

# CHINA LAKE ASSOCIATION

Issue # 1

NEWSLETTER

January 1988

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## WELCOME

This is the first issue of the China Lake Association newsletter. We plan to publish a newsletter every other month to keep our members and friends informed about the growth of our organization and give updates on our progress in restoring China Lake.

Our primary focus has been upon the organization of the Association. Activities have included recruiting new members and contacting potential candidates for officers and the Board of Directors. Our membership has grown rapidly but we still need active members who are willing to help with research, publicity, and recruiting members.

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## THANK YOU

Our thanks to Matt Scott and Jeff Dennis of Maine Department of Environmental Protection and Tom Gordon of the Cobbossee Water District for their informative presentations at the December 3rd meeting. About ninety people attended this meeting.

For details of the meeting please refer to Jeff Dennis' China Lake Report included in this newsletter.

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## OFFICERS

Current officers of the China Lake Association are:

- Steve Blackwell . . . . .President
- Tom Hicks . . . . .Vice President
- Andre Boutin . . . . .Treasurer
- Pat Nawfel . . . . .Secretary

They agreed to serve as officers during the initial organizing of the Association. Election of officers will be at the meeting on February 25.

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## THURSDAY WORKSHOPS

Planning meetings are held on Thursdays at 7:30 P.M. in the Library at the China Elementary School. Everyone is welcome.

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## FUTURE MEETINGS

The next community meeting will be held on **Thursday, February 25, 1988 at 7:30 PM at the China Elementary School.** Officers will be elected. We need to involve the entire community in our efforts to restore China Lake so please attend and bring a neighbor.

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## MEMBERSHIP

The response to our membership drive has been great! The Association started in October with eight families. Fourteen memberships were added in November. In December 70 memberships were added.

**Total for 1987:**

- 80 individual/family memberships
- 3 organization memberships
- 8 patrons
- 1 sponsor

As of January 15, 1988 there are a total of 102 memberships.

The China Lake Association is a non-profit corporation. We are researching the possibility of becoming a tax-exempt organization.

A membership form is included in this mailing. If you are not a member, please join us. If you are a member, please share this newsletter with someone you know who is concerned about China Lake. Help us continue to grow in 1988.

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## MAINE D.E.P. UPDATE

In December the Maine Department of Environmental Protection assigned a full-time biologist to China Lake, Jeff Dennis. Mr. Dennis has many years experience working with Maine lakes. He plans to complete by April a diagnostic and feasibility study of the China Lake watershed. This study will document the problems contributing to the decline in China Lake water quality and explore possible solutions. We intend to provide for independent scientific review of the study results. This study will be used to apply for state and federal

monies which may be available to help pay for the clean up of China Lake.

**BUDGET CUT!**

Jeff Dennis reports that application for federal funds from the Environmental Protection Agency under the Section 314 Clean Water Act has been stopped because this section was "Zero budgeted" in December by President Reagan. Normally this section receives 15 million dollars. It is possible that funds can be re-appropriated for this section through Congress' supplemental budget process in June or July. At that time, the EPA would request grant applications and Jeff Dennis, with his completed diagnostic & feasibility study could help us apply for these funds.

**CONTACT YOUR LEGISLATOR**

You can help. Write to you senators and congressmen. Help return funds to this section so that we can apply for EPA funds for use in 1989.

Names and Addresses of our legislators:

Senator George Mitchell  
United States Senate  
Washington, DC 20002

Senator William Cohen  
United States Senate  
Washington, DC 20002

Representative Joseph Brennan  
U.S. House of Representatives  
Washington, DC 20002

**Sample Letter**

Dear Senator/Congressman,

The quality of the water on China Lake has decreased dramatically over the past 5 years. ( Your personal note of how lake has deteriorated)

I understand that NO funds were budgeted for EPA's section 314 of the Clean Water Act in last December's Federal budget.

Please consider providing funds for this worthwhile section when supplemental budget hearings are held this summer.

Sincerely,

(Your Name)

**1987 TREASURER'S REPORT**

	October	November	December
Beginning balance	0.00	719.96	1579.96
Income (dues/donations)	739.96	860.00	2024.50
Expenses	20.00	0.00	508.37
Ending balance	719.96	1579.96	3096.09

The following information was presented by Jeff Dennis of DEP at the December 3rd Lake Association meeting. Four sections are included  
 1) China Lake Phosphorous Loading Summary  
 2) China Lake Restoration Program 3) Restoration Cost Summary 4) Timetable

**CHINA LAKE PHOSPHORUS LOADING SUMMARY**

**A) From the watershed (External sources)**

We estimate that from 3000 to 4000 lbs of phosphorus enters China Lake each year from a wide variety of sources in the watershed. This is enough phosphorus to result in an early summer phosphorus concentration in the lake of 11 to 14 parts per billion (ppb), nearly enough to cause an algal bloom. A list of the principle categories of phosphorus sources and our preliminary, and very rough, estimate of their relative importance follows.

SOURCE	Relative Significance(%)
Agricultural runoff	45 - 60
Residential runoff (including roads)	15 - 25
Septic systems along shoreline	5 - 15
Shoreline erosion	?
Forest runoff	20 - 30

**2) From within the lake (Internal recycling)**

As the summer progresses, conditions along the lake's deep bottom sediments change to allow movement of phosphorus from those sediments into the lake water. By mid to late August 1200 to 1600 lbs of phosphorus has been added to the lake water from these sediments increasing the phosphorus concentration by 20% to 30%, enough to support an obnoxious bloom of blue-green algae. When thermal stratification breaks down in September and October, and additional 1000 to 12000 lbs of phosphorus may be mixed into the lake water from the sediments, resulting in a secondary fall algal bloom.

**CHINA LAKE RESTORATION PROGRAM**

There is no single, simple solution to the problem in China Lake. In order to eliminate the summer and fall blue-green algal blooms and restore the lake to some semblance of its former quality, a number of items must be addressed.

**1) Reduce the External Sources of Phosphorus - Goal: 30% reduction.**

- a. Agricultural runoff controls -SCS cooperation
  - Federal Clean Lakes matching funds
  - Local financial assistance

- Local and/or state regulation

**b. Erosion controls**

- Town road ditch maintenance
- Road washouts
- Camp road maintenance
- Shorline stabilization
- Federal matching monies may be available

**c. Septic tank upgrades**

- Identify most likely problem systems
- Provide mechanism for encouraging/requiring upgrade
- Look into community system opportunities
- Get town government involved with maintenance
- Look into potential financial assistance (e.g. state small community grants)

**d. Other possibilities**

- Plant vegetative buffers
- Discourage use of lawn fertilizers containing phosphorus

**2) Reduce Internal Recycling of Phosphorus - Goal: 70% reduction**

*Possible solutions*

**a. Alum/sodium aluminate treatment.**

An alum treatment consists of adding aluminum compounds to the lake water that floc together and settle to the bottom forming a thin (1/2" - 1") blanket over the sediments. This floc blanket binds up phosphorus which would otherwise be released into the water during mid to late summer.

Approximate cost:

East Basin only \$250,000 to \$350,000

Both Basins \$600,000 plus.

**b. Seasonal draw down.**

Draw down of the lake during the peak of the late summer or fall algal bloom, flushes much of the algae and phosphorus rich down stream, thus preventing its return to the lake sediments when the bloom dries off and settles to the bottom. If enough water can be removed during this critical period, the pool of phosphorus available for recycling from the sediments will be gradually depleted. The current dam and outlet configuration allows only a 4.8 foot draw down (maximum) which would remove only 19% of the lake's volume.

Unless this draw down capability could be enhanced, this solution would probably take many years to be totally effective. (Note: Webber Pond draw down allows removal of 40% of the lake's volume, Sebasticook Lake is almost 50%). Dam reconstruction, bridge reconstruction, and dredging in the lake and the stream channel would allow a greater draw down, but the cost might be prohibitive. This deserves further investigation.

**c. Dredging.**

Dredging of nutrient rich lake sediments has been an effective solution on small impoundments in the south and west but would be prohibitively expensive on a lake the size of China Lake. Approximate cost: 5 to 10 million dollars.

**3. Control New Sources of Phosphorus.**

Even if steps 1 and 2 result in recovery of China Lake, the lake will always be on the brink. The cumulative effect of a number of new sources of phosphorus from new residential development, agricultural endeavors or erosion problems could easily push the lake back into a eutrophic (algal bloom) condition. To prevent this it will be essential to insure that future changes in the watershed do not contribute additional phosphorus to the lake.

**RESTORATION COST SUMMARY**

The following discusses funding sources and probable costs of some restoration program items. More detailed budget information will be available in the draft diagnostic/feasibility study.

**Alum Treatment Costs**

East Basin only	Total \$ 300,000.
Federal	150,000.
State	100,000.
Local	50,000.
Both Basins	Total \$ 600,000.
Federal	300,000.
State	175,000.
Local	125,000.

**Agricultural Controls**

Actual needs are not known at this time, but federal funds would probably be available to pay at least 50% of the farmer's cost. Other assistance may also be available.

**Septic System Upgrade**

State funds may be available to assist in this if community projects are initiated. Actual costs and distribution of costs are not known at this time. Federal funds would be available to cost share a town sponsored maintenance program, at least initially.

*Note: The following timetable was presented by Jeff Dennis at the December 3rd meeting. Mr. Dennis reports that the timetable will be revised to reflect the changes in available federal funds.*

**TIMETABLE FOR RESTORATION PROGRAM**

- DEP completes draft diagnostic & feasibility study . Feb 88
- Town and Lake Association review of draft study . . . . . March 88
- Complete final draft and submit application to EPA . . April 88
- Planning and control of . . . . April to watershed sources . . . . . September 88
- EPA grants award . . . . . October 88
- Implementation of watershed . June 88 source controls . . . . . to November 1990
- Alum treatment (if chosen) . . June 1989 or . . . . . June 1990
- Seasonal drawdown (if chosen) August- . . . . . September 1988
- Project follow-up monitoring . 1990-1991
- Project completion . . . . . December 1991

Newsletter Published by  
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**NOTICE**  
**CHINA LAKE ASSOCIATION**  
**COMMUNITY MEETING**  
**February 25, 1988**  
**7:30 PM**  
**CHINA ELEMENTARY SCHOOL**