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Tahoe-Baikal Institute

# Tahoe Baikal Institute

*An international partnership for environmental inquiry, research and action...*



## Projects and Reports

### Summer 1998 Program

Below are abstracts of the projects which were conducted by TBI participants of 1998 on the Tahoe and Baikal sides of the program. The sponsor organizations and leaders of the program are shown after the title of the projects. If you are interested in reading the entire project reports which the participants wrote, please contact us at [tbi@thetahoe.net](mailto:tbi@thetahoe.net) and we will send it to you.

#### Projects and Sponsors at Baikal

- **Ecology-Ethnology: Project at Chernaryd and Khabsagai (Lena Zelinskaya, TBI'95; Erzhen Kamaganova, TBI' 97; Ust-Ordinskiy Regional Administration)**

This project consisted of two parts:

Part 1: Irkutsk Polytechnical Institute Ecological Camp at Chernarud Village For the first week of the project, we joined the students of the Irkutsk Polytechnical Institute at their summer ecological camp where they were learning how to take air, water, and soil samples. The ecological camp was located about 3 miles away from Mukhor Bay in Maloye Morye in Lake Baikal, so on several occasions we walked to the lake to examine the endemic and introduced flora, the impacts of tourists, and erosion along the lake shore. On other days, we learned about the geology of the region, the climate, and the means of trash disposal. We received a thorough introduction to the issues of ecology of the area.

Part 2: Ethnography-Ecology Project at Khabsagai For our second week, we traveled to Khabsagai Valley, located in the Buryat Autonomous Republic in the Irkutsk region. The goal of our project was to become acquainted with the Buryat culture while discussing and giving advice about the opening of an ecological/cultural camp and school in the valley. The valley is within three miles of three Buryat villages, so we met with and watched demonstrations by villagers in order to learn about the Buryat culture and about the issues facing the local people. In our discussions with our project leader and villagers, we were able to provide a more accurate picture of how camps and schools in the United States operate and to examine the feasibility of a school in the valley.

- **Geomorphology: Research Project on Olkhon Island (Prof. Kuzmin, Geography Institute Irkutsk)**

This project was a survey of anthropogenic surface alteration of Muhor Bay, the southernmost part of the Maloye More (Small Sea) of Lake Baikal. Daily TBI participants' activities consisted of walking the area that was assigned to them and mapping the anthropogenic



influences such as abandoned tent sites, trenches (used for smoking fish), garbage (both dumps and litter scattered across the area), paths and car tracks as well as roads. A lot of garbage was found and a general absence of dead wood on the ground was marked. Tourists collect the wood for burning, and by August have removed all that which accumulates naturally during the year. The soils and plants lack their natural carbon source because of this.

- **Restoration: Burkhan Cape Project (Hank Birnbaum, former TBI coordinator; Viktor Vorotintsev, TBI '96; Pribaikalskiy National Park)**

This project took part on the largest island of Lake Baikal, Olkhon. The TBI project group was accommodated at the Olkhon Center for Health and Ecology which is an education center for children. Every week, the center offers different events and video films about nature, the relationship between man and nature, and ecology. There are also sports activities, as well as activities to clean up and do restoration work on the shore, in the village, or elsewhere. At the center, the children also learn about personal health and the danger of smoking, alcohol, and drugs. Balancing theoretical knowledge with practical tasks, local and visiting children and adults learn to live a healthier life in harmony with nature.

The TBI group was to cooperate with the local staff of the Pribaikalskiy National Park on improving two different car campgrounds on Olkhon, building tables and benches at four different locations, contributing to the island's development of sustainable eco-tourism. Later on, they were able to help restore eroded sections of a trail at Cape Burkhan. Furthermore, an ecological youth camp was set up adjacent to the TBI group's camp and they were invited to participate in some of the activities.

Besides this, the group had the opportunity to travel to different locations on the island and visit the Khuzhir museum, which has an impressive collection of artifacts informing about Olkhon's history, geology and culture. The TBI participants were also invited to partially participate in a seminar of recreational planners from Irkutsk and Ulan-Ude which included a discussion about the controversial interests within the decision-making process related to recreational sites and recreational planning on Olkhon island.

- **Limnology: Clean-up, ecology, and bottling water! (Mr. Fialkov, Limnological Museum, Listvyanka)**

The project consisted of three parts:

Part 1: Kamenushka (Little Stone Creek) Our mission was to clear the Listvyanka village river, Kamenushka, of all trash and natural obstacles that prevented the free flow of the creek. A large amount of garbage was collected. The history of the creek and surrounding village of Listvyanka was researched by interviewing the older citizens of the village. The village was founded in 1753 four miles from the creek and although the land surrounding Kamenushka was originally used as agricultural plots, it was slowly converted to houses. People drew water from both Baikal and from the creek. Even though the people of Baikal revere their lake, they have no reluctance about throwing their garbage into Kamenushka and along the shores of Baikal. Industrial wastes are often a major concern for the Baikal ecosystem, but we have found that the many small tributaries inhabited by people around the lake are also a significant source of pollution.

Part 2: Hydrobiology As an important part of this limnology project, we got better acquainted with organisms living in Lake Baikal for it is this active system that determines the lake's clarity and reproductive ability. This part of our project consisted of a series of lectures, lab



meetings, and excursions. One excursion was undertaken on a research vessel of the Limnological Institute of Irkutsk. We collected a series of zooplankton samples from a maximum depth of 50 meters and measured the water clarity with the secchi disk to be 29 meters just south west of Listvyanka. The samples were brought back to the Laboratory of Hydrology for identification.

**Part 3: Bottling Baikal Water** On the shores of Lake Baikal are several water bottling enterprises which receive licenses for their activity from the Limnological Institute of Irkutsk. We visited the major factory, "Baikal Waters", which is located in Port Baikal, to tour the fully-automated production of bottled drinking water. Following this excursion, we bottled water ourselves for several days at the enterprise "Joint Stock Company Istok", where the process was primarily manual. During this part of the project, we were able to analyze the quality of Baikal water in the hydrochemistry laboratory for its nitrate content. The analysis demonstrated very low quantities of nitrogen (02 mg/l) in the bottled water, which exceed most requirements for the chemical quality of drinking water.

### *Projects and Sponsors at Tahoe*

- **Botany: GIS/GPS Mapping Project: Tahoe Yellow Cress Study (Mary Small, TBI '97; Rick Robinson, California Tahoe Conservancy)**

The Tahoe Yellow Cress (*Rorippa subumbellata*) is an endemic species at Lake Tahoe. Tahoe Yellow Cress (TYC) is a low-lying plant with many branches and a small yellow flower. It grows only on the beaches of Lake Tahoe in sandy substrate. In this nine-day project, we learned techniques for surveying TYC that involved the use of instruments such as GPS, a surveying rod and a pop level, and aerial photos. After an introduction to the Geographical Information System (GIS) in the California Tahoe Conservancy GIS lab, we created our own GIS layers in order to produce a map of historical occurrences of TYC. This project is a contribution to the California State Land Commission's effort to develop a management strategy for TYC and is a continuation of projects involving previous TBI students.

Although TYC has been placed on the California endangered species list, it is not federally listed due to its interference with private and public land use. Previous observations have resulted in a hypothesized trend whereby TYC populations are reduced by disturbance caused by beach users and lake level changes. The aim of this study is to create a GIS map of TYC occurrence that will consolidate spatial information about plant location in hand with land ownership, habitat accessibility to the public, and lake water level changes. This GIS system will serve as a basis for future TYC spatial research and monitoring.

- **Restoration: Trout Creek Project**
- **Mining: Leviathan Mine--Acid Mine Drainage Study (Daniel Fabien, 1998 TBI participant)**

The Leviathan Mine project was an opportunity for TBI students to look at the problems of acid mine drainage. Four TBI participants conducted analyses of the environmental problems caused by a former sulfur mine located near Lake Tahoe. The mine trailings are producing sulfuric acid when mixed with rain and groundwater causing heavy metal leaching which is transported into the nearby creeks and rivers. The students gained experience sampling the water and sediments of several creeks and going through the process of analysis of the samples. They looked at the presence of heavy metals in the various water bodies nearby to try



to establish the effects of the Leviathan Mine on the water.

Their work is a part of the studies now underway to mitigate the health hazards caused by acid mine drainage from the Leviathan Mine. The hazards, especially through agriculture, are a concern of the US Environmental Protection Agency and the State of California, which now owns the former mine site. The Washoe Tribe of Nevada and California was the main force that brought the health hazards of the mine into the foreground through the threat of a lawsuit for negligence of the environmental hazards from the mine. Thus far, no permanent remedy has been found.

◦ ***Ethnography: Studying Native People of America (Phil Caterino, Alpen Group)***

The goal of the project was to study the traditions and culture of the Washoe people, as well as their history and the problems that they are facing today. The Washoe are a Native American tribe of the Sierra Nevada. Throughout the project, we undertook archeological work and made sacred bouquets and fragrances. This was an interesting, educational part of the project. During the project, we learned about the current situation of the native peoples in America who live on the territory that we investigated. The results of this project can be of value for the public as well as for interested historians and anthropologists.

◦ ***Limnology: Nutrient Distribution and Food Web in Lake Tahoe (Sudeep Chandra, TBI '97; Tahoe Research Group)***

The stable nitrogen isotope N-15 can be used to trace and compare the trophic levels of organisms. In our study, we used N-15 to compare the delta N of fish from northern and southern Lake Tahoe. Delta nitrogen signatures showed that fish from the south of Lake Tahoe occupy a higher trophic level than fish from the north of the lake. We also used stable isotopes to make a preliminary investigation of whether two populations of *Mysis relicta* (a microinvertebrate) exist in Lake Tahoe. The isotope signatures showed that there are two distinct populations. However, further studies such as DNA analysis must be conducted to verify this claim. The final part of our project located areas along the western shore of Lake Tahoe which have the greatest nitrogen levels. Because of time constraints, we were unable to process the collected isotope signature data. The data will be analyzed at a later date and show possible areas of heaviest terrestrial nitrogen loading into the lake.



[What is TBI?](#) / [1999 Program Report](#) / [1998 Program Report](#) / [Facts & Figures on Tahoe & Baikal](#) /  
[Summer 2000 Program Announcement](#) / [Summer 2000 Application Information](#) /  
[Past Summer Exchange Programs](#) / [Suggested Reading](#) / [Alumni News](#) /  
[TBI Policymakers' Exchange](#) / [TBI Mongolia Program](#) / [TBI Law Exchange](#) /  
[Other Organizations and Opportunities](#) / [Environmental Education Connections](#)

**[Return to TBI Homepage](#)**

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Questions? Comments? Suggestions? Contact Silke Rover, Program Coordinator, by e-mail at:  
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## What is TBI?

### **Two lakes, similar challenges, half a world apart...**

The Tahoe-Baikal Institute (TBI) was established to help preserve Lake Tahoe in California and Lake Baikal in Siberia, as well as other significant and threatened natural areas around the world. This preservation is realized through environmental education programs and international exchanges of students, scholars, and practitioners in science, policy, and other fields.

The centerpiece of TBI's activities is a university-level environmental exchange program which is conducted each summer on two continents, at Lake Tahoe and Lake Baikal. The summer program makes use of the unusual and varied natural locales for which these regions are known. It draws widely on university and other institutional resources in the United States and Russia.

In addition to the summer student exchange, TBI brings together experts and researchers from North America and Russia in various environmental disciplines. Such connections help to improve the quality of environmental programs, projects, and research -- and, ultimately, environmental decision-making -- in both countries.

TBI programs make a permanent contribution to the threatened environment of these two great lakes by influencing the formation and implementation of environmental policy, by facilitating research and practical projects, and by bringing people together in a forum to share ideas and experience.

### **TBI Summer Programs: A Unique Education Experience on Two Continents**

- Learn from environmental experts in different countries.
- Explore problems in the management of significant natural resources, applying scientific, policy, and legal approaches.
- Exchange ideas and points of view.
- Join in environmental work projects and field research.
- Work as an intern with environmental agencies and organizations.
- Develop lasting friendships throughout the world.

### **Growth of an Idea**

The idea for a university-level environmental exchange program at Lake Tahoe and Lake Baikal was first proposed by American and Soviet students at an international youth conference held in Helsinki in 1988.

The students later presented their proposal in person to President Gorbachev and President Reagan. This led to an exchange of delegations between the state of California and the Irkutsk region of Siberia, and,



Finally, to the establishment of the Tahoe-Baikal Institute (TBI) as an international non-profit venture.

TBI is a partnership not only between countries, but among diverse academic, research, and environmental organizations. Its programs combine environmental study and research, scientific and cultural exchange, and on-the-ground projects.

TBI summer exchange programs have been held every year since 1991, with an average of 18 to 20 students participating each year. TBI also sponsors exchanges involving young professionals in environmental fields. These exchanges complement the summer programs, and help to generate new ideas for future Institute projects.

TBI programs have been a catalyst for students in their subsequent environmental pursuits. The TBI alumni form an active international network of committed individuals, spreading well beyond Tahoe and Baikal.

### **Opportunities to Participate**

Participants in TBI summer programs are generally in the last two years of undergraduate study, have recently graduated or are beginning graduate degree programs. They come from diverse academic backgrounds, ranging from the natural sciences, such as biology and limnology (study of lakes), to other environmentally-related fields such as public policy and political science.

Young adults who would like to become involved in efforts to improve the global environment, working and learning side by side with other highly motivated people from the United States, Russia, and other countries, are invited to apply for the Institute's summer program. See [Application Information](#).

Selection of participants is carried out by committees in Russia and the United States. Participants are drawn in equal numbers from the eastern and western hemispheres. The Institute strives for an ethnically diverse group of participants in its programs, and seeks the most qualified applicants, regardless of financial ability.

### **Siberia & California, Working Together**

The U.S. branch of the Tahoe-Baikal Institute is organized as a California non-profit corporation. Its board of directors includes interested members of the public, representatives of sponsoring agencies and organizations, and alumni of TBI programs.

The California board of directors works hand in hand with a counterpart board in Siberia, which is composed of members from each of the three regions surrounding Lake Baikal: Irkutsk, Chita, and the Buryat Republic.

TBI receives in-kind and financial assistance from a broad coalition of individuals, foundations, public entities and private firms.

Donations are welcome, and are tax deductible. We are also grateful for other help in achieving our goals. Please contact us at the address or telephone number shown below.

### **American and Russian Sponsors**

U.S. sponsors of the Tahoe-Baikal Institute include: the University of California, the California Conservation Corps, the California Tahoe Conservancy, and the League to Save Lake Tahoe.

Sponsors in Russia include: the Limnological Institute of the Russian Academy of Sciences, the Buryat Branch of the Russian Academy of Sciences the Pribaikalsky National Park, Irkutsk State University, the Geographical Institute, the Irkutsk Regional Committee for Environmental Protection and Natural Resources, and the government of the Buryat Republic. Other sponsors are being added each year.



[What is TBI?](#) / [1999 Program Report](#) / [1998 Program Report](#) / [Facts & Figures on Tahoe & Baikal](#) /  
[Summer 2000 Program Announcement](#) / [Summer 2000 Application Information](#) /  
[Past Summer Exchange Programs](#) / [Suggested Reading](#) / [Alumni News](#) /  
[TBI Policymakers' Exchange](#) / [TBI Mongolia Program](#) / [TBI Law Exchange](#) /  
[Other Organizations and Opportunities](#) / [Environmental Education Connections](#)

**[Return to TBI Homepage](#)**

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