)[154]

By 1988, all 17,000 undeveloped residential parcels in the basin were assigned a score using the IPES. Lots were given numerical scores that ranked their environmental sensitivity relative to other lots in their jurisdiction. Scoring ranges from a low of 0 to a high of 1140. Those with the highest scores can be developed after receiving a building permit from a local government. Stream environment zones (SEZs) are a categorization that includes any wetland, floodplain or riparian zone and are scored low due to the vital importance of undisturbed streams in filtering nutrients that are otherwise deposited into the lake. Parcels located entirely within the setback area of a SEZs receive a score of zero.[155] The IPES sets a total cap of development of only 300 residential parcels per year. This allocation is divided among the counties and

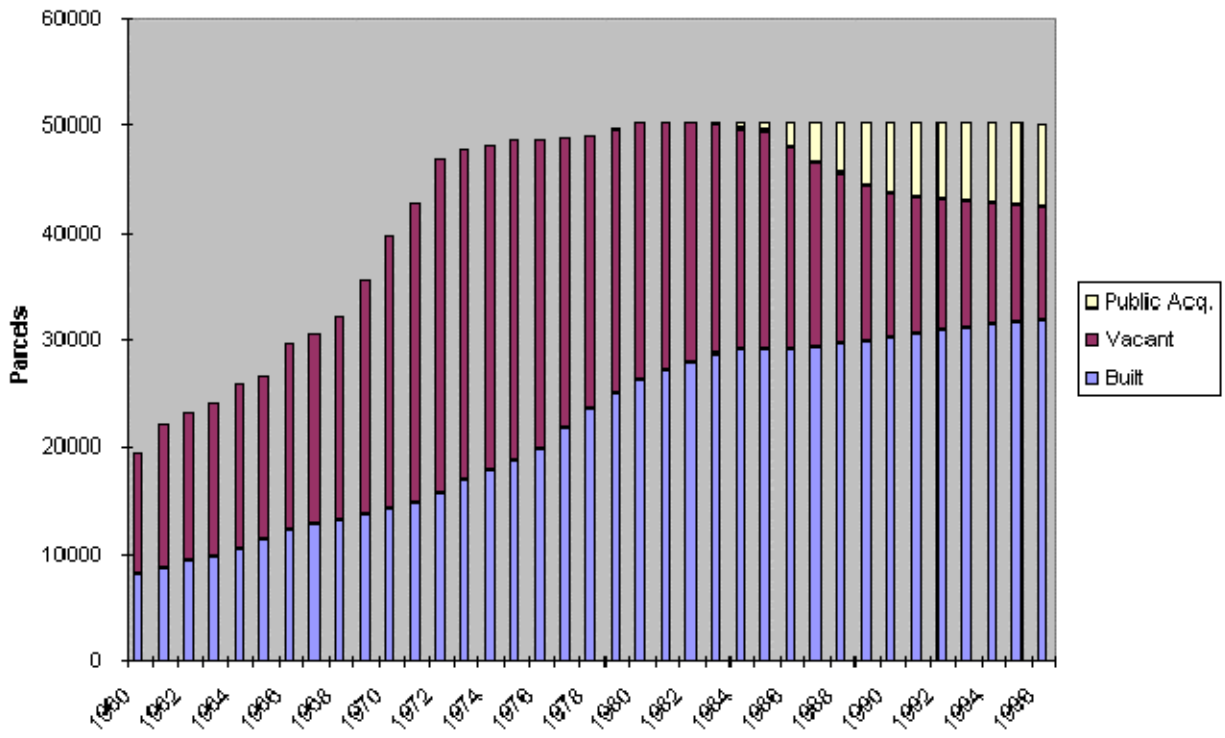
Figure 17: Summary Results of 1996 Threshold Review

Threshold	1991 Evaluation	1996 Evaluation	Trend
Air Quality			
CO	N	A	+
O_3	N	N	+
Particulate	N	N	+
Visibility	A	N	=
U.S. 50 Traffic Volume	N	A	+
Wood Smoke	N	N	=
Vehicle Miles Traveled	N	N	--
Atmospheric Nutrient Loading	A	A	+
Water Quality/Soil Conservation			
Turbidity (shallow)	A	A	=
Clarity (winter)	N	N	--
Phytoplankton PPr	N	N	--
Tributary Water Quality	N	N	=
Runoff Water Quality	N	N	=
Groundwater	N	N	+
Other Lakes	U	A	=
Impervious Coverage	N	N	=
Naturally Functioning SEZs	N	N	+
Vegetation			
Relative Abundance and Pattern	N	N	+
Uncommon Plant Communities	A	A	+
Sensitive vegetation	N	N	=
Fisheries			
Lake habitat	N	N	=
Stream habitat	N	N	+
In-stream flows	A	A	=
Wildlife			
Special interest species	N	N	+
Habitats of special significance	A	N	--
Scenic resources			
Travel route ratings	N	N	+
Scenic quality ratings	N	N	--
Public recreation area scenic quality ratings	Not in Effect	A	=
Community design	U	N	+
Noise			
Single event (aircraft)	U	N	+
Single event (other)	A	A	=
Community noise	N	N	=
Recreation			
High quality recreation experience	U	U	=
Capacity available to the General Public	A	A	--

Positive Trend (+), Negative Trend (–), No Trend (=) N = Nonattainment, U = Unknown, A = Attainment

Source: Tahoe Regional Planning Agency. Summary and Draft 1996 Evaluation Report: Environmental Threshold Carrying Capacities and the Regional Plan Package for the Lake Tahoe Region, (Zephyr Cove, NV: TRPA, 1996).

Figure 18: Inventory of Buildable Lots in the Lake Tahoe Basin



Modified from: Mark Nechodom, Rowan Rowntree, Nick Dennis, Jamie Goldstein, Hank Robison, and Mary Small, "Chapter 6: Social, Economic, and Institutional Assessment" to be published in *Lake Tahoe Watershed Assessment*. (South Lake Tahoe, California: LTBMU, Unpublished June 1999 Draft).

incorporated areas around the lake. These allocations help regulate both the location and pace of development in the basin.

Initially, the TRPA established 726 as the cutoff point at which lots could be developed. Any parcel receiving a score below that is considered undevelopable.[156] This number was selected because it is roughly equivalent to Bailey land capability districts 4 to 7, which are considered not sensitive to erosion. The system was designed so the development baseline could be lowered when there is a reduction in the inventory of low suitability parcels such as those located in stream environment zones and on steep slopes, and when other environmental safeguards are implemented such as water quality monitoring [Figure 18].

The IPES system is applied only to undeveloped residential parcels. Non-residential and developed parcels are subject to the original Bailey system based on slope and soil classifications. The IPES is a more accurate depiction of land capability because it was employed on a case-by-case basis and relied on eight parameters whereas the Bailey system was based on only two parameters. Balancing the two coexisting systems poses a challenge. In some circumstances, the two systems provide different results for similar parcels. For example,

consider two nearly identical parcels of which lot A is zoned commercial and receives 30 percent coverage. The owner of identical lot B, zoned residential, is interested in building a home on the lot and only receives 10 percent coverage, making it impossible to develop. Situations such as this are a source of frustration for some property owners and TRPA employees attempting to explain the scientific legitimacy of the system. Some respondents also expressed a desire to use one system for the sake of equity and consistency.

Allocations, Transferable Development Rights (TDRs) and Coverage Transfers

Development Allocations, Transferable Development Rights (TDRs), and Coverage Transfers programs were developed to encourage the removal of existing impermeable land coverage and development from environmentally sensitive parcels to less sensitive areas by providing economic incentives and flexibility. The 1987 amendments to the *Regional Plan* introduced two development rights transfer programs, the TDR and coverage transfers.

There are three types of rights necessary to build in the basin. The first is a development allocation. This is set based on evaluations of progress toward reaching the thresholds (ETCCs) and a total number are assigned to the basin. Each local government unit is then given a specific number of allocations based on a lottery system. Recently, additional allocations have been awarded by TRPA for affordable housing units. It is up to local governments to decide how to distribute the allocations, whether to single or multi-family dwellings. However a development right is also necessary before construction is permitted. Every residential parcel in the Lake Tahoe Basin was assigned a development right in 1987. This was intended to create additional opportunities for residential property owners to transfer the value of their land and help the TRPA avoid "takings" claims. The rights can be transferred only within the hydrologically related area it is located (there are nine in the basin). Allocations may not be used if individual parcels within an administrative unit do not have a high enough IPES score to be considered developable. Most of the local governments in the basin did not report using their total allocations.

Finally, it is necessary to have the rights to the appropriate amount of coverage to develop a parcel. Coverage refers to any type of impermeable surface on a parcel. This can be concrete driveways, patios, and roofs. It is designed as a measure of the increased runoff caused by development on a parcel. It was also designed to provide flexibility for commercial and non-residential development while addressing the needs of sensitive and small residential parcels. Coverage rights can also be transferred. Additionally, landowners wishing to acquire more coverage can exceed their coverage limitation by providing mitigation funds. They may also transfer coverage from another parcel they own. Coverage requirements present a restriction on development. In Washoe County, the IPES line has dropped so low that the only lots that are considered unbuildable are in SEZ zones. However, it is necessary to have enough coverage to build and most of the remaining parcels have only 1 percent allowable coverage. It is possible to purchase coverage, however the price may be prohibitive since according to one planner a minimum of 1,800 square feet is necessary to build a single family residence and the cost at current market prices is around $35 per square foot.

The amount of coverage that may be transferred and the transfer ratio varies based upon the project. The rules are more stringent for commercial and tourist accommodations than for residential units. For commercial development, coverage transfers from one parcel to a second at a ratio up to 2:1, thus reducing the total coverage in the basin. It requires the transfer of any existing coverage and the restoration of the sending parcel. Other types of projects transfer coverage at a ratio of 1:1 and have the flexibility of transferring existing or potential coverage. The reason for differing rules are two-fold. First, the different ratios better reflect different regional priorities given overall limitation on development. Local government may deem the rights of individual property owners to use their residential parcels as more important than increased commercial development or visa versa. Secondly, the limitation on commercial development encourages the rehabilitation of dilapidated structures and the re-development of entire parcels.[157] In all cases, coverage transfers must be from a parcel that is equally or more sensitive than the receiving parcel and always in the same hydrological area.

In order to construct a housing unit in the Lake Tahoe Basin, one needs an allocation, a development right, and the appropriate coverage. As one TRPA official stated, "Our building community is based upon scarcity. Here, we are like an island because of federal land." There is currently some discussion and pressure from some interest groups to remove or change the IPES. The possibility of IPES being changed or removed altogether is reported to have slowed the pace of sales of privately owned environmentally sensitive parcels.[158]

The Era of Collaboration (1989 - Present)

The period of conflict following the near breakdown of the original compact marks one of the critical turning points in the relationship of the TRPA to the wider community. With the 1984 injunction placed on development in the basin, environmental interests had effectively exercised their veto power over the process. However, this exercise of power came at a cost. The extended legal battles were costly. They not only prevented new construction but also delayed environmentally benign projects and ecological restoration projects. Business exercised its control through its influence on the TRPA, local government, and other political decision making bodies.

By the end of the decade, most of the Basin's interests realized there needed to be a more effective way to resolve these conflicts. Several factors helped the actors move from a period of conflict to one of collaboration. In 1989, the Tahoe Transportation Coalition and Water Quality Coalition had formed. The Coalition's members soon found less costly ways to achieve common goals. Representation in various decision-making processes expanded through the use of the various technical advisory councils and issue workshops. Nearly all actors in the basin now have some voice in the process [Figure 19]. This decreased the level of conflict and increased communication. With a less antagonistic environment, the network of formal and informal interactions across the various groups increased. One manifestation of this is the increased use of Memorandums of Understanding (MOUs) across agencies.

A good example of the change in agency interaction occurred in 1995 between the TRPA and the Nevada Department of Transportation (NDOT). The TRPA rejected their application to repair a section of highway by merely repaving it. They recommended a retrofit of the highway

Figure 19: Representation in the Decision-Making Process

	Governing Board	APC[a]	Consensus Workgroup
Local Government			
City of South Lake Tahoe	X	X	
El Dorado County	X	X	
Placer County	X	X	
Carson City	X	X[c]	
Douglas County	X	X	
Washoe County	X	X	
Utility Districts			X
Lake Tahoe Basin Association of Governments			X
North Tahoe Public Utilities District			X
California State Representatives			
California Assembly	X		
California Senate Rules Committee	X		
Governor of California	X[b]		
California Air Resources Board		X	
Regional Water Quality Control Board,		X	X
California Attorney General's Office			X
Nevada State Representatives			
Dept. of Conservation and Natural Resource	X	X	
Governor of Nevada	X		
Nevada At-Large Member	X		
Nevada Secretary of State	X		
Nevada Division of Environmental Protection		X[d]	X
Nevada Attorney General's Office			X
Nevada Bureau of Water Quality Planning		X[c]	
Federal Agencies			
US Forest Service		X	X
Natural Resources Conservation Service		X	
Environmental Protection Agency			X
Non-government Actors			
American Association of University Women			X
Incline/Crystal Bay Advisory Board			X
North Tahoe Advisory Council			X
Tahoe Sierra Board of Realtors			X
North Shore Chamber of Commerce, Tahoe City			X
Tahoe Shoreline Representative			X
South Shore Chambers of Commerce			X
Tahoe-Sierra Preservation Council			X
Sierra Club			X
League to Woman Voters			X
League to Save Lake Tahoe			X
The Gaming Alliance			X

Source: TRPA, *Regional Plan for the Lake Tahoe Basin: Code of Ordinances, (*Zephyr Cove, NV: TRPA, 1999).

[a] The 18 members of the APC during the creation of the 1986 regional plan included 8 Lay Members; [b] Governor of California has two Appointees on the board; [c] Member in 1999, but not in 1986; [d] Not a member in 1999

to control runoff and phosphorous levels. Tension over the demands began to develop between the two agencies. The NDOT's response was that funding was unavailable from the state of Nevada for such an extensive project. The TRPA offered to help acquire the funds for the retrofitting, assisted in passing a $20 million bond, and obtained additional federal funds to support the project. Because it was a novel approach, the NDOT received National recognition and an award for the work. This recognition allowed the NDOT to secure further funding and permitted the TRPA to use the NDOT project as an example when working with the California Department of Transportation.

With increased communication across the different agencies working on water quality projects, there has been growing awareness of the need to coordinate efforts. While coordination was the initial rational behind the creation of the TRPA, the strained relationship with local government never allowed the full potential to be realized. Something resembling the Environmental Improvement Project (EIP) had been discussed for years. However with the increasing possibility of a Presidential Summit, there was renewed interest in making it a reality. As one participant stated, "with the presidential summit, we had everyone's attention at once. We started the EIP six months before the President got here." Agency directors worked together toward completing a final document to present at the Summit.

Other collaborative efforts began to emerge. Agreement between competing casino operators, Heavenly Ski Resort, the City of South Lake Tahoe, private redevelopment interests and the TRPA resulted in the Coordinated Transit System (CTS). The need to replace South Lake Tahoe's aging infrastructure and shift away from regulation allowed additional collaboration between the TRPA and the City of South Lake Tahoe to develop environmentally as well as and economically benign redevelopment projects.

Memorandums of Understanding (MOUs)

The TRPA's Codes and Ordinances were intended to be a comprehensive set of regulations for the entire basin. As such, they address local zoning as well as regional issues. This broad regulatory scope made it difficult for the TRPA to concentrate its efforts on the broad regional issues. In order to accomplish its goals, including the thresholds, the TRPA embarked on a major streamlining effort called the Permit Integration Program. The TRPA now has over 30 Memorandums of Understanding (MOUs) with local government, public utility districts, and other agencies. There are three general types of MOUs. The first type, 'exempt', gives Public Utility Districts more freedom to carry out activities by requiring a simple notification to TRPA for some minor activities such as moving 10 yards of soil. The second, more complex category is the 'delegated MOU'. For example, the local governments were delegated review authority to approve certain types of development, mostly single-family residential, at the same time local permits are granted under the provisions of TRPA's regulations. Audits are carried out quarterly to insure quality control. Figure 20 summarizes MOUs between the TRPA and local jurisdictions in the Lake Tahoe Basin.[159] This cooperation continues to increase trust between local jurisdictions and the TRPA. People requiring these permits also appreciate the one-stop process. Both local jurisdictions and the TRPA are continually exploring the possibility of expanding the MOUs.

Figure 20: MOUs Between the TRPA and Local Governments

Jurisdiction	Single-family development	Multi-family development	Scenic Review
Carson City (no vacant parcels)	-	-	-
Douglas County [160]	-	-	-
El Dorado County	X	X	X
City of South Lake Tahoe	X	X	-
Washoe County	X	X	-
Placer County	X	X	-

The use of MOUs also increased cooperation between other basin agencies with the TRPA[161]. The TRPA currently has agreements with the Regional Board, the USFS, Utility Districts and most other agencies operating with the Lake Tahoe Watershed. The USFS recently entered into MOUs with both the TRPA as well as the Washoe Tribe regarding wetland restoration projects.[162]

Environmental Improvement Program (EIP)

As a result of two threshold reviews, it became clear that regulations alone would not improve Lake Tahoe's water quality. Since much of the environmental damage to the area was caused by existing development, the focus on regulating new development only addressed part of the problem. As one TRPA official states, "the implementation can't get done without the help of everyone . . ." This has required a shift of focus from preventing development towards facilitating the construction of environmental improvement projects.

The Environmental Improvement Program (EIP) adopted in 1998 by the TRPA, is a joint partnership by community, local, state and federal government aimed at coordinating basin-wide efforts to achieve the environmental threshold carrying capacities within the ten-year window of action proposed by researchers to prevent permanent lake damage.[163] The EIP lists approximately 1,018 regulatory programs, scientific research, and environmental improvement projects designed to improve water quality and environmental conditions in the watershed at an estimated total cost of $908 million.[164] If funded, all projects are scheduled to be initiated or completed by 2007. The EIP also contains a cost-sharing section, which breaks down the funding responsibility by four sector: federal government, state government, local government, and the private sector [Figure 21]. The six primary objectives of the EIP are to:

Figure 21: Summary of Ten-Year EIP Project Capital Needs by Community Sector

Threshold Program	Private Sector	Local Govt.	State of California	State of Nevada	Federal Government	Total $ (millions)
Water Quality	75	41	88	30.4	116.2	350.6
Soil Conservation	1.2	11.2	74.2	12.9	93.2	192.7
Air Quality	28.1	22	41.8	19.5	17.7	129.1
Vegetation	6	0	7.2	5.6	23.8	42.6
Wildlife	0	1.3	3.6	1.2	11.1	17.2
Fisheries	9.9	9.2	20.4	5.9	20.4	65.8
Recreation	10.8	9.8	35.2	4.2	10.1	70.1
Scenic	21.7	6.5	4.7	2.3	4.7	39.9
Total	152.7	101	275.1	82	297.2	908

Modified from: Tahoe Regional Planning Agency. *Environmental Improvement Program for the Lake Tahoe Region: Draft for Final Adoption.* (Zephyr Cove, NV. 1998).

- Provide a mechanism to focus implementation efforts region-wide
- Integrate and organize threshold needs in one place or format
- Coordinate multiple agency work programs relative to threshold related objectives
- Facilitate public/private partnerships and agreement on priorities
- Leverage human, organization operation, and capital improvement priorities
- Foster and create long-term program investment commitments from all community sectors, local, state and federal governments. [165]

The EIP has four main components:

- Planning
- Action Plan
- Implementation
- Monitoring and Evaluation

The development of the EIP was coordinated by the TRPA. There are thirty-five different organizations that provided input into the project identification process and which will be involved in various aspects of the EIP's implementation [Figure 22]. The TRPA will primarily function as the central coordinating entity and does not have a role as the central implementation agency. They will also provide some mitigation funds toward EIP projects.

The EIP also serves to create its own incentives for collaboration. With a total price tag of $906 million, the potential gains from the realization of this revenue flow create incentives for all government agencies to cooperate. There also appears to be general support from key legislators for the program.[166] The EIP includes $600 in matching funds from state and local sources. Recently, Senators Diane Feinstein (D-CA) and Harry Reid (D-NV) co-authored a bill

Figure 22: Participating Entities and Type of Participation

Participant	Area of Participation				
	Improvement	Programs	Studies	Regulation	Financing
Regional Agencies					
Tahoe Regional Planning Agency	X	X	X	X	X
Tahoe Transportation District	X	X			X
South Shore Trans. Mgt. Assoc.	X	X			X
Truckee North Tahoe Transportation Management Association	X	X			X
Federal Agencies					
Environmental Protection Agency		X	X	X	X
U.S. Forest Service	X	X	X	X	X
Soil conservation Service		X	X		
Army Corps of Engineers	X			X	X
U.S. Postal Service	X	X	X		X
State Agencies					
Caltrans	X	X	X		X
CA State Water Quality Control Board		X	X	X	X
California State Lands	X	X	X	X	X
California State Parks	X	X			X
California Tahoe Conservancy	X		X		X
Nevada Dept. of Transportation	X	X	X		X
Nevada Division of State Parks	X	X			X
NV Division of Envtl. Protection		X	X	X	X
Nevada Division of State Lands	X	X	X	X	X
Regional Water Quality Control Board		X	X	X	X
Local Governments					
City of South Lake Tahoe	X	X	X	X	X
Douglas County	X	X	X	X	X
Carlson County	X	X	X	X	X
El Dorado County	X	X	X	X	X
Placer County	X	X	X	X	X
Washoe County	X	X	X	X	X
Other Local Agencies					
Douglas Cnty Sewer Improv. District	X				X
Incline Village Improvement District	X				X
North Tahoe Public Utility District	X				X
South Tahoe Public Utility District	X				X
Tahoe City Public Utility District	X				X
Nevada Tahoe Conservation District	X	X			
Tahoe Resource Conservation District	X	X			
Private Entities					
Heavenly Ski Resort	X				X
Homeowner Associations	X				X
Development Project Proponents	X				X
Private Property Owners	X				X

Modified from: TRPA. Environmental Improvement Program for the Lake Tahoe Region: Draft for Final Adoption. (Zephyr Cove, NV. 1998), 6.

authorizing the $300 million federal contribution to the EIP over the next ten years to preserve sensitive land, combat soil erosion, reduce forest fire risk and manage traffic congestion in the basin. Feinstein stated, "Lake Tahoe's Environment, and therefore its economy, are in serious peril. The lake's remarkable clarity is disappearing at the rate of over a foot a year as sediment and pollutants flow into the lake. In 10 years, experts say, the effects could be irreversible. This legislation is a cry for help for Lake Tahoe."[167] The State of California appropriated approximately $42 million towards the EIP. The Nevada State Assembly approved a bill authorizing up to $56.4 million in bonds as Nevada's share. The remainder of the state's share will come from voter-approved bond issues and other state money. It is supported by the Lake Tahoe Transportation and Water Quality coalition, local governments and the Washoe Tribal Council.[168] The bill authorizing federal funds is pending in Congress.[169]

Since the EIP was developed through a multi-stakeholder consensus process, opposition from the principle actors during its implementation should be reduced. Barring technical difficulties, and given appropriate amounts of funding, the projects or some variation on these projects should be completed. However, while the respondents generally were supportive of the idea of a coordinated basin-wide environmental improvement plan, some have expressed concern over the actual planning process. Some characterized it as an agency "wish-list" of projects without much effort to prioritize or target the impact. No effort has been made to systematically review the projects and their overall environmental impact. Moreover, once the implementation of the projects becomes a reality, other interests affected by the projects that have not been part of the deliberations thus far may voice opposition.[170]

Best Management Practices (BMPs)

To further enhance restoration efforts, the TRPA attempts to influence individual landowner's land management practices on existing residential development through a Best Management Practices (BMP) Retrofit Program. All new development is required to implement BMPs, while this is voluntary for older, pre-existing residential units. The retrofit program seeks to address existing residential development by providing education, technical assistance, and low interest loans to land owners.[171]

The TRPA acknowledges that not all properties should institute the same BMPs due to differences in environmental conditions. Once homeowners have enough time to comply, the TRPA will notify property owners with significant problems and work with them to develop solutions. Examples of BMPs in the Lake Tahoe Basin include re-vegetation, paving driveways, installing drip lines and stabilizing slopes. Commercial, recreational and public landowners are also required to implement BMPs. They must have a TRPA-approved BMP plan or must receive a waste discharge permit from the Lahontan Regional Water Quality Control Board. Working in cooperation with agencies such as the Natural Resources Conservation Service (NRCS), the voluntary program recommends property owners in extremely sensitive watersheds to implement BMPs by October 15, 2000. The target date for all properties is October 15, 2011.[172]

The Coordinated Transit System (CTS)

An example of the degree of collaboration possible is exemplified by the Coordinated Transit System (CTS) established in 1997. Transportation remains a difficult problem in the basin. Vehicle Miles Traveled (VMTs) have steadily increased and the TRPA is unlikely to reach its transportation thresholds in the foreseeable future.[173] The business community shares this concern and views traffic congestion as one of the major hurdles to improving the quality of the Tahoe experience for visitors.[174] The CTS involves local government, state, federal and private business actors. It includes coordination among the existing transit systems in the basin. It also provides information for visitors on schedules and the various forms of available transport other that automobile.

Redevelopment

One of the best examples of the benefits achieved by this goal-oriented approach is the Park Avenue Redevelopment Project. It is fundamentally designed to revive South Lake Tahoe's unsteady economy. The key component to the project is the redevelopment of aging lodging facilities and upgrading the small, scattered motels. The redevelopment plan calls for a gondola that picks up skiers in a central plaza and transports them to ski runs on both the California and Nevada sides of the Heavenly Ski Resort. The plan includes an entertainment plaza at the base of the lift, with shopping boutiques, an ice skating rink, a movie theater, and an arcade.[175] The project contains a significant environmental component including scenic improvement and a number of wetlands and stream restoration projects. The Park Avenue Redevelopment Project developed simultaneously with the CTS with a high degree of commitment from key actors.

The TRPA's increased focus on projects such as redevelopment and restoration projects rather than regulation is an important factor that contributes to increased collaboration. The establishment of a negotiated set of thresholds also allows the actors to mobilize toward a common set of goals. The threshold concept provides a concrete target for planners and permits flexibility within the regulatory system. Various types of projects are possible, so long as they contribute to achieving the thresholds.

The Presidential Summit

In July 1997, the Lake Tahoe Presidential Forum was held in the Lake Tahoe Basin. The event, attended by President Clinton, Vice President Gore, two governors, four United States Senators, several members of Congress, four Cabinet-level Secretaries and Administrators and dozens of other high ranking officials brought a tidal wave of attention and federal government funding to the Lake Tahoe Basin.[176] The Forum was a series of events organized by public, private, and tribal stakeholders and included community workshops framed around several focal issues: water quality, transportation, forest ecosystems, restoration, recreation and tourism.[177] One tangible result of the forum was a doubling of federal funding in Lake Tahoe over a two-year period. This was considered to be a down payment on the federal government's obligation pursuant to the EIP [Figure 22].

Figure 23: Financial Summary of Presidential Deliverables

Agency	1997 Base	1998 Base
US Department of Agriculture		
US Forest Service	2,868,000	2,695,000
Natural Resources Conservation Service	170,000	170,000
US Department of Defense		
Army Corps of Engineers	100,000	0
US Department of the Interior		
US Geological Survey	297,000	297,000
US Department of Transportation		
Federal Highway Authority	3,644,000	2,437,320
US Environmental Protection Agency		
Federal Highway Authority	8,225,000	1,803,000
US Postal Service		
TOTAL	15,304,000	7,402,320

Source: Tahoe Federal Interagency Partnership, *Presidential Forum Deliverables*, (South Lake Tahoe, CA, Tahoe Federal Interagency Partnership, 1997).

The Presidential Summit was well attended and had several positive effects. Among other things it:

- Focused federal attention and funds on Lake Tahoe
- Provided public education relating to declining water quality in Lake Tahoe
- Revitalized momentum for improving environmental conditions in the Region
- Provided a forum for discussion of the issues
- Resulted in a greater understanding of the issues and rejuvenated collaborative efforts
- Focused local activities and attention on the EIP

The large payoff coming from the Presidential Summit further increased the motivation for collaboration in the basin by demonstrating what could be accomplished when the actors found issues of common interest to work together on.

Analysis

The analysis of the case study is divided into two sections. The first identifies factors that influenced the success of a watershed management initiative, whether it is positively or negatively. In some cases, the Academy requested we explore the importance of certain factors (e.g., public and community involvement). In other cases, the factors emerged from our comparative analysis and review of the applicable literature. The second section examines the institutional performance of the TRPA and the planning process with criteria provided by the Academy.

Components of a Successful Watershed Management Program

We identified several factors that appeared to influence the development and implementation of this watershed management program: 1) the contextual situation; 2) public and community involvement; 3) use of science and other technical information; 4) a well-managed decision making process; 5) program administration; 6) collaboration; 7) EPA's programs and action forcing mechanisms; and, 8) performance-based management. The following sections discuss the importance of each factor to this case study. For a more detailed discussion of the definitions and concepts discussed in this analysis please consult the final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration and Institutional Performance*.

Context Matters

Contextual factors were critical in influencing the development and implementation of the *Regional Plan*. Four factors appear to have had the most influence while others are noted in subsequent sections of this report. First, the uniqueness of Lake Tahoe allowed it to maintain its presence on the policy agenda at the federal, state, and local levels. Tahoe has been the target of seven different attempts to place it completely under federal management. The unique beauty and accessibility of the Lake led to a high concentration of residents with significant economic and political power. The exclusive area of Incline Village not only has one of the highest per capita number of millionaires in the United States, but vacation homes of six of the world's billionaires. These are individuals who often have direct access to key policymakers and can directly lobby for increased attention to what they perceive as important local issues.

Secondly, the geographic configuration of the Lake itself focuses the surrounding communities on the watershed. The Lake surface is situated in the center of an oval mountain basin with one primary inflow and outflow, the Truckee River and the communities dot the shoreline.[178] The Lake is also the focal point for many basin activities from transportation and recreation to the economy. Nearly the entire land area of the watershed, except for portions in the flat area to the south, can be see from a watercraft sitting in the center of Lake Tahoe. With the highly visible boundaries and the Lake serving as a central focal point, watershed management is a visibly concrete concept to local residents. For example, when respondents were asked about the advantages of watershed management for Lake Tahoe, a characteristic response was, "what, besides the obvious?"[179]

Third, the dominance of the local economy by tourism led to a general convergence on the value of maintaining the Lake's water quality. A series of studies by private tourist consulting firms suggested that Lake Tahoe was beginning to lose its attractiveness as a destination. This awakened the big tourist businesses, such as skiing resorts and casinos, as well as the smaller motel and restaurant operators, about the value of environmental quality as a resource. While they may continue to resent many of the TRPA's regulations, they began to appreciate the rationale for the agency's existence and perhaps viewed it in more constructive terms.

Fourth, the long presence of a federal agency (i.e., USFS) controlling a large portion of the land area in the basin has always kept local government and development interests on guard against increased federal involvement. Attempts at placing Tahoe under federal management reminded actors of the possibility of losing all control over basin activities. The threat, and the occasional reality, of federal intervention such as court injunctions continues to force participants back to the negotiation table.

Public and Community Involvement

Critical to understanding the evolution of watershed management in the Tahoe Basin is realizing the importance of nongovernmental organizations (NGOs) to the development and implementation of the watershed management program. Public involvement occurred through a variety of formal structures during the development of the *Regional Plan* and in its periodic review. These include public meetings, advisory committees and public education programs. Public participation in Tahoe is exceptional since "the public" is remarkably well organized into various interest groups. These represent nearly the entire range of interests, including casinos, environmental organizations, private landowners and the various tourist businesses. Two key actors have been instrumental in building collaboration in the Lake Tahoe Basin; local government and civic associations.

Local government participation has been, and continues to be, essential to the watershed management efforts in the Basin. However, building cooperation between the TRPA and local government has been slow and gradual process that appears to be the result of three factors:

- Increased local government capacity
- Increased interaction that built trust between actors (eventually formalized in MOUs)
- Shift in the TRPA's focus from regulation to redevelopment

There has been increased planning capacity at the local government level over time. When the TRPA was created, local governments had no professional planners and little capacity or political interest in addressing environmental problems or limiting development. Hence, there was a great deal of conflict between local governments and the TRPA. The development of local planning capacity helped change this relationship. Increased interactions among professional staff in the TRPA and local governments helped increase trust at the institutional level. As one local government planner characterized it, "the confidence level is increasing on both sides." Most of this has been built around individuals working together on specific projects rather than through any formal collaborative mechanisms. Evidence of the evolving trust is the expanding use of MOUs to delegate authority to local governments as part of the TRPA's efforts to streamline permitting.[180] Improved local capacity has also facilitated the shift as one county planner put it from "no development to redevelopment." There is a shared perception that the basin's infrastructure is badly in need of improvement. This creates an opportunity to not only increase tourism but also to restore the environmental damage caused by poorly planned development in the past.

The development of a supportive constituency for basin planning entailed more than just getting local government support and collaborating with public agencies. Some of the most

important political actors in the basin are civic associations.[181] All sides of the ideological spectrum exercise veto power over basin management through one form of another. There are three critical actors that have defined the tone and direction of basin management. The organization typically understood as pivotal to environmental politics is The League to Save Lake Tahoe. Equally important in defining the direction of watershed governance has been the Tahoe-Sierra Preservation Council which protect property rights. Both organizations have been important in bringing different interests to the table and in exercising de facto veto power over the process through the courts. A third organization, The Gaming Alliance, played a key role in the development of collaboration through the formation of the Tahoe Transportation and Water Quality Coalition. Interestingly, public agencies such as the TRPA appeared to play a role in helping these disparate interests to find ways to work together by providing a routine source of interaction that allowed relationships to develop over time. The NGOs were then able to leverage this social capital to form a collaborative organization that now undertakes projects and leverages existing political networks to lobby Congress. Conversely, the collaboration among these seemingly disparate interests helps add credibility to the TRPA and its efforts.

Use of Science and Other Technical Information

Lake Tahoe has the dubious distinction of having had its declining clarity monitored continuously for about forty years. Basic research and scientific models have always been at the core of Tahoe policy.[182] From early studies on the effects of sewage[183] to the use of the Bailey classification system as the foundation of the Individual Parcel Evaluation System (IPES)[184] science has informed Tahoe policy. The TRPA also monitors the addition of land coverage in the region through individual project reviews and maintains records on compliance. The information is updated and maintained through the Tahoe Environmental Geographic Information System (TEGIS).[185]

Scientific research continues to drive policy in the basin. Few watersheds have received this degree of scientific attention and resources. However, we believe there is a need to further "nest" the scientific research within the TRPA's decision-making process. In spite of the high quality of scientific research, there are still comments by high-level agency officials that there exists the perennial missing link between the academic research and the information needs of policymakers. While this reflects a constant tension between academics and policymakers, it is surprising that it persists even in an environment as resource rich as Lake Tahoe.

The rift between the needs of policymakers and the agenda of researchers follows the standard divide between basic research and specific time and place information. Aside from monitoring, the academic community has not engaged in collaborative research in the Basin to the extent policymaker prefer. While academic research centers publish results on the general process of eutrophication in alpine lakes, policymakers are interested in the effects of individual projects on geographically specific processes causing clarity decline in the lake relative to impact from other sources. The TRPA and EPA have organized several research symposiums over the past year to encourage collaboration and to provide an avenue for researchers to better communicate information and ideas to decisionmakers. The current goal is to organize members of the scientific community into a Science Advisory Group and Policy Group to orient research more directly towards pressing policy questions. Positive outcomes have resulted from recent

efforts to encourage collaboration amongst researchers in the basin. One of the best examples is the recently signed MOU between key researchers and research institutions.[186]

Decisionmakers in the basin also complain that the most difficult coordination in the basin has not been between agencies, but rather in attempts to coordinate the efforts of the academic community and various research institutions. The incentive structure of academic research does not favor coordination or collaboration among researchers. With the high profile of Tahoe following the Presidential Summit and the release of the EIP, there has been increased interest by other academic institutions. While some members of the policy community welcome the competition with the Tahoe Research Group, others express the concern that limited resources will be wasted through unnecessary duplication of effort. Recent federal funding toward increased modeling is another means of making scientific data more accessible to policymakers.[187]

Due to the highly charged political implications associated with scientific research in the basin, new studies and information are followed closely by the basin's major interest groups. The results of various studies are typically diffused throughout the basin via different information sources and interpreted according to various political agendas. Those opposing current regulations use new information to illustrate the failure of regulatory efforts to correctly target the problem while environmental groups utilize the latest studies to justify increased action by agencies. There are also less politicized mechanisms for conveying scientific information to the planning process. The Advisory Planning Commission (APC) provides one mechanism for incorporating scientific information into the Governing Board's decision making. Despite the highly charged political implications of research in the basin, the APC has been characterized as generally a collegial institution. Additionally, there appear to have been few conflicts with the APC and the Governing Board over final policy decisions in recent years.[188]

Monitoring, modeling, and information technology have also taken on increased importance in Lake Tahoe. Presently, key agencies in the Tahoe Basin have an impressive information management system.[189] Coordination between the TRPA and USGS produced the Tahoe Environmental Geographic Information System (TEGIS), an information system with easy accessibility for both the public as well as the research community.[190] Within the TRPA World Wide Web (WWW) site, private landowners are able to retrieve on-line the IPES and Bailey scores for any of the almost 50,000 private parcels in the basin.[191] Increasing public accessibility to ordinances and other on-line information has been discussed by using information kiosks located in local government offices. Many of the key TRPA regulatory documents are available on-line; including the *Environmental Assessment for the Prohibition of Watercraft, 1996 Threshold Evaluation, the Code of Ordinances, TRPA Goals and Policies* and many applications and forms. Additionally, minutes from Forest Health Consensus Group Meetings, Advisory Planning Commission Agendas, and Staff Summaries are available online.[192] The USGS offices in the basin made geographic information coverages widely available.[193] There are discussions of making an upcoming computer model of water quality in the basin available on-line, with the most current real-time information, so that any citizen or planner can examine the impact of different regulatory polices and projects.

There is also discussion of increasing the information relevant to policymakers through the use of real-time monitoring.[194] One of the promised Presidential deliverables was an $880,000 grant from the EPA to the TRG.[195] Local governments generally expect this will lead to a more rational allocation of resources, environmental groups hope it will assist in targeting hot spots, while those critical of TRPA's current regulations generally expect "better science". A great deal of optimism has also been expressed by many of the members of the policy community about the use of basin modeling. Unfortunately, this high degree of optimism may be misplaced if the parties fail to first agree on the fundamental assumption used in the models. This does not appear to be occurring. Policy prescriptions derived from modeling complex stochastic environmental systems are no less politically contestable than other scientific evidence and may actually lead to greater disagreement. The academic community often contests and debates empirical scientific results, especially the results of modeling efforts. There is no reason to suspect that politicians and interest groups will not do the same. Thus, we expect the results of the modeling efforts to be hotly contested.[196]

Well- Managed Decision-Making Process

The Lake Tahoe case also reveals the importance of a well-managed decision-making process. The manner in which collaboration evolved suggests that it is important that the rules governing decision-making provide adequate input to all interests. While this does not necessarily mean representation within formal governing structures, it requires some mechanism through which dissenting opinions can be voiced [Figure 18]. If these are not present then dissenters may be forced to use more costly forums. It has also proved to be beneficial to have a set of focal problems around which basin actors can focus their collaborative efforts. The presence of clear and measurable goals appears to give further focus to collaborative efforts and helps improve the overall accountability of the program. Leadership and having a central organization (e.g., TRPA) that can act as a facilitator or a common point of routine interaction that can help develop relationships and serve as a forum for finding opportunities for collaboration also appeared to be important. In summary, the following factors were important in helping move the watershed management effort from conflict to collaboration:

- Representation and formal governance
- Creation of consensus building groups to negotiate conflicts
- Veto power available to all actors
- Leadership and initiative
- Process focus, rather than static framework

The early formal structure of the governing board gave significant power to local representatives. This favored development interests and local governments. Consequently environmental interests used lawsuits by The League and California to voice their interests and had halted development in the basin by 1984. Increasing state-level representation on the Governing Board as a result of the revised compact in 1980, helped to balance stakeholder interests. While environmental interests called this a victory, the business community was not rendered impotent. Rather, it learned to accept the presence, and even necessity, of the TRPA.[197]

Since most basin interests are formally organized and have a long history of interaction in watershed management decisions, public meetings are the least important avenue of interaction for understanding Tahoe. Much of the transformation of the basin from a "war zone" to one of collaboration and cooperation was due to the use of workshop groups during times of conflict. This began with the Consensus Workshop Group (CWG) used to negotiate the Regional Plan in the mid-1980s. Similar groups have since been created for specific issues including the Forest Health Consensus Group, the Shoreline Partnership Group, and the Federal Advisory Committee (FACA).[198] While many respondents suggested that the current groups were not as effective at consensus building as the CWG, this view may overlook the ancillary benefits resulting from these interactions and efforts to manage basin conflict (i.e., opportunity to build trust and personal relationships and identify future opportunities for collaboration).

While state and local governments dominate the governing board and APC and have the final say on all projects, there are avenues for the various NGOs to voice and advance their interests in the decision-making process [Figure 18]. Members of interest groups have a strong presence on the aforementioned working groups. While such working groups are primarily a mechanism for deliberation and serve in an advisory capacity, they do present a formal mechanism for expressing some voice in the decision-making process. The NGOs have also formed their own collaborative organization, the Lake Tahoe Transportation and Water Quality Coalition, which has taken on a leadership role in the Basin and is the source of a great deal of interorganizational collaboration. The legal process remains an important option for exerting influence for some NGOs. The final means of access to management decisions is that of the courts. Access to, and decisions by, the judicial system continues to shape basin management. Even when not actively utilized, the threat of legal action and the associated costs of fighting these battles serves as an important incentive for finding alternative means of resolving disputes.[199]

While it proved to be difficult to disentangle the effect of individual leaders from structural and institutional changes in the TRPA and the changing institutional environment, individual Basin leaders were often credited as playing a crucial role in the shift from conflict to collaboration. The TRPA hired a new director in 1994 and he was the person most frequently cited as helping to change the old attitudes and for shifting the emphasis of the TRPA from regulation to restoration.[200] He was also mentioned as playing a key role in the two years of behind-the-scenes meetings and negotiations that reached agreement on the most recent five-year threshold review.[201] His leadership also was responsible for a change in the TRPA's philosophy to "the project is the fix", although the TRPA's previous director was also credited with helping lay the initial groundwork for increased interagency collaboration. This shift was a move away from a previous philosophy that aggressive regulation would solve the basin's problems towards one the focused on developing proactive partnerships with other organizations and agencies that worked towards redevelopment and restoration. Other individuals also helped bridge the ideological divide and were instrumental in realizing this shift towards collaboration.

Many respondents also cited the leadership of The Gaming Alliance and the Director of The League as being instrumental in building on the relationships that developed through repeated interactions with the TRPA. Our interviews with individuals present during the negotiation of the Regional Plan highlighted the trust that emerged from forced negations

through the CWG. One NGO director observed that "there is still consensus building during coalition building, but the early meetings are what really built that cooperation and now we have many more focused subgroups." The director of another NGO reported, "we started to work on issues instead of philosophies."[202] Interest group leaders involved in the wave of lawsuits against the TRPA also stated that the shift in attitudes was due in part to the realization that there were high costs associated with using the courts to try and block TRPA decisions. One of the groups active in litigation reported, "we don't want to go back to the days of conflict. From our point of view it is better to accept some things than go back to fighting…there is more to be gained from cooperation . . ."

Program Administration

There is also no substitute for a well-managed program. It is no coincidence that the effectiveness of the TRPA as an agency has improved over time as its administrative capacities improved. Issues like staffing, grants management, recruitment, and leadership were not important problems. Conversely, the presence of a highly professional and specialized staff and slack organizational resources appeared to help foster the shift from conflict to collaboration and improved the TRPA's organizational performance. Slack resources are needed to help organize collaborative efforts and undertake actions as a result of collaborative activities. After all, if no organization has time to do more than go to meetings, then little can be accomplished as a result of collaboration. Other respondents noted the improvements that had occurred in how the TRPA implemented its programs over time as a result of the maturation of the agency and its staff.

The increased capacity of local governments and their addition of professional planning staff also appears to have facilitated the devolution of permitting responsibility from the TRPA to local governments. This allows the TRPA to spend less time on local issues and more time on regional issues. The TRPA has also developed a sophisticated system for monitoring and enforcing the provisions of the MOUs that guide this devolution of responsibility, another sigh of the TRPA's administrative capacity.

It also appears that there is a healthy "culture of collaboration" within the TRPA. These efforts are supported by the agency's leadership and many of its staff. The TRPA's leadership also appeared to recognize the increased transaction costs that often result and works to ensure that there is adequate staff support for collaborative efforts. For example, the TRPA uses "I-teams" or inter-agency project focused work teams on collaborative projects. These have been used with the EPA, USFS, CTC and Lahontan on various projects. As reported by an agency director, "There are few projects that can be done by just one agency." The TRPA is also willing to share credit for the collaborative activities with other agencies and is more than willing to take a back seat and let groups such as the Lake Tahoe Transportation and Water Quality Coalition take the leadership role. This is very different than the early days of the TRPA.

Additionally, this case illustrates the significance of a steady and stable flow of resources. Due to the national significance of Lake Tahoe and its resources, the Basin actors have been blessed with some sizable federal and state resources devoted to environmental improvements. The land acquisition and restoration efforts of the USFS and the CTC are two notable examples. The importance of resources can also be seen in the revised compact. Under the original

compact, funding restrictions hampered the TRPA's ability to fulfill its mission. When the TRPA's resource base was expanded, the agency improved its staffing and technical specialization and eventually developed the slack resources necessary for the collaborative activities noted in the report. However, it wasn't just the availability but also the stability and flexibility of the resources that was important. The capital outlay programs in the 1980s provided a large, stable, and flexible source of funding for environmental improvement projects. This not only encouraged project-level collaboration but also allowed the actors to prioritize land acquisition efforts and develop a systematic program for addressing specific environmental problems. It also facilitated the TRPA's move from a regulatory agency to a coordinator of environmental improvement projects.[203] We expect that the funding for the EIP would have an even more dramatic effect in terms of encouraging collaboration. Moreover, the design of the EIP illustrates the value in providing funding for NPS and restoration projects pursuant to flexible categorical grants that allow the actors at the local level to prioritize how the funding is spent (i.e., using the EIP). This is very different than the structure of current federal grant programs such as the EPA's Section 319 program that provide narrow categorical grants that are issued in accordance with federal and state policies rather than local policies.

Collaboration and Building Effective Partnerships

The common theme throughout this report is that the evolution of the governance arrangement in the Lake Tahoe Basin represents a gradual shift from being one based on conflict to one that is increasingly characterized in terms of collaboration. The atmosphere of collaboration that currently exists was born of a very costly process of conflict and the gradual building of trust between diverse actors. One local business representative summed up the evolution of collaboration in the basin with: "Alright TRPA, you are not going to go away, we can't sue you out of existence, we can't go to the Nevada or California legislatures and legislate you out of business, we can't go to the feds and have them do away with you, so we will work with you. Ok. That message got into the community by '92. That cooperation was the way to go." This attitude continued to develop as a result of the creation of successful partnerships, successful projects, and the continued use of collaborative forums and conflict resolution mechanisms.

The report notes several potential factors that have influenced this shift. The presence of a common meeting arena and a common adversary (i.e., the TRPA) created the opportunities for interaction and conflict that eventually resulted in the slow development of understanding and trust between the groups. This proved to be the foundation that early collaborative activities could build upon (e.g., Lake Tahoe Transportation and Water Quality Coalition). The presence of well-developed NGOs representing competing interests created important symmetries of information and power with each group having both the information and ability to influence the TRPA's decision-making process, albeit in somewhat different ways. The costs of litigation also created strong incentives to try and resolve issues in a less costly manner. Over time, it became clear as one respondent noted that: "If you have this process where everyone can veto, what it becomes is an understanding that in order to get 'A' you have to give up 'B'. As a whole we are going to get consensus because everybody needs something, everybody wants something and everybody is afraid of something."

Another important factors appears to be that the actors were able to find ways to link seemingly disparate issues (e.g., transportation, economic redevelopment, and environmental improvements) in ways that were of mutual interest and to then find activities that addressed these issues that produced win-win or win-no lose situations. At the same time, the actors were willing to agree to disagree on other issues and respect these political differences. As one interest group leader reported, "after several years of working together, we started building up some level of trust amongst the executive directors of various groups". This doesn't imply that former ideological division have disappeared. However what has been developed is a mutual understanding that cooperation will be pursued in some areas, even when disagreement might remain on others. As one interest group leader reported, "On some issues we agree and on others we sue."[204]

The report also notes that the development of improved capacity and the presence of slack organizational resources in the TRPA, various government agencies, and the NGOs combined with the presence of collaborative organizations such as the Lake Tahoe Transportation and Water Quality Coalition increased the capacity for collaboration. Stable funding sources such as those available to the USFS and CTC along with the recent focus on redevelopment have created many opportunities for project level collaboration. The TRPA and various NGOs have provided the leadership necessary to get many of these collaborative efforts started and to continue finding new ways to collaborate. An important "culture of collaboration" has also developed among the actors. The TRPA does not look for credit for all of the activities in the basin and is more than willing to relinquish the leadership role to groups such as the Lake Tahoe Transportation and Water Quality Coalition. Perhaps the best indicator of how far the spirit of collaboration has now moved is the EIP. It will be funded and implemented collaboratively and its success will depend on the active involvement of numerous governmental and nongovernmental actors. Accordingly, we expect this shift towards greater to collaboration will continue to evolve and deepen in the foreseeable future.

The benefits of this collaboration are also numerous. The activities often lead to environmental improvements that otherwise would not occur. Several of the redevelopment projects are excellent examples. Efforts to gain environmental improvements have also led to improvements in other policy areas as well. For example, a redevelopment project improving tourism facilities and generating affordable housing while at the same time improving environmental conditions. Collaborative activities have also improved watershed governance. It has helped improve the cost-effectiveness and decision making of various agencies. Coordinating land acquisition purchases with the TRPA's IPES allows these resources to be used more effectively. The public investments associated with redevelopment activities are helping generate a greater return on these investments. The delegation of permitting to local governments through the MOU process has reduced some of the administrative costs for the TRPA and allowed them to focus on other issues while at the same time improving service delivery from the standpoint of the permit applicants. Collaboration has also improved the ability of the actors to leverage additional financial resources (e.g., $900 million EIP) and lobby more effectively (e.g., Lake Tahoe Joint Federal Legislation Agenda). The interactions that occurred as part of these collaborative activities also appeared to stimulate the type of policy-oriented learning that have helped change policy. In fact, the shift in emphasis from regulation to restoration projects is itself a policy change born out of this interactive process. These efforts

also appear to have added other larger social values. The improved trust at the individual and interorganizational levels is an important source of social capital that is now being leveraged in subsequent collaborative activities. As one interest group leader reported, "We negotiate some of the disputes through, some of the people involved in the coalition now have relationships and they can set up these informal meetings to work out problems without it being a formal process." The development of collaborative documents such as the EIP and new institutions such as the Lake Tahoe Transportation and Water Quality Coalition create important institutional infrastructure that lead to subsequent collaborative efforts (e.g., Presidential Summit). Finally, the development of the NGOs and heavy use of work groups and other participative forms of interagency decision-making creates important opportunities for the public to become involved in governmental and nongovernmental institutions, which can help enhance the development of a civil society.

While this movement toward collaboration is an important step in the evolution of the governance framework for the Lake Tahoe Basin, other strategies to enact change and improve the basin's management such as unilateral action, lobbying, legislative intervention, and litigation remain important strategies that will and should be used by various agencies and interest groups in order to protect the interests of the constituencies they represent. It is also important to recognize that while there is a great deal of collaboration occurring, it is less clear whether it is always focused on the "right" issues. Since collaboration tends to focus on noncontroversial issues, others are likely ignored. It may also serve to narrow the range of potential solutions, since actions that are more politically controversial, regardless of their scientifically merit, are likely to be avoided. The philosophy that "the project is the fix" may ultimately prove to be as constraining as the earlier "regulation is the fix" approach that dominated the TRPA's early history. Accordingly, we believe it is important to recognize that a mix of both strategies is needed. Moreover, some conflict can and should occur and is in fact an important component of our federal system.

EPA's Role in Watershed Management

By all accounts, the EPA had a relatively minor role in the consensus process leading to the current regional plan or the plan's implementation. While the TRPA made attempts to enlist support and resources from the EPA, initially they did not receive much support. One staff member characterized the relationship as one where the EPA simply "wouldn't listen to us". They continued to explain their perception of the lack of interaction between the two agencies as due to the fact that the EPA is always looking for "a new version, a new way, a new flavor of the month to get people to start . . . and we were well beyond start up and so you go to talk to these staff, and even the higher-ups, and they are not even hearing you because that is not even in their minds." In recent years, the relationship between the TRPA and the EPA has improved dramatically. Communication and coordination with the Region 9 Office is reportedly better than it has ever been in the history of the TRPA and this is likely due to the fact that the Presidential Summit elevated the issues on the EPA's agenda.

The EPA was primarily involved in funding many of the early water quality studies and provided much needed funding to other federal agencies and university researchers active in the basin during that same period.[205] The EPA was also active in assisting in sewage treatment and

facilities for export out of the basin in the early 1970s. It provided funding for development of the Section 208 Plan that is still being implemented in the basin and is an important part of the Regional Board's water quality regulations in the basin. Through Sections 205(j) and 319 of the Clean Water Act, the EPA also provided grants for environmental planning studies and restoration projects in the basin.

Currently, the TRPA has a permanent EPA representative detailed to the agency. The position was created one of the presidential deliverables following the summit [Figure 22]. The EPA representative performs the following roles:

- Acts as a liaison and facilitator between the TRPA and the Region 9 Office
- Coordinates funding of scientific studies in the basin
- Organizes scientific symposiums
- Facilitates working groups such as the Forest Health Network
- Facilitates access to EPA information for local agencies and organizations

The Regional Plan and all TRPA planning efforts are also based on the basin's Section 208 Plan, also referred to as the *Water Quality Management Plan for the Lake Tahoe Region*. The EPA designated the TRPA as the Section 208 Areawide Waste Treatment Planning Agency for the Lake Tahoe Basin. The Section 208 plan details many things including the identification of nonpoint sources of pollution, an evaluation of the effectiveness of erosion control devices, and the costs associated with implementing erosion control devices. The California State Water Quality Control Board (SWQCB) rejected the original Section 208 plan because of its voluntary nature, but it finally accepted a more proactive plan in 1980 that was the result of a compromise between the TRPA and Regional Board. The resulting *Water Quality Management Plan for the Lake Tahoe Region* applies only to the California side of the basin. Impacts from parcels on the Nevada side are designated to be reviewed on a case-by-case basis.[206] This was negotiated in the 1987 final Regional Plan.

While rarely used as a planning mechanism elsewhere, the Section 208 Plan is an integral part of the management of the Lake Tahoe basin and was important to the negotiation of the final Regional Plan. As staff commented, "The 208 Plan is the gorilla in the closet". In 1978, as part of the original 208 Plan for the region, the TRPA adopted the Uniform Regional Runoff Quality Guidelines (URRQG). Both California and Nevada subsequently incorporated the URRQG into their state water quality management plans. In 1982, the TRPA adopted similar thresholds. The 1978 guidelines are more stringent than the 1982 thresholds and are used as the criteria for evaluating the quality of surface runoff.[207] The basis of the land capability system and IPES is also included in the 208 Plan. A high level official in the TRPA stated "if 208 is history… we would lose our basic structure…we would have to change the regional plan." It also means that any fundamental change to the TRPA's plan will require changing the Section 208 Plan as well, which is a lengthy and prolonged process subject to numerous avenues for legal challenges. Thus, while the Section 208 Plan serves as a protective backstop, the fact that fundamental changes to the TRPA's program require changing the Section 208 plan as well serves as a powerful incentive for actors to work within the current regulatory system because making fundamental changes will require a long process of renegotiating the Regional Plan.

Performance-Based Management

Performance based management was explicitly written into the new 1980 reorganization of the TRPA. The threshold concept emerged from a highly contentious process of negotiating the 1980 compact. The threshold concept was further refined as a result of the many lawsuits and long negotiations that were associated with the development of the Regional Plan.[208] The thresholds were designed to minimize the cumulative and secondary impacts of development that often result from a project-by-project approach to regulating development projects. The thresholds created a common set of long-term goals that apply to all of the basin actors and the development of the Regional Plan and its associated implementing ordinances are supposed to ensure that the thresholds are achieved over the long-term.

An important component of the threshold concept is the requirement that the TRPA evaluate the progress towards the thresholds every five years. This involves regularly monitoring a wide range of data and environmental parameters [Figure 10] and then evaluating the data every five years to determine whether the thresholds are being achieved [Figure 17]. This process helps improve the TRPA's accountability. It also presents a common source of information on changes in environmental conditions in the Lake. Moreover, while there may not be a shared vision of what the Lake should look like today, the threshold review process has helped the actors to reach agreement on what it should not look like in twenty years. As a member of the local business community stated, "I think there is a common vision of what we don't want and that becomes a very powerful motivator of what we do want." The threshold review process was also instrumental in stimulating the type of policy-oriented learning that resulted in the shift from regulation to collaboration. After two less than promising threshold reviews, it became clear to many of the actors that further tightening of the basin's regulations was unlikely to stop or reverse the declines in some of the thresholds and that a greater emphasis on restoration projects was needed. Thus, the threshold review process helped stimulate the development of the EIP and further reinforced the TRPA's change in focus from regulation to restoration projects.

Institutional Performance

When examining the performance of an institutional arrangement, it is important to use a variety of criteria to gain a better understanding of its strengths and limitations. It is also important to recognize that there may be a discontinuity between the performance of an institutional arrangement and its ability to achieve the desired environmental outcomes.[209] For example, there can be a well functioning institutional arrangement but the if the underlying policy is flawed, it will be unable to achieve the desired outcomes. The nature of watershed management also makes it difficult to determine causality. Numerous federal, state, regional, and local programs have an impact on the outcomes of interest (i.e., changes in water quality and habitat). It is difficult to disaggregate the effects of each program let alone determine which marginal changes in these programs were due exclusively to the watershed management program. Moreover, given the prevalence of collaborative arrangements in this case study, it is important to assess performance from the perspective of different actors since the measure of success might change as you move from node to node in a network.

Our analysis relies on criteria provided by the Academy. These criteria include: 1) risk reduction; 2) potential for short- and long-term gain; 3) cost-effectiveness; 4) predictability of the process; 5) certainty of effect; 6) accountability; 7) equity; 8) adaptability; and, 9) capacity building. A more detailed discussion of the definitions, concepts, and the application of these criteria can be found in our final report entitled *Environmental Governance in Watersheds: The Importance of Collaboration and Institutional Performance*.

Risk Reduction

This criterion is concerned with the question of whether the TRPA demonstrated an ability to achieve the desired environmental outcomes. We are primarily concerned with the TRPA's ability to achieve the established thresholds. However, there are some limitations on the ability of any management plan that should be reiterated. The waters in Lake Tahoe have a 700-year residence time. That means a single drop of water remains in the Lake for that period before being cycled out of the basin. The specific causes of decreasing clarity are still largely unknown. It may be the recent wave of development, or logging during the Comstock era, or atmospheric deposition from the Sacramento Valley. Even with that caveat, there has been progress towards many of specific thresholds [Figure 17]. It is also reasonable to conclude despite the lack of a comparison case that there are fewer houses in the Tahoe Basin today than would have been there if the TRPA had not been created. The TRPA's development restrictions are also among the most stringent of their type in the country. The land acquisition efforts and restoration projects are also notable. Thus, we are confident that the TRPA demonstrated an ability to improve environmental conditions. Moreover, the thresholds that remain in nonattainment involve complex problems that are still poorly understood and may be impossible to achieve due to factors exogenous to the basin. Others such as transportation and the achievement of VMT threshold are problems that few government jurisdictions have had success in achieving.

Potential for Short and Long Term Gains

We also believe that there is the potential for both short and long-term gains. The development restrictions should prevent any major declines over the short-term while progress on the EIP continues. The potential for long-term gains (5 – 20 years) is more uncertain. The exact causes of declining lake clarity are unknown. The scientific community has given Tahoe a ten-year period to reduce nutrient levels before the damage to water clarity may become irreversible. The ten-year timeline was repeated like a mantra by a diverse range of actors with many now accepting that they may be nearing a point of no return. Accordingly, the potential for long-term gains likely lies in whether the actors are able to get the funding necessary to implement the $900 million EIP and whether these projects actually address the right causes of the declines in lake clarity.

Efforts at this point appear promising. A significant number of the presidential deliverables were received [Figure 23] and the success in attracting the necessary commitments for the federal and state share of the EIP's funding are encouraging. The respondents also reported that they continue to "ride the wave" of the presidential visit and have been able to attract other resources to address basin problems. The payoffs associated with the presidential

summit combined with the success of recent collaborative efforts create incentives for subsequent collaborative activity and generated a strong culture that supports this type of activity. The most recent five year threshold review was released with little opposition and there appear to be few highly contentious issues in the immediate foreseeable future that are likely to pit the major governmental and nongovernmental actors against one another and serve to derail these efforts. Many institutional mechanisms and incentives also exist to continue the current level of collaboration into the foreseeable future. Thus, we are optimistic about the potential for long-term gains in the Lake Tahoe watershed.

Cost-Effectiveness

Since efficiency is an important principle of public administration it is important to examine the cost-effectiveness of the program. We are concerned primarily with how a program uses its resources compared to the benefits it generates. This includes the wide range of intangible costs and benefits associated with the collaborative activities. While few respondents noted any significant examples of wasted expenditures, it should be emphasized that the TRPA remains primarily a regulatory agency that develops, monitors, and implements the Regional Plan using a participatory decision-making processes that increases transaction costs. While this has paid off in terms of the Regional Plan's acceptance by seemingly disparate interests, the quantification of the costs and benefits of this consensus building process were beyond the scope of this analysis. However, while the process was and continues to be time-consuming, most respondents viewed this investment of time and resources in positive terms and noted that there did not appear to be any way to shorten or reduce the transaction costs of these processes. It also appears that the routine interaction between many of the basin's key actors has had the ancillary benefit of reducing the duplication and overlap of planning or implementation efforts. Thus, these resources appear to be well spent.

A number of mechanisms appear to enhance this level of efficiency. First, NGOs are well developed and actively monitor agencies such as the TRPA. Thus, there is a strong incentive for the TRPA to use its resources wisely to avoid public scrutiny. Moreover, dual state oversight combined with local financial contributions encourages efficient resource allocation since the representatives of these institutions sit on the governing board and are naturally interested in seeing that there resources are utilized effectively. Periodic state audits also maintain a high level of financial accountability.[210]

The increased devolution of permitting responsibility to local governments has also increased the efficiency of the TRPA's permit process. It appears to have resulted in some reduction of the TRPA's costs of issuing permits for these development activities which allows it to focus more on collaboration and other regional issues. Although staff did report that resources used for permit review and enforcement are largely being replaced by the costs of monitoring local governments and increased training. However, the TRPA's hope is that over the long-term the initial start-up costs associated with devolving this permit authority will be replaced by lower permit review costs as more activities are devolved and lower monitoring costs as trust is increased.[211] This should allow the TRPA to shift even more attention to larger regional issues. At the same time, it has reduced some of the transaction costs associated with the recipients of these permits because they can now receive the approvals for some projects from the local

government instead of having to receive permits from the local government and the TRPA. This appears to be resulting in increased public support for the TRPA as the number of permit "horror" stories attributed to the agency decline and applicants increase their interaction with local governments.

Predictability of the Process

Institutional performance can also be judged in terms of the predictability of the process. We are concerned with whether a program creates predictable conditions or requirements that allows its participants to plan and budget with confidence. The planning process led to predictable results in a number of ways. First, the act of meeting in ad hoc groups and workshops prior to a formal decision being made allows the parties to identify potential disputes earlier in the decision-making process, which helps lower the transaction costs associated with these conflicts. Second, the stability of the TRPA's *Codes and Ordinances* has given the development community a standard in which to work. The general tone was that the development community cared less whether there were building regulations, so long as they knew what they were, how they were applied, and that they did not change frequently. Third, the various TDR provisions, the CTC's land acquisition programs, and the mitigation fees help add some flexibility to address problems created by the unpredictability of the TRPA's regulations. Finally, the stability and flexibility of the resources in the land acquisition and restoration programs administered by the USFS and the CTC have helped the actors prioritize acquisition efforts and do project-level planning and budgeting with some degree of confidence. The big question in the future is whether the funding for the EIP will be secured and available such that the basin actors can plan and budget their future restoration efforts with the same degree of predictability and confidence.

Certainty of Effect

One measure of success for any planning effort is whether the plan that is developed is implemented and whether the actions taken to implement the plan have the desired effect. The regulatory nature of the TRPA combined with the extensive monitoring of the TRPA's decisions by other governmental and nongovernmental actors necessarily implies that there is a high degree of certainty that the provisions of the Regional Plan and the Codes and Ordinances will be implemented. It is less clear that the actions taken will be sufficient to achieve the TRPA's thresholds, hence the recent emphasis on restoration activities and the EIP. It is less clear to what extent the actions described in the EIP will be implemented. Efforts to achieve the necessary funding commitments appear promising. However, it is unclear whether the local governments will be able to afford their share of the EIP's costs. It is also unclear if the projects will be implemented exactly as they are described in the EIP or whether a surrogate set of projects will be implemented. This question is less important to us than the question of whether the actions proposed and undertaken will actually be sufficient to stop and reverse the decline in lake clarity or other environmental thresholds. We believe that a greater understanding of the causes and effects of declining lake clarity and their linkage to projects proposed in the EIP may be warranted to ensure that the proposed investment of $900 million dollars actually achieves its intended effect.

Accountability

Accountability is an important principle of public administration. We identified a wide range of accountability mechanisms being used by the TRPA and its implementation efforts, some of which have already been highlighted in the report. First, the TRPA's governing board and APC combined with the use of various working groups serves to improve the accountability of the TRPA's director and staff. Second, the changes in the rules governing project approval introduced by the 1980 Compact Revision helped improve the accountability of Governing Board members for their votes. No longer were projects approved by inaction. We believe this and other changes in the voting rules greatly improved the TRPA's accountability. Third, there are well-developed NGOs representing all of the basins major interests that regularly monitor, and sometimes challenge the TRPA's decisions with lawsuits. This serves to improve the TRPA's accountability as well. Fourth, the way the TRPA is funded with allocations by the state and local governments helps improve accountability because the actors have the option of withdrawing their financial support[212] and can use financial audits[213] to review how the TRPA has spent its money. Finally, the TRPA uses an open decision-making process with respect to permit decisions, providing an opportunity for any individual or organization to comment on a project before the Governing Board renders its decision. Accordingly, it is similar to the process local government use in reviewing development projects.

Equity

Another criterion for examining institutional performance is equity or fairness. There are various ways to view the concept of equity. Fiscal equivalence holds that those who benefit from a service should bear the burden of financing it. Thus, those who derive greater benefits are expected to pay more. Redistributional equity concerns structuring program activities around differential abilities to pay. Considerations about the equality of the process itself and differential access to decision-making are also important.

Overall, the TRPA has few major equity problems. This is likely due to the fact that it is the product of an interstate compact such that most of the potential equity problems were thoroughly debated while the original and revised compacts were debated. In fact, the prolonged negotiations on the revised compact involved many equity issues between the two states and the representation on the Governing Board reflects equity concerns as well. The 1987 Regional Plan and many of the unique features of the regulatory framework such as IPES and TDRs were products of negotiations that tried to balance equity issues. The openness of the TRPA's decision-making process combined with the presence of established NGOs to represent the major interest groups who will use the legal process to challenge "unfair" decisions helps to further promote equity in the TRPA's decision-making process and assures that various interests are represented. However a number of difficult equity issues are present in the basin:

- Distribution of environmental cost to neighboring regions
- Gentrification of the basin caused by regulations
- Location of affordable housing and cross-county equity
- Ability of public and small business to use market-based mechanisms
- Representation of small businesses in the planning process

The initial solution to the sewage problem in Lake Tahoe was to export it out of the basin. This effectively moved the externalities resulting development from one watershed to the other watersheds since there has been some introduction of additional nutrients into these watersheds.[214] This has created some water quality problems in the other watersheds. Similarly, the recent ban on two-stroke watercraft engines (e.g., wave runners and jet skis) on the Lake may have shifted their use to other water bodies in the region, which would increase the impacts on these waters. In both cases, the politically powerful and organized interests in the Tahoe basin used their unique regulatory authority to shift their problems to other watersheds that lack similar political power and organized interest groups that could block these actions.

The TRPA's regulatory framework developed to protect the lake has essentially frozen housing development around the prime lake shore locations. Currently, potential building space on the Nevada side is almost at capacity while significant numbers of empty and buildable lots remain on the California side. Restrictions on housing construction generally increased housing prices around the lake and caused the gentrification of the watershed. This can be seen most dramatically in Incline Village, Nevada where new housing can only be constructed on existing lots.[215] Because Incline Village is an exclusive resort area for the wealthy, new home construction now requires removing older, existing buildings. This effectively closed off the community to only the very wealthy. Additionally, it has lead to such extreme examples as having a lakeside house constructed in 1996 demolished to make way for a home constructed in 1999.[216]

While the limitation on suitable building sites on the Nevada side would have caused this gentrification at some point naturally; the imposition of development restraints hastened the process. It also has created an affordable housing problem in the southern portion of the watershed where many of the casinos, ski resorts, and golf courses are located along with a dense concentration of rental homes, motels, and hotels. This creates a high demand for low-wage workers for the various service-related jobs that serve the tourists visiting this portion of the watershed. However residential housing in Stateline (where the casinos are located) is built-out and significantly more expensive than that of South Lake. While some affordable housing does exist in Carson Valley and Carson City, it necessitates commuting along the steep, windy State Highway 207 or over Spooner Summit, both of which add significant commuting costs to workers and can be hazardous during winter months. Commuting also adds to the vehicle miles traveled (VMT) which makes it more difficult for the TRPA to achieve this threshold as well as exacerbated air quality and traffic problems. The City of South Lake also claims it is subsidizing worker housing for the business community on the Nevada side of the boarder. There is also reason to believe that the local governments and their taxpayers on the California side of the boarder pay the additional costs associated with the social services they provide to the low-income population located in their communities.

Various working groups have been formed and proposals have been suggested for Nevada counties to reserve a specified portion of residential parcels for affordable housing units, although these have produced few results. The TRPA has allocated additional residential building permits for housing units defined as affordable housing in an attempt to address the problem.[217] However, this has not resolved the tension between local governments in both

states. The powerful market forces driving residential construction on the Nevada side of the lake present a difficult political obstacle. While the issue remains, it has largely been removed from the agenda of public agencies in the basin and continues to be addressed primarily by the larger private employers.

The increased gentrification of residential housing in the basin also affects the public's perception of the TRPA. The TRPA's TDR provisions allow developers to purchase coverage for construction on a existing parcel without adequate coverage and can purchase points to increase the IPES score for a parcel. The funds are contributed to mitigation funds, which are used for environmental improvement projects. Currently, these are sold for $600 per point with a maximum allowance of 60 points for a given parcel. Builders and homeowners can also pay mitigation fees to offset the negative environmental impact of an activity. At least in one case, this led to a builder depositing a large sum in anticipation of building fines for ignoring regulations.[218] The use of so many market mechanisms for balancing the regulatory impacts on the building community creates a public perception that with enough money anything can be built. As a local real estate agent put it, "the big guys get what they want because they can afford to do it and the small businesses can't". This has generally contributed to the opinion that big business in the basin can do anything, while small businesses and residents bear the bulk of the regulatory burden.

This assessment appears to have some merit. Big business interests are well organized in the basin. They have the technical expertise and resources available to maneuver through the complex regulatory framework. Furthermore, they have the ability to hire specialists, which are often former TRPA employees who know the regulations and deal with the agency on a regular basis. Small business and the average homeowner have neither the expertise nor the personal connections that these consultants have. Furthermore, the emphasis on "the projects as the fix" and redevelopment of the basin economy as the answer to environmental quality creates economic advantages for the businesses that can afford mitigation projects, such as restoration and generally contributing to the mitigation fund, which serves to further exclude small business from the decision-making process.

The worst manifestation of this inequity between the interest of small and large business is not necessarily the tendency of market mechanisms to favor those with resources, but rather the lack of small businesses' interests being represented in the TRPA's various decision-making processes in the same way that the other major stakeholders in the basin are represented. Local political representatives often emphasize large-scale redevelopment and attracting new, often bigger corporate entities (i.e., national hotel chains) rather than supporting established ones (i.e., older and smaller motel operators). The casino and ski industry in the region have several avenues of political access to decision making and often have very different interests than small businesses in the basin. Accordingly, small businesses essentially have only one point of access, the local Chambers of Commerce. Not surprisingly, these remain some of the TRPA's most ardent critics and were those who most frequently cited the need for streamlining the regulatory process. However, the local Chambers of Commerce often have a limited capacity for representing the interests of small business because their membership includes a wide range of interests among small businesses, as well as the larger business interests in the basin. It is worth

exploring an additional mechanism for increasing the participation of small businesses in the various decision-making processes in the basin.

Adaptability

Unless institutional arrangements have the capacity to respond to their ever-changing environments, institutional performance is likely to suffer. Reflected here are concerns similar to those who argue for adaptive approaches to ecosystem-based or community-based management. The TRPA has several mechanisms that encourage adaptability and learning both within the organization and between the different interests active in basin management. One mechanism is the use of thresholds and their review every five years. We believe that this process encourages the type of policy-oriented learning that led to the TRPA's shift towards restoration projects and the development of the EIP (see previous section on performance-based management). A second mechanism is the various forums that encourage the regular interactions between agency officials, technical specialists, and members of NGOs. These would include the deliberations of the Governing Board, the Advisory Planning Commission (APC), the CBW and other working groups, and the Lake Tahoe Transportation and Water Quality Coalition. These processes allow new information, ideas, view points, and policy solutions to be discussed. These forums also encourage policy-oriented learning and innovation.

That said, from a practical standpoint, the complexity of the TRPA's regulatory framework, the inclusion of key provisions in the Section 208 plan, and the controversial nature of core policies and requirements, and the long-term application of these policies makes it difficult to change core policies without possibly creating significant political conflict. For example, the technical staff's attempts to update the Bailey system to make it more consistent with the IPES found little support by the governing board despite the simplification of the process.[219] These factors may also explain why no thresholds have been added and the existing thresholds have not been changed in significant ways. Instead, most of the adaptation appears to be occurring in how the TRPA's programs are administered (e.g., permit streamlining efforts)[220] and the development of new initiatives such as the recent focus on redevelopment and the restoration projects proposed in the EIP.

Capacity Building

The case study also demonstrates the importance of capacity building. The TRPA's implementation of the Regional plan has improved significantly over time as the capacity and resources of the agency developed. The additional of these slack resources appears to have greatly expanded the TRPA's ability to coordinate collaborative activities. Moreover, the significant development in capacity at the local government level has facilitated the TRPA's efforts to streamline the permitting process (i.e., improved service delivery) by devolving permitting responsibilities to the local level. The development of a common set of policies has helped other agencies improve their allocation of resources and decision making. For example, the USFS and CTC prioritize land acquisition in a manner that is consistent with the IPES embedded within the TRPA's program. The development of sophisticated NGOs representing the basins major interest groups and new institutions such as the Lake Tahoe Transportation and Water Quality Coalition have helped to enhance and expand the administration and

implementation of existing programs. Moreover, these groups are important mechanisms for helping the TRPA identify problems and develop and evaluate the effectiveness of existing or proposed policies and programs.

Given the national and international significance of Lake Tahoe's ecological resources, the actors have consistently demonstrated a capacity for leveraging the resources necessary to advance their efforts whether it be through early efforts to export sewage from the basin or the land acquisition and restoration programs of the USFS and the CTC. The shift towards collaboration appears to have further improved this capacity as reflected in the ability to secure the Presidential Summit and associated deliverables and the recent efforts to secure the federal and state commitments to fund their respective portions of the $900 million EIP. Moreover, collaboration has allowed the actors to leverage each other's respective policy networks to lobby Congress more effectively as illustrated by the preparation of the Lake Tahoe Joint Federal Legislation Agenda.

Summary and Conclusions

The Tahoe Regional Planning Agency (TRPA) has had a tumultuous history. Lawsuits plagued the basin's planning process since its inception. However, out of this fiery conflict emerged a unique model of watershed governance that reduced development in the watershed and limited environmental impacts associated with human activities. Over time, the TRPA's emphasis has shifted from being primarily focused on regulation to one that also places great importance of regulatory streamlining and collaboration as well as redevelopment and restoration projects targeted at existing environmental problems. These accomplishments are notable and worthy of attention.

However, Lake Tahoe has some unique characteristics that need to be understood prior to using it as a model for developing a governance framework for water shed management:

- Clearly defined and visible watershed boundaries
- A long history of interaction among the major actors
- High levels of political attention and external funding
- Convergence of economic and environmental interests

The geography of the basin makes the focus on the boundaries of the watershed and central focus on the lake evident to all. There is also a long history of interaction in the basin preceding the current arrangements. Understanding the history and development of this governance arrangement is important if you are to understand the nature of the governance activities in the basin today. This unique history may make it difficult to replicate the approach taken in Lake Tahoe elsewhere. The high level of external funding is also unlikely to be attainable by other watershed programs. The concentration of tourist facilities important to both states and the demographic of the local population combined with the unique ecological resources have allowed Tahoe to grab high profile political attention and sizable federal and state resources. Finally, there is a unique convergence of understanding of the value of environmental resources for the region. Unlike other watersheds, the convergence of issues such as economic redevelopment, tourism, transportation, and environmental quality has made business interests

increasingly sympathetic to the importance that environmental quality has to their economic livelihood. Accordingly, while this linkage of issues that brings together the seemingly disparate interests present in the basin occurs elsewhere (e.g., our Tampa Bay case study) it will not occur everywhere (e.g., our Delaware Inland Bays case study).

Despite the unique nature of the Lake Tahoe's governance system, we believe that there are important lessons that to be learned. These include:

- Collaboration emerged not from a single planning process but from overlapping governance structures that created opportunities for regular interaction
- Collaboration often requires win-win or win-no-lose situations
- Collaboration often requires actors to agree to disagree and respect these differences
- Collaboration is more likely when there are symmetries of power
- The importance of alternative mechanisms for resolving disputes
- The potential advantages and disadvantages of using market mechanisms like TDRs
- The importance of a stable resources to allow a systematic approach to solving specific problems
- The importance of slack resources and leadership in facilitating collaborative efforts

Collaboration did not emerge solely out of a formal planning process, but rather from multiple overlapping governance structures that created opportunities for agencies and NGOs to interact. Out of these interactions developed the trust and personal relationships that allowed the actors to begin exploring opportunities for collaboration that created win-win or at least win-no lose situations. Moreover, the realization that the TRPA was not going away and the time and cost associated with resolving conflicts through the legal or political system created important incentives for the actors to search for more immediate and less costly ways to address their concerns.

While the TRPA's final regulatory framework is not one that can, or perhaps even should, be replicated, the lessons associated with using these strategies certainly can be. Embedded in the framework are several opportunities for resolving the conflicts resulting from the application of the TRPA's regulations. The TRPA uses a participatory decision-making process when issuing permits on major development projects. The IPES combined with other regulatory requirements presents a uniform set of development standards while the TDRs, mitigation fees, and land acquisition programs provide sources of compensation for those that are adversely affected by the regulations. Conversely, much can be learned by watershed managers about the potential equity issues resulting from stringent growth restrictions and the use of market mechanisms (i.e., TDRs). The case also demonstrates the importance of financial resources and having the stability and flexibility to use the funds in a manner that systematically solves specific problems. While the magnitude of the federal resources in this case maybe disproportionate to that found in other watersheds, the ability to use these funds in a manner that systematically addresses specific problems targeted at specific long-term goals is one that can be replicated. Examples from this case include the purchasing of parcels with low IPES scores (i.e., environmentally sensitive parcels) and the development of the redevelopment and restoration projects found in the EIP.[221] Finally, the case demonstrates the importance of capacity and the availability of the slack resources needed for collaboration. Moreover, it demonstrates the

important role that leadership in the private and nonprofit sector can play in stimulating and leading collaborative efforts in a watershed.

Endnotes

[1] P.L 96-551.

[2] For a discussion of bi-state compacts, please see: Paul T. Hardy, *Interstate Compacts: The Ties That Bind*, (Athens, Georgia: University of Georgia, 1982).

[3] P. L. 96-551, 94 Statue 3233.

[4] The environmental thresholds are unique in that they not only provide guidelines for management of environmental resources in the basin, but also legally mandated thresholds that the TRPA must meet or be subject to court injuncture on all development activities in the basin as occurred in 1984 (*People of State of California v. Tahoe Regional Planning Agency*, Nos. S-84-0561-EJG (E.D. Cal. June 15, 1984) slip op, aff'd, 766 F. 2d 1308 (9th Cir. 1985)).

[5] Tahoe Regional Planning Agency (TRPA), *Regional Plan for the Lake Tahoe Basin: Goals and Policies* (Zephyr Cove, NV: TRPA, 1986).

[6] Ibid.

[7] Ibid.

[8] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies.*

[9] Qualitative research employs an intense investigative process that contrasts, compares, replicates, catalogues, and classifies objects and events to provide decision-makers with the information necessary to improve program performance. For more information on approaches to qualitative analysis see: Norman K. Denzin, and Yvonna S. Lincoln (eds.), *Strategies for Qualitative Inquiry* (Thousand Oaks, CA: Sage Publications, 1998); Norman K. Denzin, and Yvonna S. Lincoln (eds.), *Collecting and Interpreting Qualitative Materials* (Thousand Oaks, CA: Sage Publications, 1998); Joseph A. Maxwell, *Qualitative Research Design: An Interactive Approach* (Thousand Oaks, CA: SAGE Publications, 1996); Sharon L. Caudle, "Using Qualitative Approaches," in Joseph S. Wholey, Harry P. Hatry, and Kathryn E. Newcomer (eds.) *Handbook of Practical Program Evaluation* (San Francisco, CA: Jossey-Bass Publishers, 1994); Matthew B. Miles and Michael A. Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*. Second Edition (Thousand Oaks, CA: SAGE Publications, 1994); Mary Ann Scheirer, "Designing and Using Process Evaluation," in Joseph S. Wholey, Harry P. Hatry, and Kathryn E. Newcomer (eds.) *Handbook of Practical Program Evaluation* (San Francisco, CA: Jossey-Bass Publishers, 1994); and, Michael Quinn Patton, *Qualitative Evaluation and Research Methods*, Second Edition (Newbury Park, CA: SAGE Publications, 1990).

[10] Joseph A. Maxwell, *Qualitative Research Design: An Interactive Approach* (Thousand Oaks, CA: SAGE Publications, 1996); Matthew B. Miles and Michael A. Huberman, *Qualitative Data Analysis: An Expanded Sourcebook*. Second Edition (Thousand Oaks, CA: SAGE Publications, 1994); Mary Ann Scheirer, "Designing and Using Process Evaluation," in Joseph S. Wholey, Harry P. Hatry, and Kathryn E. Newcomer (eds.) *Handbook of Practical Program Evaluation* (San Francisco, CA: Jossey-Bass Publishers, 1994); and, Michael Quinn Patton, *Qualitative Evaluation and Research Methods*, Second Edition (Newbury Park, CA: SAGE Publications, 1990).

[11] Mark T. Imperial, "Analyzing Institutional Arrangements for Ecosystem-Based Management: The Institutional Analysis and Development Framework," *Environmental Management* 24 (no. 4, 1999): 449 - 465.

[12] For some discussion of the IAD framework and its application in environmental settings see: Elinor Ostrom, Roy Gardner, and James Walker, *Rules, Games, & Common-Pool Resources* (Ann Arbor, MI: The University of Michigan Press, 1994); Elinor Ostrom, Larry Schroeder, and Susan Wynne, *Institutional Incentives and Sustainable Development: Infrastructure Policies in Perspective* (Boulder, CO: Westview Press, 1993); Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York, NY: Cambridge University Press, 1990); Elinor Ostrom, "An Agenda for the Study of Institutions," *Public Choice* 48 (no. 1, 1986): 3 – 25; Mark T. Imperial, "Analyzing Institutional Arrangements for Ecosystem-Based Management: The Institutional Analysis and Development Framework," *Environmental Management* 24 (1999): forthcoming; Mark T. Imperial, "Analyzing Institutional Arrangements for Ecosystem-Based Management: Lessons From the Rhode Island Salt Ponds SAM Plan," *Coastal Management* 27(no. 1, 1999): 31 – 56; Sue E. S. Crawford, and Elinor Ostrom, "A Grammar of Institutions," *American Political Science Review* 89 (no. 3, September 1995): 582 – 600; Timothy M. Hennessey, "Governance and Adaptive Management for Estuarine Ecosystems: The Case of Chesapeake Bay," *Coastal Management* 22 (1994): 119 – 145; Mark H. Sproule-Jones, *Governments At Work: Canadian Parliamentary Federalism and Its Public Policy Effects* (Toronto, Canada: University of Toronto Press, 1993);William Blomquist, *Dividing the Waters: Governing Groundwater in Southern California* (San Francisco, CA: ICS Press. 1992); and, Larry L. Kiser and Elinor Ostrom, "The Three Worlds of Action: A Metatheoretical Synthesis of Institutional Approaches," in Elinor Ostrom (ed.) *Strategies for Political Inquiry* (Beverly Hills, CA: Sage, 1982), 179 – 222.

[13] Triangulation involves using independent measures derived from different sources to support, or at least not contradict, a research finding (Miles and Huberman, *Qualitative Data Analysis*; and, Robert K. Yin, *Case Study Research: Design and Methods*, Second Edition (Thousand Oaks, CA: SAGE Publications, 1994).

[14] Carol J. Boughton, et al., *Lake Tahoe Basin, Nevada and California*, (Washington, D.C.: DOI, USGS, Stream and Ground-Water Monitoring Program, 1997), 1.

[15] Ibid.

[16] Most notably affecting the Lake Tahoe Basin was the Pleistocene Epoch, a time of extensive glaciation which began 2 million years ago and continued until 10,000 years ago. During this time, the entire western half of the Lake Tahoe Basin, with the exception of the highest peaks, was blanketed in thousands of feet of ice. Glaciers scoured out valleys resulting in steep slopes in which lakes have since formed and streams deposited centuries of sediment. The eastern side of the basin had only a few small glaciers because of the rain shadow effect. This difference in degree of glaciation resulted in steep, serrated peaks in the west and less sculpted, rolling peaks to the east.

[17] Due to the geologic history of the basin, there exists a complex array of soils in the Lake Tahoe Basin. Typically the soils are of coarse-textured granitic origin with low water holding capacity and low fertility. Soils along the margin of the lake and tributary streams and are usually high in nutrients that are prone to detachment during runoff due to the lack of the soil's binding materials. Depth of soil ranges greatly, from no soil on some steep slopes to several feet in some low-laying areas. Groundwater in the basin is found primarily in valley fills, such as the area presently occupied by the city of South Lake Tahoe, due to the ability of water to penetrate and travel through coarse soil quickly, when unimpeded. (Tahoe Regional Planning Agency (TRPA), *Summary and Draft 1996 Evaluation Report: Environmental Threshold Carrying Capacities and the Regional Plan Package for the Lake Tahoe Region* (Zephyr Cove, NV: TRPA, 1996), 6).

[18] The Lake Tahoe Basin rests in the Sierra Nevada batholith, a 400-mile long, uplifted, granitic intrusion. The basin's western edge slopes gradually toward the Central Valley of California whereas the eastern edge drops abruptly into the Carson and Washoe Valleys of Nevada. Extensively faulted granitic bedrock dominates the Lake Tahoe Basin while surficial rocks vary from granitic on the southern slopes to volcanic rocks, such as basalt and andesite, in the north.

[19] Boughton, *Lake Tahoe Basin, Nevada and California*.

[20] USGS, *The Lake Tahoe Basin, California-Nevada*, Prepared in cooperation with the California Department of Water Resources by J.R. Crippen and B.R. Pavelka. (Washington D.C.: US Government Printing Office, 1970), 11.

[21] Boughton, *Lake Tahoe Basin, Nevada and California*.

[22] USGS, *The Lake Tahoe Basin, California-Nevada*, 4.

[23] TRPA, *Summary and Draft 1996 Evaluation Report*, 6.

[24] Boughton, *Lake Tahoe Basin, Nevada and California*.

[25] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study." In *Sierra Nevada Ecosystem Project: Final Report to Congress, Addendum.* (University of California, Davis: Center for Water and Wildlands Resources, 1996), 220.

[26] Boughton, Lake Tahoe Basin, Nevada and California.

[27] Douglas Strong, *Tahoe: An Environmental History*, (Lincoln, NE: University of Nebraska Press, 1984), 1.

[28] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study.".

[29] Bird species including passerines, raptors and waterfowl and mammals including grizzly bear, wolverines, and golden eagles, have lived in the basin. Many of their populations have decreased significantly or have been completely extirpated from the basin. Historically, fisheries in the basin were diverse and plentiful. Destruction of spawning streams due to channelization, road construction or removal of vegetation and introduction of non-native game fish have led to the demise of the native fishery. Most game fish caught today are stocked, introduced species.

[30] Ingram, Wes and Paul Sabatier, *A Descriptive History of Land Use and Water Quality Planning in the Lake Tahoe Basin*. (University of California, Davis: Institute of Government Affairs, Institute of Ecology, 1987).

[31] Strong, *Tahoe: An Environmental History*.

[32] TRPA, *Summary and Draft 1996 Evaluation Report*, 6.

[33] Andy Smidt, *The Role of the Forest Service in the Lake Tahoe Basin*. (Sacramento, CA: USDA-Forest Service, 1979).

[34] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study," 238.

[35] At the turn of the century the population was ethnically diverse including French-Canadian lumberjacks, Chinese-American wood cutters and cooks, Basque sheep herders, Washoe guides, dairymen and hay cutters. When the economy shifted from resource extraction to tourism, the population shifted towards white anglo-descent residents. In the 1970s, there was a shift toward greater ethnic diversity with the influx of Asian and Latin American populations.

[36] The US Census considers "Hispanic" an ethnic category and not a race and therefore includes whites and nonwhites.

[37] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study", 238.

[38] Nechodom, Mark, Rowan Rowntree, Nick Dennis, Jamie Goldstein, Hank Robison, and Mary Small, "Chapter 6: Social, Economic, and Institutional Assessment" in *Lake Tahoe Watershed Assessment*. (USFS, Unpublished Draft, 1999).

[39] Ibid.

[40] TRPA, *Summary and Draft 1996 Evaluation Report*, 5.

[41] Robert Burco, *Policy and Planning in the Lake Tahoe Basin: the Case of Transportation*. (University of California, Davis, Institute of Governmental Affairs, 1973).

[42] Pacific Transit Management Corporation, *Lake Tahoe Waterborne Transit Analysis.* (Berkeley: CA, 1996).

[43] Ibid.

[44] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study", 238.

[45] Ibid.

[46] TRPA, *Summary and Draft 1996 Evaluation Report*, 6.

[47] Mark Twain, *Roughing It*. (Hartford, Conn.: American Pub. Co, 1872).

[48] The major emission sources for atmospheric nutrients from outside the basin are thought be primarily from automobiles (nitrogen oxides) and agriculture (fertilizer nutrients) rather than industry. Some within basin atmospheric deposition is also reported from wood burning stoves from surrounding homes. However, according to one report, 59 percent of the nitrogen loading to the lake is from atmospheric sources.

[49] California Regional Water Quality Control Board—Lahontan Region (SWQCB), *Water Quality Control Plan for the Lahontan Region* (Sacramento, California: California Regional Water Quality Control Board, 1995), 5-2; and, Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study", 228.

[50] USDA-USFS, *Lake Tahoe Erosion Control*, (South Lake Tahoe, California: LTBMU, Undated).

[51] SWQCB, *Water Quality Control Plan for the Lahontan Region*, 5-2; Corvallis Environmental Research Laboratory, *Report on Lake Tahoe* (Corvallis Environmental Research Laboratory, National Eutrophication Study, Working Paper #810, Corvallis, OR, 1977).

[52]Lake Tahoe Federal Interagency Partnership, *Review of the Environmental Improvement Program for the Lake Tahoe Region*. (South Lake Tahoe, California: Lake Tahoe Federal Interagency Partnership, August 1999), 2.

For a more detailed discussion of changes in water quality over time, please refer to: Charles Goldman, "Primary Productivity, Nutrients, and Transparency During the Early Onset of Eutrophication in Ultra-Oligotrophic Lake Tahoe." *Limnology and Oceanography 33*. (no. 6, November 1988) or Charles Goldman, "Lake Tahoe: Two decades of Change in a nitrogen Deficient Oligotrophic Lake." in *Verh. International Verein. Limnology 21*. (1981): 45-70.

[53] This has also lead to a diversity of strategies aimed at conserving water quality and controlling land use, including continued research and monitoring, county and regional land use planning, land acquisition and ecosystem restoration.

[54] Donald J. Pisani, "Forests and Conservation, 1865-1890," *The Journal of American History* 72 (no. 2, 1985): 340-359.

[55] P.L. 96-551, 94 Stat. 3233; Cal. Govt. Code 66801; Nev. Rev. Stat. 277.200.

[56] Strong, *Tahoe: An Environmental History*.

[57] The current APC includes numerous PhDs and professionals in engineering and hydrology.

[58] TRPA serves as the lead agencies for many of the following working groups: Air Quality Monitoring Working Group; Airshed Model Working Group; Biological Advisory Group; Clean Cities Coalition; Communications Working Group; Erosion Control Technical Advisory Comittee; Forest Health Consensus Group; Lake Tahoe Environmental Education Coalition; Lake Tahoe Interagency Monitoring Program (LTIMP) Subcommittee; Lake Tahoe Sewer Agencies; Lake Tahoe Source Water Group; Lake Tahoe Transportation and Water Quality Coalition; Large Project Water Quality BMP Maintenance Group; Motorized Watercraft Technical Advisory Group; NDOT Master Plan Partnering Process; Nevada Bond Act Technical Advisory Comittee; Nevada Ecosystem Advisory Team; Performance Review Committee; Prescribed Burning Technical Advisory Comittee; Recreation Advisory Group; Research and Monitoring Subcommittee (RAM); Revegetation Technical Advisory Comittee; Sensitive Environment Zone Technical Advisory Group; Shorezone Review Committee; South Tahoe Public Utility District Groundwater Management Plan Stakeholder Advisory Group; Tahoe Basin Interagency Road Maintenance and Operations Committee; Tahoe Citizens Environmental Action Network; Tahoe Coalition of Recreation Providers; Tahoe Transportation Commission and Tahoe Transportation District ; Transportation Conformity Task Force; Transportation Technical Advisory Committee; Upper Truckee River Focused Watershed Group; Visibility Working Group; Water Quality Working Group. Even when not serving as the lead agency, a TRPA representative is typically included in the group's membership.

[59] The date of 2007 emerged from the consensus building process following the 1984 suits. It was intended as a mechanism to force compliance by the TRPA.

[60] Lake Tahoe Federal Interagency Partnership, *Review of the Environmental Improvement Program*, 3.

[61] Smidt, *The Role of the Forest Service in the Lake Tahoe Basin*.

[62] *Sacramento Bee*, July 15, 1973. As reported in Strong, Douglas. *Tahoe: An Environmental History*, (Lincoln, NE: University of Nebraska Press, 1984), 175.

[63] United States Congress - Senate, Committee on Interior and Insular Affairs, Authorizing the Secretary of the Interior to study the feasibility and desirability of a national lakeshore on Lake Tahoe in the state of Nevada, (U.S. Government Documents Service, 1970).

[64] Strong, *Tahoe: An Environmental History*.

[65] USDA-USFS, *Lake Tahoe Erosion Control*.

[66] Ibid.

[67] This program is supported by the Santini-Burton Act (P.L. 96-586.) This act authorized the sale of BLM lands near Las Vegas, Nevada. The proceeds from these sales were used to acquire environmentally sensitive lands in the Lake Tahoe Basin.

[68] The USFS has a long history of land acquisition in the Lake Tahoe Basin. In the early 1900s, the USFS made land exchanges and purchases to add land to the existing National Forest Lands. In 1964, Congress passed the Land and Water Conservation Fund which enabled the USFS to purchase any available lands, especially big tracts of land that might be developed in the future (such as the future site of Tahoe Palace Casino which was purchased for $11.5 million in the 1980s).

[69] The Watershed Assessment is currently being completed and was not reviewed for this report.

[70] For more information on the SWQRCB please see: California State Water Quality Control Board (SWQCB), *California State Water Quality Control Board and the Regional Water Quality Control Boards Strategic Plan.* (Sacramento, CA, 1997).

[71] The Porter-Cologne Water Quality Control Act of 1969 replaced the Dickey Water Pollution Act of 1949. The new legislation dictated the State Water Resources Control Board and nine regional board share responsibility for writing and adopting State-wide water quality control plans for both surface and ground water.

[72] State of California, Chapter 1239, Statutes of 1984

[73] P.L. 96-586.

[74] California Tahoe Conservancy, *California Tahoe Conservancy 1997 Progress Report,* (South Lake Tahoe, California: California Tahoe Conservancy, 1998).

[75] California Tahoe Conservancy, *California Tahoe Conservancy 1997 Progress Report* (South Lake Tahoe, California: California Tahoe Conservancy, 1998); Richard Fink, "Public Land Acquisition for Environmental Protection: Structuring a Program for the Lake Tahoe Basin", *Ecology Law Quarterly* 18 (No. 3, 1991).

[76] Baxter, Laurence, *Regional Politics and the Challenge of Environmental Planning.* (University of California, Davis, Institute of Governmental Affairs, 1974).

[77] This was reported second-hand by a TRPA official as the reaction of a long-time opponent to the placement of a representative from the Douglas County planning office being stationed within TRPA for training purposes.

[78] Local governments in the basin have been reluctant to take on some of the regulatory authority offered by the TRPA in their streamlining process since it adds both to their financial costs as well as the fact that they then become the agency responsible to policing regulations. As one TRPA official put it "we are the guys you love to hate." The TRPA still acts as a convenient scapegoat for many in the basin.

[79] See Figure 20 for a listing of MOUs between TRPA and local governments in the Lake Tahoe Basin.

[80] Community plans are created with the cooperation with TRPA, the business community, and other community groups and act to coordinate the accomplishment of remedial projects with redevelopment and new commercial development in the basin.

[81] This was collaborated by interviews with both officials within the City of South Lake and within TRPA. The use of informal arrangements as opposed to formal MOUs has an equivalent outcome. TRPA staff mention that because of the need to train local government staff on the codes and ordinances of the TRPA and the coordination required that it has not freed resources to be used elsewhere. Most people interviewed gave mixed opinions whether this might be a temporary upfront cost or if it was indicative of the high costs of coordination in the basin.

[82] Design Workshop, *North Lake Tahoe Tourism Development Master Plan*. (Aspen, CO: Design Workshop, 1995).

[83] Ibid.

[84] Editorial reported second hand by TRPA Planning staff.

[85] Fletcher, James, Emily Sheffield, Leslie Furr, *Assessing Public Recreation Service Facility Preferences of Tourist and Residents at North Lake Tahoe, California* (Journal of Park and Recreation Administration 11, No. 4, 1993).

[86] Design Workshop, *North Lake Tahoe Tourism Development Master Plan*, 4.

[87] Reported by Business Community Representative and local Chamber of Commerce Officials.

[88] Two surveys conducted in 1992 and 1993 by the Strategic Marketing Group are often cited.

[89] Design Workshop, *North Lake Tahoe Tourism Development Master Plan*, 4.

[90] Ibid.

[91] *People of State of California v. Tahoe Regional Planning Agency*, Nos. S-84-0561-EJG (E.D. Cal. June 15, 1984) slip op, aff'd, 766 F. 2d 1308 (9th Cir. 1985).

[92] Strong, Douglas, *Tahoe: From Timber Barons to Ecologists*, (Lincoln, NE: University of Nebraska Press, 1999); Bentley, Susanne, *Lake Stories: An Exploration Of The Impact Of Humans On The Environment In The Lake Tahoe Basin*, (Dissertation Thesis, University of Nevada, Reno, NV, 1997).

[93] As of June 1999, all carbureted two-stroke engines greater than 10 horsepower in which fuel passes through the crankcases are no longer allowed on the lake. Watercraft powered by direct fuel injection, sterndrive/inboard and four stroke engines are allowed. Auxiliary sailboat engines are exempt from this rule until October 1, 2001. After October 2001, all engines must meet U.S. EPA 2006 or California Air Resources Board 2001 emissions standards. Watercraft powered by direct fuel injection, sterndrive/inboard and four stroke engines are allowed.

[94] It was originally created by a group of private individuals to facilitate approval of projects through the TRPA's regulatory process.

[95] U.S. 9th Circuit Court of Appeals, *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency*, 34 F.3d 753 (9th Cir. 1994). For a short summary see: Bourelle, Andy, *TRPA going to court on land use issue of 1980s*, (Tahoe Daily Tribute, Nov. 25, 1998).

[96] Ninth Circuit Oral Argument Tr. 15-16, *Suitum v. TRPA*, No. 94-15768 (argued Nov. 13, 1995). Also see *Suitum Brief, 1999*, http://ceres.ca.gov/trpa/suitumbr.html.

[97] Mrs. Suitum is now 84 years old is bedridden and legally blind. She sued after the IPES adopted in the 1980s barred her from building a retirement home on a small lot on the Nevada side she and her late husband acquired in 1972. She contended that she had been deprived of her constitutional rights because she had lost the use of her land. The TRPA argued that just compensation had been offered she was allowed to sell development rights (TDR). The high court ruled in 1997 on a procedural issue, sending the case back without taking up the substantive constitutional questions. The settlement was reached as the suit was about to go to trial in the U.S. District Court in Nevada.

[98] As reported by multiple interview respondents.

[99] Numerous interviews from members of the coalition as well as agency officials support the Gaming Alliance and the League as being the two critical actors responsible to being able to come together in such a unique coalition.

[100] The group or agency responsible to initiating the Presidential Summit was not clear. The Tahoe Transportation Coalition, various Federal Agencies and local leader all seemed to be vying for credit for spearheading the effort. The fact that so many actors claim to be responsible to garnering executive attention on the Lake signals the perceived success of the summit.

[101] See endnote #57 above for the full list of issue working groups active in the Tahoe Basin.

[102] As reported by member of the "Unholy Alliance".

[103] The earliest data on the basin dates from the late 1800s with Muir and LeConte. Continuous monitoring of chemical parameters in the lake with a standardized procedure began in with Goldman's work in 1963 and continues today.

[104] The research of Goldman and colleagues is prolific. A small sample of research includes: Charles R. Goldman, "Preserving a Fragile Ecosystem." *Environment 13.* (no. 7, Sept. 1989); Goldman, "Primary Productivity, nutrients, and transparency "; Charles R. Goldman, "Will Baikal and Tahoe be Saved?" In *Cry California 9.* (1973): 19-25; Charles R. Goldman,. *Eutrophication of Lake Tahoe Emphasizing Water Quality.* (EPA 660/3-74-034. Washington, D.C.: Government Printing Office. 1974); Charles R. Goldman, "Lake Tahoe: Two Decades of Change"; Charles R. Goldman and Richard Armstrong, "Primary Productivity Studies on Lake Tahoe." In *Verh. International Verein. Limnology 17*. (1969): 49-71.

[105] For some discussion of planning effort prior to this section please see: Turrentine, Jackson W., *Early Planning Efforts At Lake Tahoe: The Role Of Joseph F. Mcdonald, 1956-1963*. (University of California, Davis, Institute of Governmental Affairs, 1972).

[106] Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[107] Paul Sabatier and Neil Pelkey, *Land Development and Change at Lake Tahoe: The Effects of Environmental Controls and Economic Coalitions on Housing Construction* (University of California: Davis, Institute of Ecology, 1990), 31.

[108] Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[109] Strong, Douglas, *Tahoe: From Timber Barons to Ecologists*, 65.

[110] This master plan was reportedly "based on the political premise that building a strong interlinked urban economy was the most desirable future outcome for the region".

[111] For more information on the "1980 Plan" please refer to Tahoe Regional Planning Commission, *Lake Tahoe 1980 Regional Plan*, Proposed by Wilsey, Darm and Blair, 1969.

[112] Strong, Douglas, *Tahoe: From Timber Barons to Ecologists*, 66.

[113] Smidt, *The Role of the Forest Service in the Lake Tahoe Basin*.

[114] Ibid.

[115] Ibid.

[116] Strong, *Tahoe: From Timber Barons to Ecologists*, 65.

[117] Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study", 229.

[118] Strong, *Tahoe: From Timber Barons to Ecologists*, 66.

[119] Pepper, James E. and Jorgensen, Robert E. *Influences of Wastewater Management on Land Use: Tahoe Basin, 1950-1972.* (Washington, D.C.: EPA ORD. 1974).

[120] For a more detailed discussion outlining the development impacts of sewering in the Lake Tahoe Basin from 1950-1972, please refer to *Influences on Wastewater Management on Land Use: Tahoe Basin 1950-1972.EPA-600/5-74-019.* Information from this paragraph was provided by the above named report.

[121] Lake Tahoe Joint Study Committee, *Eutrophication of Surface Waters-Lake Tahoe Indian Creek*, (Washington, D.C., EPA, 1971).

[122] Joint Study Committee, *Lake Tahoe Joint Study Committee Report*, (Sacramento, CA, 1967).

[123] Strong, *Tahoe: An Environmental History*; Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[124] P.L. 91-148

[125] Felts, William and Geoffrey Wandesforde-Smith, *The Politics of Development Review in the Lake Tahoe Basin*, (University of California, Davis, Institute of Government Affairs, 1973).

[126] Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[127] Strong, *Tahoe: An Environmental History*; Tahoe Regional Planning Agency (TRPA), *Regional Plan for the Lake Tahoe Basin: Code of Ordinances, (*Zephyr Cove, NV: TRPA, 1999).

[128] For a more detailed discussion of the role of the USFS in the J.K.Smith Plan, Please see Smidt, *The Role of the Forest Service in the Lake Tahoe Basin*.

[129] Bailey, Robert G., *Land capability Classification of the Lake Tahoe Basin, California- Nevada: A Guide for Planning*, (Washington, D.C.: USDA-Forest Service, 1974).

[130] Ibid.

[131] Smidt, *The Role of the Forest Service in the Lake Tahoe Basin*, 38.

[132] Strong, Douglas , *Tahoe: From Timber Barons to Ecologists*.

[133] Sabatier and Pelkey, *Land Development and Change at Lake Tahoe*.

[134] Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[135] Ibid.

[136] Ibid.

[137] U.S. 9th Circuit Court of Appeals, *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency*, 34 F.3d 753 (9th Cir. 1994). For a short summary see: Bourelle, Andy, *TRPA going to court on land use issue of 1980s*, (Tahoe Daily Tribute, Nov. 25, 1998).

[138] CTRPA was headed by the California delegation of the TRPA, a Governor's appointee and a member chosen by the group.

[139] Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*.

[140] Strong, *Tahoe: An Environmental History*.

[141] For a discussion of the political struggle behind the Compact please see: Strong, *Tahoe: From Timber Barons to Ecologists*; and Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning.*

[142] Strong, *Tahoe: From Timber Barons to Ecologists*.

[143] For a more detailed discussion of these cases, please refer to: Ingram and Sabatier, *A Descriptive History of Land Use and Water Quality Planning*, 86.

[144] Strong, *Tahoe: From Timber Barons to Ecologists*, 88.

[145] Design Workshop, *North Lake Tahoe Tourism Development Master Plan*.

[146] An example of a community plan is illustrated in the *1996 Incline Village Community Plan*.

[147] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies*.

[148] Ibid.

[149] Article V (c) of the Tahoe Regional Planning Compact (Pub. L. 96-551, 94 Stat. 3233).

[150] Article V (g) of the Tahoe Regional Planning Compact (Pub. L. 96-551, 94 Stat. 3233).

[151] Ibid.

[152] TRPA, *Summary and Draft 1996 Evaluation Report*.

[153] Ibid.

[154] Tahoe Regional Planning Agency (TRPA), *Beyond Bailey: TRPAs Individual Parcel Evaluation System*, (Zephyr Cove, NV: TRPA, Undated).

[155] TRPA, *Regional Plan for the Lake Tahoe Basin: Code of Ordinances*, 37-13.

[156] Property owners can purchase up to 60 points for a mitigation fee of $600 per point.

[157] Tahoe Regional Planning Agency (TRPA), *TRPAs Land Coverage System*, (Zephyr Cove, NV: TRPA, Undated).

[158] Boxall, Bettina. *Los Angeles Times*, June 7, 1999.

[159] Design Workshop, *North Lake Tahoe Tourism Development Master Plan*.

[160] El Dorado County recently placed a planner in the TRPA office to review El Dorado County permits for both local and TRPA permit requirements.

[161] Tahoe Regional Planning Agency (TRPA), *Memorandum of Understanding. Tahoe Regional Planning Agency and the U.S. Department of Agriculture, Forest Service*. (TRPA, November 1989).

[162] USDA – Forest Service. Memorandum of Understanding between USDA-Forest Service Lake Tahoe Basin Management Unit and the Washoe Tribe of Nevada and California. South Lake Tahoe: USDA – Forest Service. July 25, 1997; USDA – Forest Service. Revised Project Agreement Dated September 10, 1997 between USDA-Forest Service Lake Tahoe Basin Management Unit and the Washoe Tribe of Nevada and California. South Lake Tahoe: USDA - Forest Service. September 10, 1997. USDA – Forest Service. Memorandum of Understanding between USDA - Forest Service Lake Tahoe Basin Management Unit and the Washoe Tribe of Nevada and California and the USDA Forest Service Lake Tahoe Basin Management Unit. South Lake Tahoe: USDA – Forest

Service. July 18, 1998; USDA – Forest Service. Cooperative Agreement between the Washoe Tribe of Nevada and California. South Lake Tahoe: USDA – Forest Service. July 25, 1997.

[163] Lake Tahoe Federal Interagency Partnership, *Review of the Environmental Improvement Program*, 2.

[164] Lake Tahoe Federal Interagency Partnership, *Review of the Environmental Improvement Program*.

[165] TRPA, *Summary and Draft 1996 Evaluation Report*, 4.

[166] Associated Press, *California and Nevada Lawmakers Push Restoration Effort,* (San Jose Mercury News, August 12, 1999).

[167] Sen. Diane Feinstein Press Release, June 4, 1999.

[168] Martin, Glen. *San Francisco Chronicle*, June 5, 1999.

[169] Senate bill S. 1925, House bill H.R. 3388

[170] Mew opposition may arise once the impact of proposed projects become clearer to the parties being affected. One informant long-familiar with the area notes that property owners in the Tahoe Keys Condominium complex are beginning to debate the CTC's large-scale restoration of the Upper Truckee River. Current debates over the shorezone ordinances, which are included in the EIP, also illustrate the increasing levels of controversy as projects near implementation.

[171] USDA, *Soil Conservation Service Evaluation of Proposed Erosion Control Projects with Nevada's Lake Tahoe Watersheds: the cost effectiveness of reduction the sediment load on Lake Tahoe*, (U.S.D.A. - Soil Conservation Service, 1990); Yost West and Associates, *Best Management Practices Effectiveness Study*, (unpublished 1996).

[172] Tahoe Regional Planning Agency (TRPA), *A Property Owners Guide to Improving Water Quality*, (Zephyr Cove, NV: TRPA, Undated).

[173] TRPA, *Summary and Draft 1996 Evaluation Report*.

[174] Reported in interviews with local county planners as well as members of the business community in both North and South Lake Tahoe.

[175] South Tahoe Redevelopment Agency, *South Tahoe Demonstration Redevelopment Plan for Ski Run and Stateline Areas*, (City of South Lake Tahoe, 1999 Draft Copy).

[176] Tahoe Regional Planning Agency, *1997 Annual Report of the TRPA*, (Zephyr Cove, NV: TRPA, 1998), 2.

[177] Tahoe Federal Interagency Partnership, *Presidential Forum Deliverables,* (South Lake Tahoe, CA, Tahoe Federal Interagency Partnership, 1997).

[178] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies*.

[179] The was the direct response offered by an agency official in the basin. Most agency officials as well as members of community groups tended to see a watershed approach as an obvious management approach for Lake Tahoe. The only limitations mentioned by any respondent were that it excluded external factors, such as atmospheric deposition from the Central Valley and the impact of tourist coming from outside the basin.

[180] Sedway Consulting, *Permit Integration Program Action Plan: TRPA,* (unpublished, 1999).

[181] There are a number of other organizations not discussed here that have formed around specific issues. These include the Forest Health Consensus Group created in 1992 as an advisory group by the TRPA Governing Board to provide a public forum on forest health issues; and Tahoe Re-Green, formed in 1995 and composed of 32 government and private organizations designed to provide information and low interest loans to land owners interested in decreasing the fire danger on their property.

[182] The 1970s marked the beginnings of a coordinated research effort in the basin. Fueled by a National Science Foundation grant, the Lake Tahoe Research Coordination Board compiled a list of past and present research efforts. The Coordination Board also established public information seminars, reviewed research proposals, and identified future research needs in the Lake Tahoe Basin. During the 1970s, many broad ecosystem analyses were carried out. TRPA and USFS came out with a series of brief reports; Congressional request required EPA to complete the *Lake Tahoe Study* which not only assessed the ecosystem but also institutional dynamics in the basin; The Western Federal Council completed the *Lake Tahoe Environmental Assessment* which incorporated a plethora of scientific information into a model which evaluated the cause of environmental change in the basin in the 1970s which facilitated establishment of the ETCCs.

[183] Earl Byron, "Land Use and Water Quality in Tributary Streams of Lake Tahoe, California-Nevada," *Journal of Environmental Quality* 18 (No. 1, 1989); Pepper, James E. and Jorgensen, Robert E., *Influences of Wastewater Management on Land Use: Tahoe Basin*, 1950-1972, (Washington, D.C.: EPA ORD. 1974); Tahoe Regional Planning Agency, (TRPA), *Water Quality Management Plan: Draft For Review And Comment In Preparation Of The Final Draft Plan* (South Lake Tahoe, CA, TRPA, 1976).

[184] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies*.

[185] Additional information is available from: http://www.ceres.ca.gov/trpa/gisprog.html (May 31, 2000).

[186] This section is based on information found in: Sierra Nevada Ecosystem Project, "Lake Tahoe Case Study." In *Sierra Nevada Ecosystem Project: Final Report to Congress, Addendum*, (University of California, Davis: Center for Water and Wildlands Resources, 1996), 243-245.

[187] Tahoe Federal Interagency Partnership, *Presidential Forum Deliverables*, (South Lake Tahoe, CA, Tahoe Federal Interagency Partnership, 1997).

[188] Obtained from interviews with three APC Members.

[189] Kenn Cartier, et al., *Development and Documentation of Spatial Data Bases for the Lake Tahoe Basin, California and Nevada* (Denver, CO, Earth Science Information Center, 1994).

[190] Additional information is available from: http://www.ceres.ca.gov/trpa/gisprog.html (May 31, 2000).

[191] Tahoe Regional Planning Agency (TRPA), IPES - Individual Parcel Evaluation System, http://ceres.ca.gov/trpa/ipes.html (May 31, 2000).

[192] Tahoe Regional Planning Agency (TRPA), http://ceres.ca.gov/trpa/ (May 31, 2000).

[193] USGS, Lake Tahoe Data Clearing House, http://blt.wr.usgs.gov/tahoe/intro.html (May 31, 2000).

[194] See: Carl Thodal, *Hydrogeology Of Lake Tahoe Basin, California And Nevada, And Results Of A Ground-Water Quality Monitoring Network, Water Years 1990-1992* (Prepared for the USGS in cooperation with the Tahoe Regional Planning Agency, Denver, CO, 1997); Carl Thodal, *Hydrogeologic Setting And Ground-Water Quality Of Areas Tributary To Lake Tahoe In Douglas County And Carson City, Nevada, Through 1987* (Prepared in cooperation with Douglas County and Carson City, NV, US DOE, USGS, 1995).

[195] The Environmental Protection Agency (EPA) will award the University of California at Davis an $880,000 grant for new computer modeling tools to accurately predict the benefits of different water quality improvement projects. Additional grants and technical assistance will go to the TRPA for developing a continuous monitoring data for use in the model. These are intended to allow planners to prioritize and evaluate the effectiveness of water quality improvement projects.

[196] J. W. Haefner, *Modeling Biological Systems: Principles and Applications* (New York, Chapman and Hall, 1997).

[197] There was a surprising degree of agreement among the business community that the TRPA was a necessary evil. While many complained about the regulatory hurdles necessary to getting projects approved, not a single business leader expressed the opinion that the TRPA should be eliminated. This is remarkable given the degree of conflict a decade ago.

[198] The FACA was formed pursuant to President Clinton's Executive Order to form a partnership between the various agencies and private actors in the basin.

[199] From the original injunction by the California District Court to the more recent Suitum Case, judicial action by both sides of the ideological divide have the threat of the courtroom as a powerful tool to pry open access to decision-making.

[200] The director recently retired and is no longer with the agency.

[201] This was reported by the majority of respondents as the reason for the change. It is also mentioned by Bentley, *Lake Stories*.

[202]Bentley, *Lake Stories*.

[203] California Bureau of State Audits, *Tahoe Regional Planning Agency*, (Sacramento, CA, Bureau of State Audits, 1997) confirms that this was a critical juncture in management within the TRPA and its relationship with other organizations.

[204] Interview with member of the Tahoe Transportation and Water Quality Coalition.

[205] This includes much of the work of university researchers, such as Dr. Charles Goldman, as well as USDA Forest Service reports and state agency water quality studies.

[206] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies*.

[207] TRPA, *1996 Evaluation Report*.

[208] Sabatier, Paul and Anne Brasher, "From Consensus to Clearly Differentiated Coalitions: Environmental Policy at Lake Tahoe, 1964-1985", in *Policy Change and Learning: An Advocacy Coalition Approach*. ed. Paul Sabatier , J.A. Henkins-Smith, (Westview Press, CO, 1993).

[209] Imperial and Hennessey, "An Ecosystem-Based Approach"; and, Imperial, "Analyzing Institutional Arrangements for Ecosystem-Based Management".

[210] California Bureau of State Audits, *Tahoe Regional Planning Agency*.

[211] One of the barriers to further devolution will be the fact that the local governments face resource constraints that limit their ability to take on additional responsibility. Furthermore, many local politicians may want to avoid

the political costs since they are the ones that will have to deny projects and the TRPA currently serves as a very convenient scapegoat. Moreover, the permit horror stories may shift from being about the TRPA to local governments and local residents may resist further efforts to devolve responsibility. It will be interesting to see how this process unfolds in future years.

[212] In the early years of the TRPA, local governments frequently threatened to defund the agency. Even the State of Nevada threatened this option when it felt California was beginning to gain dominance over the governing board.

[213] For an example of an audit see: California Bureau of State Audits, *Tahoe Regional Planning Agency*.

[214] While these watersheds do not incur the costs of treating the sewage and it undergoes appropriate levels of treatment and pollutant removal, there is necessarily some discharge of additional pollutants above those that would otherwise have occurred as a result of this decision. While not a problem today, these additional loadings could place constraints on future growth in these watersheds since they have to accommodate the additional loadings from the Lake Tahoe watershed.

[215] Please see Figure 2 for location.

[216] The lakeside are of Incline Village has the most expensive housing on the lake. Incline Village itself has the highest per capita number of millionaires in the U.S.

[217] TRPA, *Regional Plan for the Lake Tahoe Basin: Goals and Policies*.

[218] Information obtained from local county building inspector.

[219] Interviews with technical staff on the TRPA.

[220] Although this does not necessarily improve the flexibility of the TRPA's regulations or their content. See: California Bureau of State Audits, *Tahoe Regional Planning Agency*.

Allowing greater discretion on the part of field staff making decisions based on the actual impact of a project rather than a blanket application of the rule is an often cited solution, but this would likely be difficult in the political environment of the Tahoe Basin. It would likely be perceived as a inconsistent application of the ordinances. Local homeowners and small businesses already tend to perceive the regulations as an arbitrary set of rules from an inflexible bureaucracy rather than a cohesive set of goal-oriented policies.

[221] Unfortunately, this approach is one that is different from the project-by project approach to funding restoration projects embedded in federal NPS programs such as the EPA's Section 319 program.

Appendix A

Timeline of Events Affecting the Lake Tahoe Basin

1844	Members of the John C. Fremont Party are the Europeans to set foot in the Tahoe Basin.
1848	Gold discovered at Coloma resulting in the influx of the "Forty-niners."
1899	Creation of the Lake Tahoe Forest Reserve to be managed by the USDA - Forest Service.
1902	The Newlands Reclamation Project is authorized, transforming Lake Tahoe into a reservoir used for agricultural purposes.
1931	Desolation Valley Wild Area established by order of the Chief of the National Forest under Secretary of the Agriculture Regulation. Approximately 41,383 acres set aside to be kept "wild."
1935	A National Park study conducted by William Mott Jr. recommends Lake Tahoe not be established as a National Park.
1950	Permanent resident population of 2,500 in the Tahoe Basin.
1957	Creation of the Tahoe Improvement and Conservation Association, later to become the League to Save Lake Tahoe. The organization fought to keep development at Lake Tahoe at a minimum to protect the environment of the Lake Tahoe Basin.
1955	Orr Ditch Decree passed, a California/Nevada Compact regarding water management.
1956	Number of visitors on peak weekend exceeds 30,000 with a resident population of about 12,200.
1958	Sierra Valley Decree passed, a California/Nevada Compact regarding water management.
1959	Development of the Tahoe Keys housing development began. The development significantly altered the largest wetland in the Tahoe Basin.
1960	Winter Olympics held at Squaw Valley.
1960	Incline Valley begins to be developed with the sale of 9,000 acres by a wealthy landowner, George Whittell. Today condominium apartments dominate the shoreline of Incline Village.
1960	The Tahoe Regional Planning Commission, formed by the five counties, starts work on preparing a master plan for the Tahoe basin.
1961	On Labor Day, 2 million gallons of effluent from the sewage treatment plant overflowed into Lake Tahoe.
1963	The "McCaughey Report" presented. Provided recommendations for solving sewage disposal problems in the basin.
1964	The "1980 Plan" released, a master plan for the Basin depicting 4-lane highways and extensive development surrounding the Lake. The plan is adopted by the Tahoe Regional Planning Commission.

1965	California and Nevada pass resolution to ban all septic tanks in the Tahoe Basin.
1965	The Tahoe Improvement and Conservation Association becomes the League to Save Lake Tahoe
1965	The legislators of California and Nevada created the Lake Tahoe Joint Study Committee to explore the possibility of creating a regional agency for planning in the development.
1965	Federal Water Pollution Control Act.
1967	The Lake Tahoe Joint Committee recommended creation of a Tahoe Regional Agency.
1967	CTRPA and NTRPA established.
1968	Placer and El Dorado Counties claim CTRPA is unconstitutional and withhold funding.
1969	Placer and El Dorado Counties challenged the constitutionality of the TRPA. The case is heard in the supreme court validating TRPA's constitutionality.
1969	An interstate compact is approved by the California and Nevada legislatures and US Congress creating the Tahoe Regional Planning Agency (Tahoe Regional Planning Compact, Pub. L. 91-148, 83. Stat. 360).
1970	USFS Foresters create the Forest Service Planning Team to work closely with the TRPA in developing environmentally sensitive land use plans for the Tahoe Basin.
1970	Approximately 400 people gathered at the Environmental Planning Conference for Lake Tahoe. Represented were Federal, State and Local governments, conservation groups, universities, consultants, private citizens, and developers.
1970	The Governing Board urged the Secretaries of Agriculture and Interior to give priority to expedient sensitive land acquisition in the Basin.
1970	Regional Foresters ordered a moratorium on all new development on USFS land in the Tahoe basin until completion of a land use plan. This action is applauded by the TRPA.
1970	The Army Corps of Engineers orders a moratorium on shoreline development of any kind until TRPA adopted a shoreline plan and ordinances.
1971	The Governing Board approved an 18-story hotel/casino addition to Harrah’s.
1971	The Executive Director of TRPA, J.K. Smith, presented his staff’s plan for the Tahoe Basin. It was praised by conservationists but developers and local officials branded it unrealistic and impractical. The APC refused to recommend the “J.K. Smith Plan” to the governing board. A new committee, the Heikka Committee, composed of local government planners is formed by the Governing Board to prepare the regional plan.
1971	The Governing Board first fails to approve the regional plan presented by the Heikka Committee because they feel it is "incomplete". They later approved the plan. CTRPA also approves the Heikka Plan.

1972	First "General Use Plan and Land Use Ordinance" released by TRPA. It maps the erodibility of land in the basin in an attempt to control sediment loading into Lake Tahoe while allowing for some urban expansion. Changes land zoning boundaries resulting in lawsuits by land owners in down-zoned areas, as well as by suits from environmental groups and California state officials for allowing urban expansion.
1972	Conservationists and others begin to become disenchanted with the efficacy of TRPA. The California Assembly Committee on Natural Resources and Conservation holds hearings at Lake Tahoe to address the progress of regional planning and implementation in the Lake Tahoe Basin.
1972	A research coordination board established by a National Science Foundation grant begins reviewing research proposals and facilitating information dissemination and application of research findings.
1973	By July of 1973, the TRPA faces $260 million in claims and $35 million in lawsuits.
1973	Harvey's Wagon Wheel Hotel-Casino expansion is deemed approved by "no action" vote of TRPA. The casino is expanded to 18 stories.
1973	Approval of large shopping malls and several new casinos cause The League to Save Lake Tahoe and the Sierra Club to sue TRPA for failure to adopt an adequate regional plan. The groups asked for a building moratorium in the basin until an adequate plan is approved. The League seeks assistance from allies in California state agencies to get the basin delegated a National Scenic Land Area.
1974	California State legislation strengthens CTRPA by adding two new members and increasing funding.
1974	CTRPA adopts an interim plan. The controversial plan was labeled as a "moratorium on development" by its opponents.
1974	Jerry Brown is elected governor of California.
1974	TRPA is designated Section 208 planning agency by both states and the US EPA.
1975	EPA releases its "Lake Tahoe Study." The report recommended necessary Compact changes to increase the efficacy of TRPA. The study also suggested a Federal policy be adopted by Congress to give definitive direction to Federal activities in the basin.
1975	CTRPA adopted a more stringent land use plan than that of TRPA.
1977	National Clean Water Act.
1978	CTRPA sues TRPA for its approval of the North Shore Club Casino. CTRPA claims there was not adequate environmental analysis.
1978	CTRPA and the League to Save Lake Tahoe teamed up to sue TRPA, seeking to set aside TRPA approval of the "loop road." The effort is unsuccessful.
1978	Liability claimed against TRPA drops to $70 million.
1978	Number of visitors on peak weekends exceeds 150,000.

1978 TRPA develops a "Section 208" water quality plan that is rejected by the California State Water Resources Control Board (SWRCB). The Board revokes its delegation of Section 208 authority from the TRPA and begins preparing its own plan for the Tahoe basin.

1979 President Carter creates the Tahoe Federal Coordinating Council. The Council develops and issues environmental quality thresholds.

1980 The Santini Burton Act (P.L. 96-586) passed by the 96th Congress providing for expedient acquisition of fragile lands in the Tahoe Basin.

1980 Resident population estimated at 45,000 in the basin.

1980 After two years of negotiations the two states and Congress agree to revise the TRPA compact to provide for a majority of state officials on the governing board (Tahoe Regional Planning Compact, Pub. L. 96-551, 94 Stat. 3233. This alters the governing board rules in order to make it easier to deny projects. Additional requirement add that the agency must develop new regional plans that meet various environmental quality standards or "thresholds."

1980 The CTRPA adopts a revised land use plan, *The Lake Tahoe Basin Water Quality Plan*, restricting development of lots designated as high erosion hazard and located within Stream Environment Zones. This restricts development of approximately 12,000 parcels on steep slopes or near streams that had already been approved by the TRPA and local government.

1980 The California SWRCB adopts *The Lake Tahoe Basin Water Quality Plan* and states that it will certify the CTRPA's "Section 208 Plan" unless the TRPA revises its 1978 water quality plan to include development restrictions as stringent as those contained in the CTRPA's.

1981 TRPA presents a revised water quality plan for California that incorporates most of the SWRCB plan. The SWRCB certifies the TRPA's "Section 208 Plan". However the Lahontan Regional Board continues to implements the 1980 SWRCB Plan for the basin.

1984 League to Save Lake Tahoe and the California State Attorney General obtain a court injunction prohibiting all development in the basin pending new TRPA regulations. (*People of State of California v. Tahoe Regional Planning Agency*, Nos. S-84-0561-EJG (E.D. Cal. June 15, 1984) slip op, aff'd, 766 F. 2d 1308 (9th Cir. 1985)).

1985 State of Nevada threatens to withdraw from the compact due to the court injunction.

1985 TRPA begins Consensus Building Workshop (CBW) with assistance from Attorney Generals Office.

1987 Change of leadership within the TRPA. Bill Morgan become TRPA executive director and attempts to forge a compromise plan. This leads to a settlement of the lawsuits and renewal of building at levels below those of the 1970s.

1988 TRPA revises its "Section 208 Plan" to include provisions such as the IPES of the TRPA *Regional Plan*. The SWRCB conditionally certifies the revised plan under Section 208 and 1989 amends the *Lake Tahoe Basin Water Quality Plan* to reflect the regulatory changes in the *Regional Plan*.

1989 The Lake Tahoe Water Quality and Transportation Coalition is formed.

1990	Truckee-Carson-Pyramid Lake Water Rights Settlement Act passed. Resolves a long-standing water rights dispute. Creates an inter-state water allocation between California and Nevada of the Truckee and Carson Rivers and Lake Tahoe. Dismisses all prior lawsuits.
1991	Takings lawsuit filed against the TRPA. Ninth Circuit Oral Argument Tr. 15-16, *Suitum v. TRPA*, No. 94-15768 (argued Nov. 13, 1995).
1996	The SWRCB rescinds its separate *Lake Tahoe Basin Water Quality Plan* following the incorporation of all regulatory language from both that plan as well as TRPA's 1988 "Section 208 Plan" into the Regional Board's 1995 *Lahontan Basin Plan*.
1996	The TRPA's five-year threshold review is released without significant opposition.
1997	Presidential Summit at Incline Village, Lake Tahoe, Nevada.
1998	Release of the *Environmental Improvement Program for the Lake Tahoe Region* (EIP). Subtitled "The Cooperative Effort to Preserve, Restore and Enhance the Unique Natural and Human Environment of the Lake Tahoe Basin".
1999	Suitum case settled out of court for $515,000.
1999	Ban on specific types of carburated two-stroke engines on motorized watercraft on the Lake. Months after the TRPA decision, the State of California begins discussing instituting a similar ban on other threatened water bodies in the State.

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About the Contributors to the Report

Mark T. Imperial graduated with a Master of Arts in Marine Affairs from the University of Rhode Island in 1993. From 1991 to 1994, Imperial worked as a policy analyst with the Rhode Island Coastal Resources Management Council. Mark is currently a Ph.D. candidate in the Public Affairs program at the School of Public and Environmental Affairs, Indiana University. His concentrations are Public Management and Policy Analysis with a minor in Environmental Science. His dissertation research focuses on collaboration in the development and implementation of watershed management programs. In addition to these activities, Mark has had articles published in the journals *Coastal Management*, *Ocean and Coastal Management*, *Environmental Management*, and *Public Works Management and Policy*.

Timothy M. Hennessey is a Professor of Political Science and Marine Affairs and the Associate Director of the Rhode Island Public Administration Program at the University of Rhode Island. He has over twenty years of experience studying the management and governance of coastal and estuarine ecosystems. In 1985, he and his colleagues at the Coastal Resources Center at the University of Rhode Island conducted a five-year Sea Grant funded comparative analysis of the governance structure and process in five estuaries; Narragansett Bay, Galveston Bay, San Francisco Bay, Albermarle-Pamlico Sound, and Puget Sound. More recently, Hennessey conducted a major study of the Chesapeake Bay Program and worked with Mark Imperial on a research project examining the National Estuary Program. He has also studied the role of science in the management of estuaries through a comparative analysis of Puget Sound and the Fraser River Estuary in Canada. Professor Hennessey has published numerous articles in journals such as *Marine Policy*, *Coastal Management*, and *Ocean and Coastal Management* as well as chapters in edited books.

Derek Kauneckis received a Masters of Science degree in International Development with an emphasis on Natural Resource Management and Policy in 1997 from the University of California, Davis. Currently he is a Ph.D. student in Public Policy at the Department of Political Science and the School for Public and Environmental Affairs at Indiana University, Bloomington. Derek's professional experience includes working with the US Forest Service in Alaska on Cultural Resource Management and Community Development programs, the Division of Natural Resources at Winrock International Institute for Agricultural Development and various environmental consulting firms in the Western United States. Derek's dissertation research uses a comparative approach to examine the effect of political decentralization on local public policy decision-making regarding natural resource management.

Leslie Koziol graduated Magna Cum Laude from Northland College, Ashland, Wisconsin, with a Bachelors of Science degree. Leslie has received numerous awards and achievements including the Aldo Leopold Award in Environmental Ethics, The Northern States Power Environmental Achievement Award, and Distinction in the Social Sciences. Leslie is currently pursuing a Masters degree in Environmental Science at Indiana University. Her

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Katheryn Summers received a Bachelor of Science degree, with a concentration in Zoology and a minor in Wildlife Ecology, from the University of Florida in 1994. From 1994 to 1995, she conducted research University of Florida's Neurobiology Lab and provided staff support at the National Biological Survey-s Sirenia Project. Katheryn then worked for The Nature Conservancy's in Gainesville, Florida where she produced the 1995 Eglin Air Force Base Annual Research Report, a compilation of inventory, monitoring and research conducted in support of ecosystem management. She also participated in the development of an agreement to conduct joint ecosystem management on 750,000 acres near Eglin Air Force Base. In 1996, she began her graduate studies at Indiana University and graduated in May 1999 with a Master of Environmental Science and a Master of Public Affairs, concentrating in Environmental Policy and Natural Resource Management. Katheryn is also working as a research assistant at the Center for the Study of Institutions, Population, and Environmental Change (CIPEC) on a project examining the private ownership of forested lands in Indiana.

Sally McGee is a graduate of Smith College where she received her B.A. in economics in 1989. She lived in Washington, DC for several years, working with environmental groups including Greenpeace and Conservation International. This work inspired her to experience the marine environment first hand, so she left Washington to study and then work for Sea Education Association in Woods Hole, MA. Sally has worked aboard a number of traditionally rigged sailing vessels and has sailed the eastern seaboard of the US and Canada, the Caribbean, and in the North and South Pacific. She returned to the US in 1997 and worked for Mystic Seaport (Mystic, CT) before entering the Marine Affairs Program at the University of Rhode Island in the Fall of 1998. The focus of her studies at URI is environmental conflict resolution.