



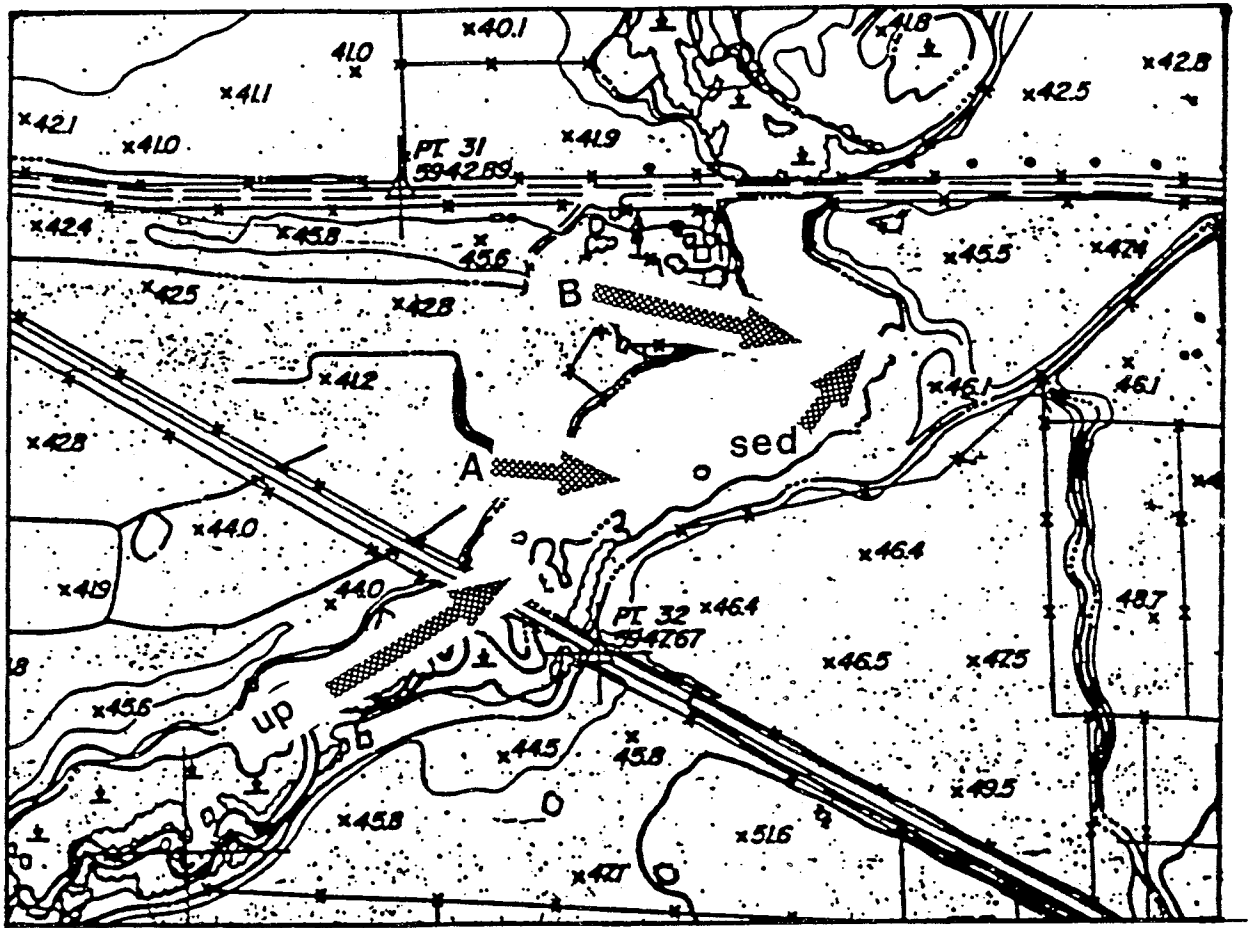
**WATER QUALITY
INVESTIGATIONS**

Bear Lake/Bear River

Prepared by:

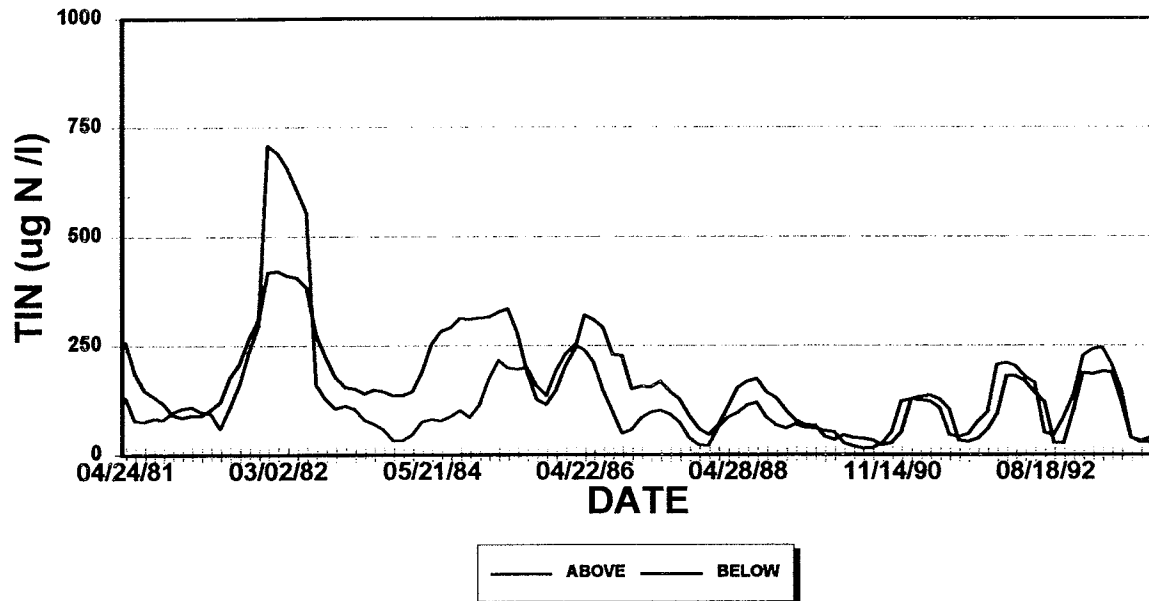
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*S. J. & Jessie E. Guinney
Natural Resources
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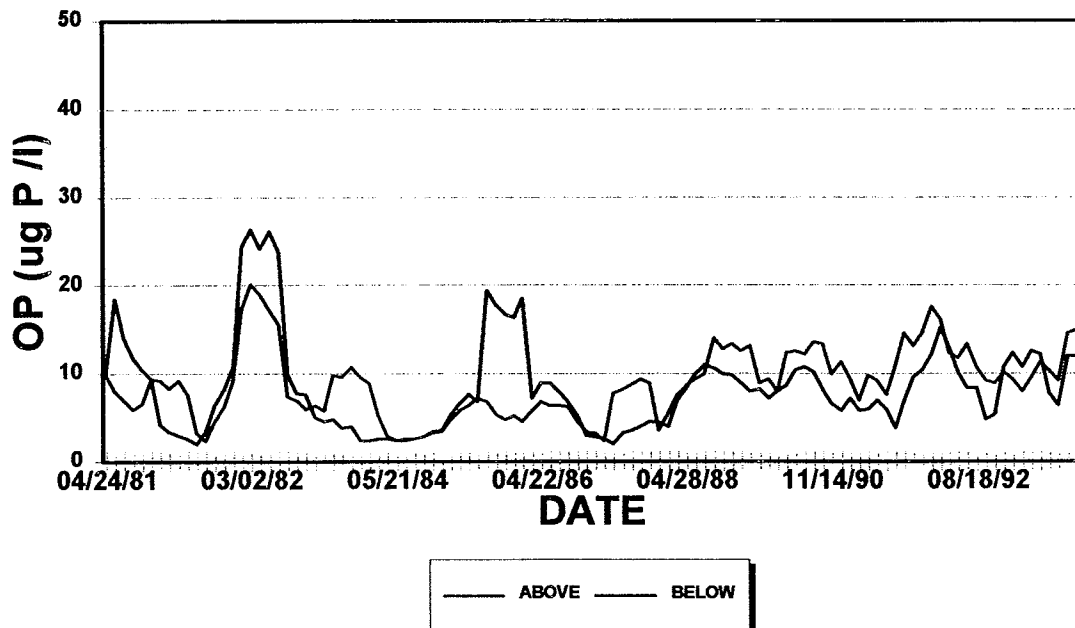
BIG CREEK

TOTAL INORGANIC NITROGEN



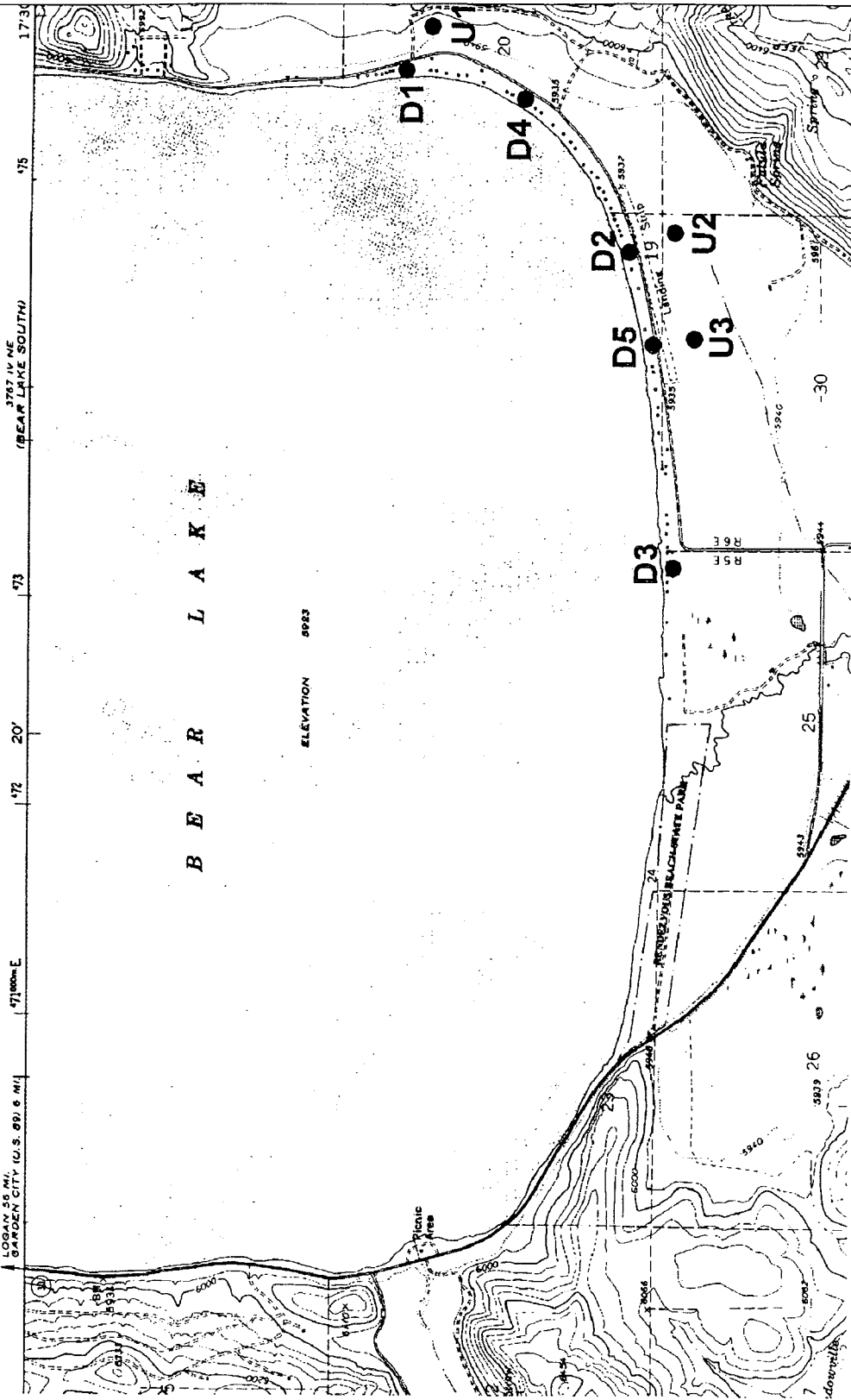
BIG CREEK

ORTHO PHOSPHOROUS



UNITED STATES
RIMENT OF THE INTERIOR
GEOLOGICAL SURVEY

LOGAN 25 MI.
GARDEN CITY (U.S. 89) 6 MI.



Housing development on the southern shore of Bear Lake. Also shown are well point locations for the current study.

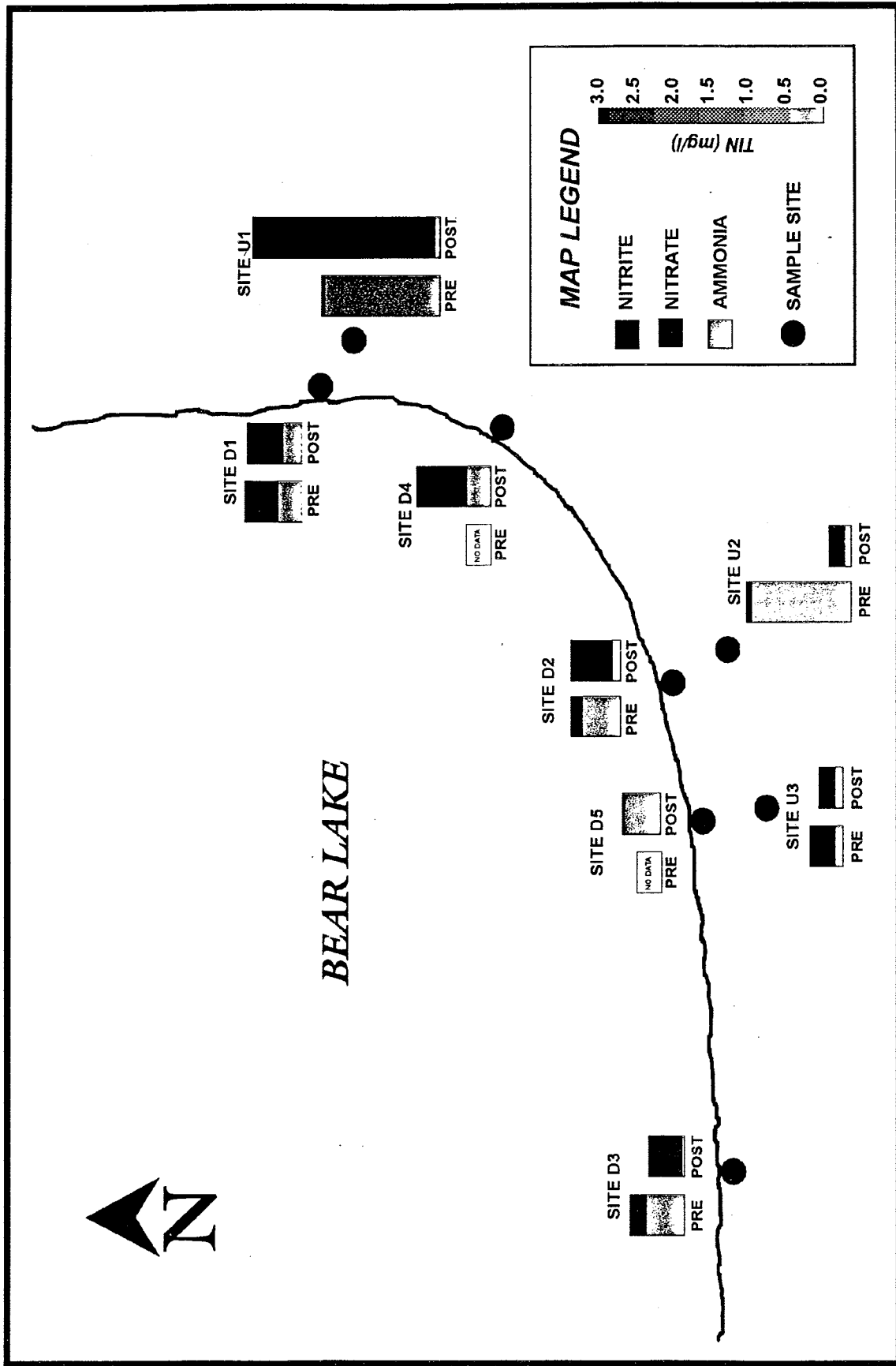
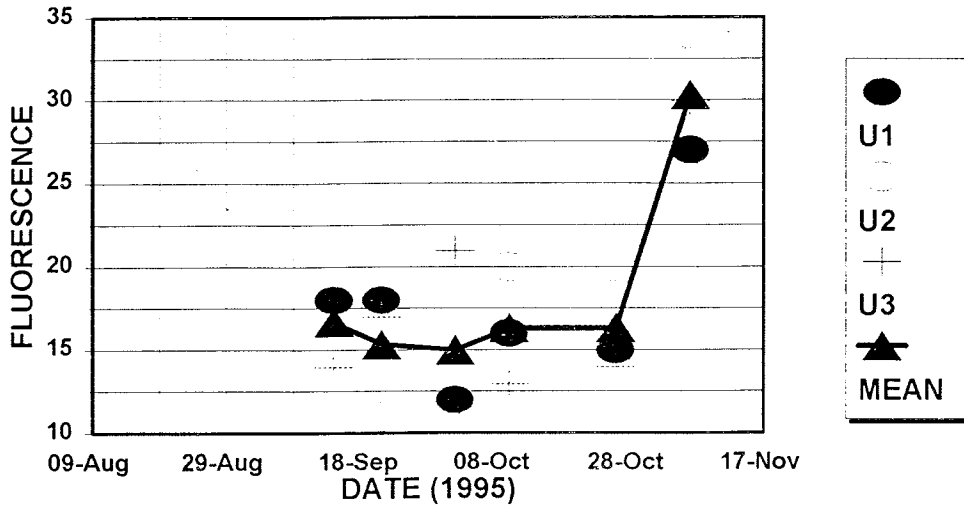


FIGURE 14. Average groundwater total inorganic nitrogen before irrigation (August 10 through September 6) and after irrigation (September 14 through November 6) at each sample location. Each bar indicates the proportion of TIN attributable to ammonia, nitrite or nitrate.

BEAR LAKE SHALLOW GROUNDWATER Fluorescence - Upgradient Sites



BEAR LAKE SHALLOW GROUNDWATER Fluorescence - Downgradient Sites

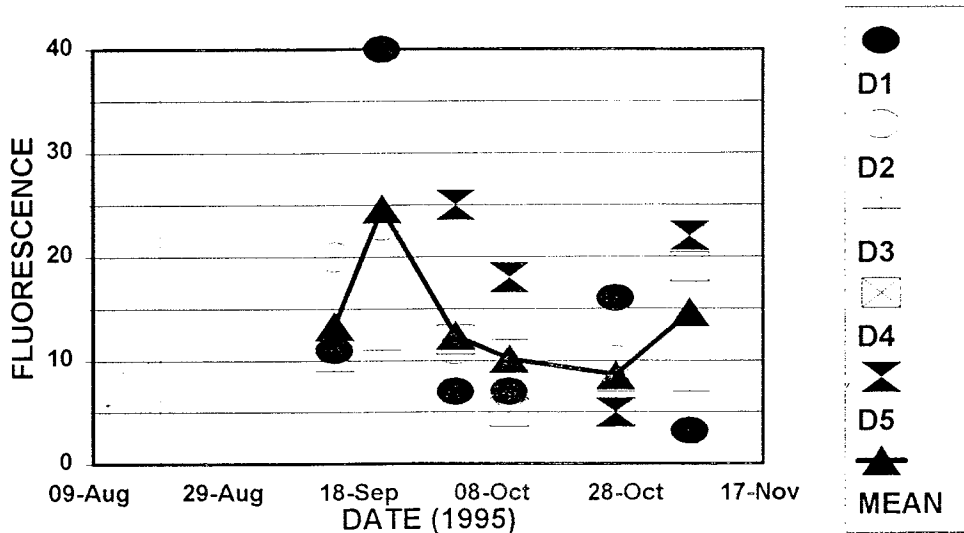
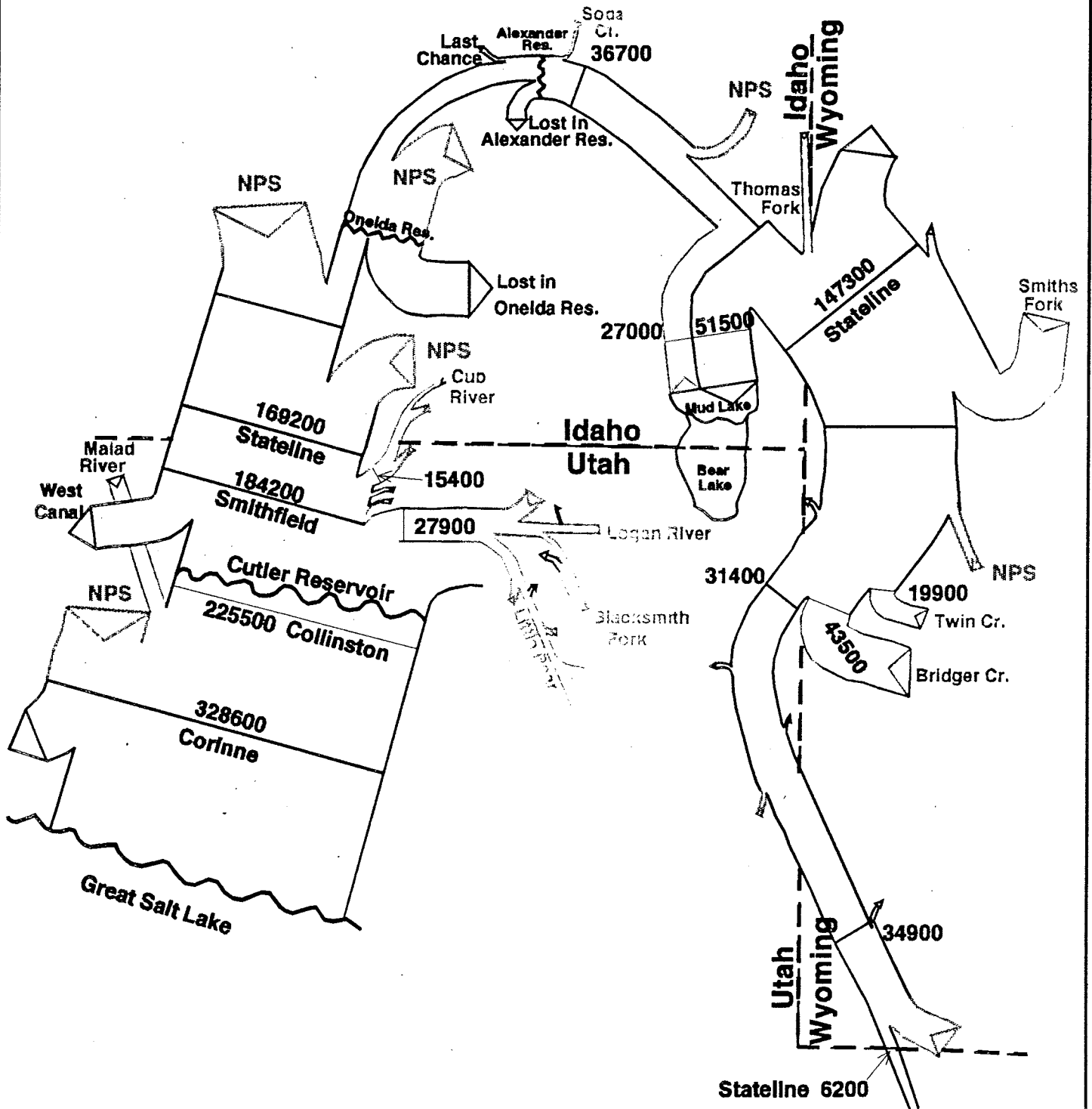


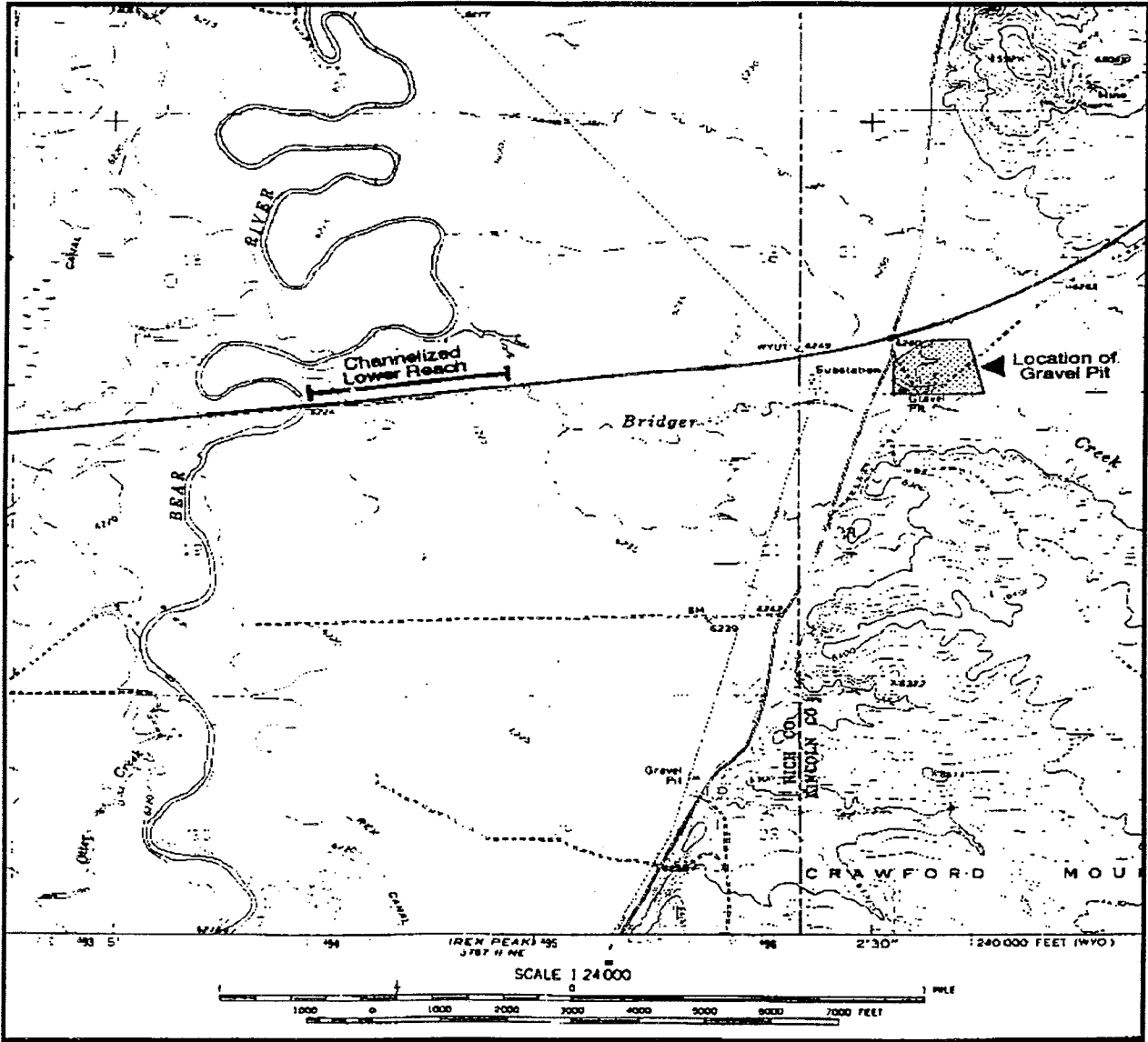
FIGURE 15. Changes in shallow groundwater fluorescence over the course of the study (August 10 through November 6, 1995).

Bear River

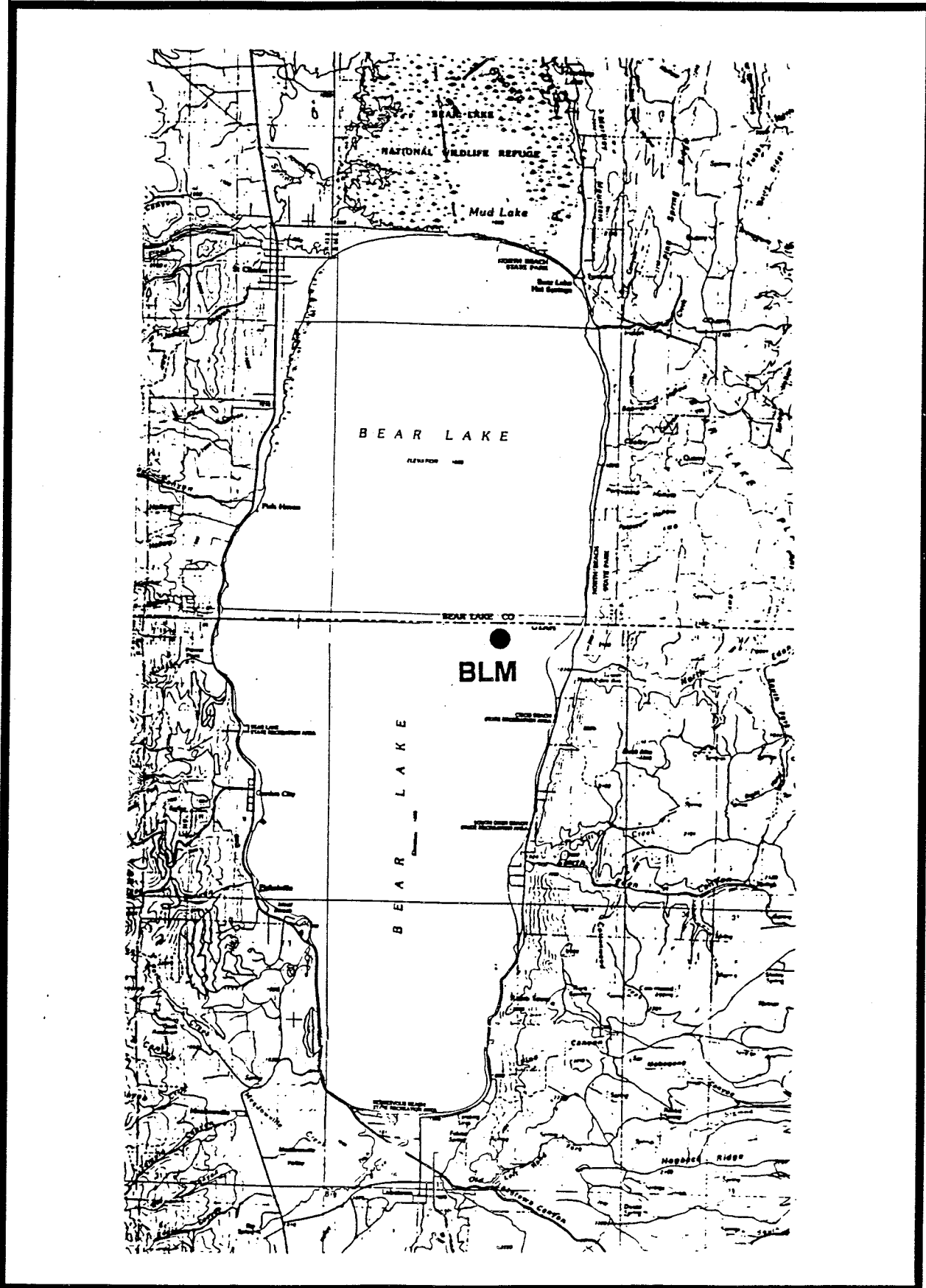
Total Suspended Solids

Average Daily Loads (Kg/day)

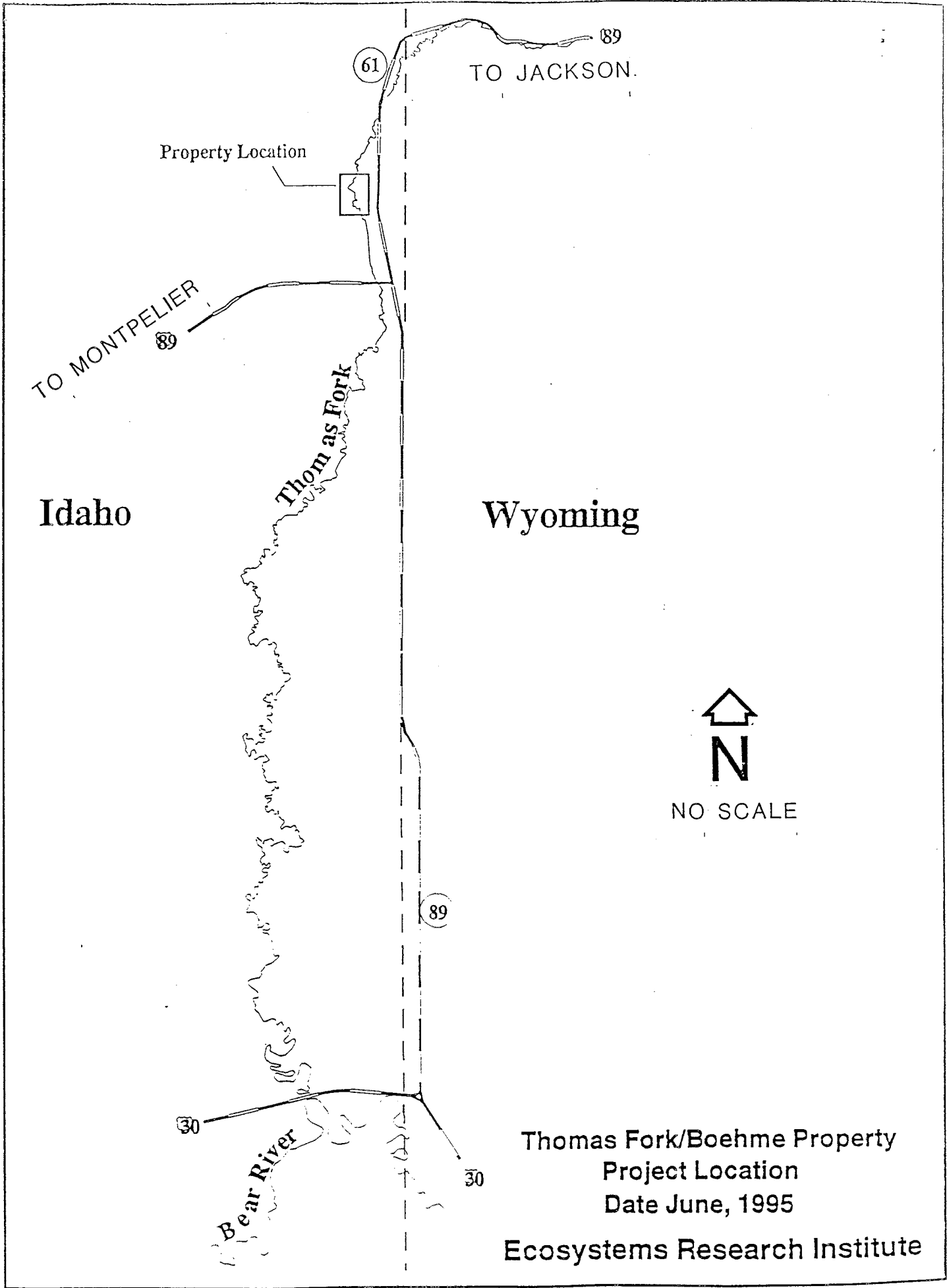




The location of the lower 2,500 feet of Bridger Creek which was channelized due to road reconstruction.



Annual monitoring site.



Property Location

TO MONTPELIER

TO JACKSON.

Idaho

Wyoming

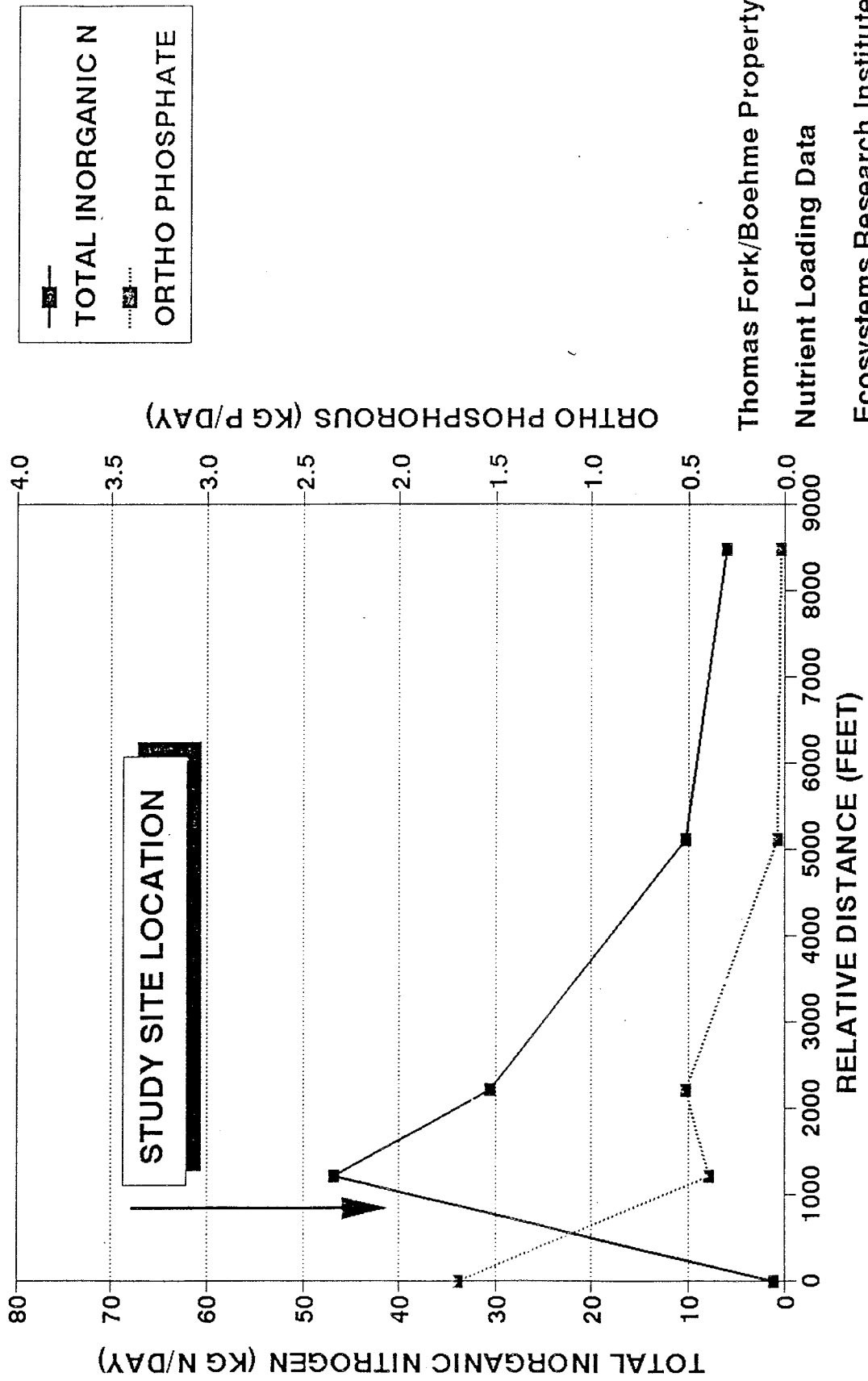
Thomas Fork

Bear River

↑
N
NO SCALE

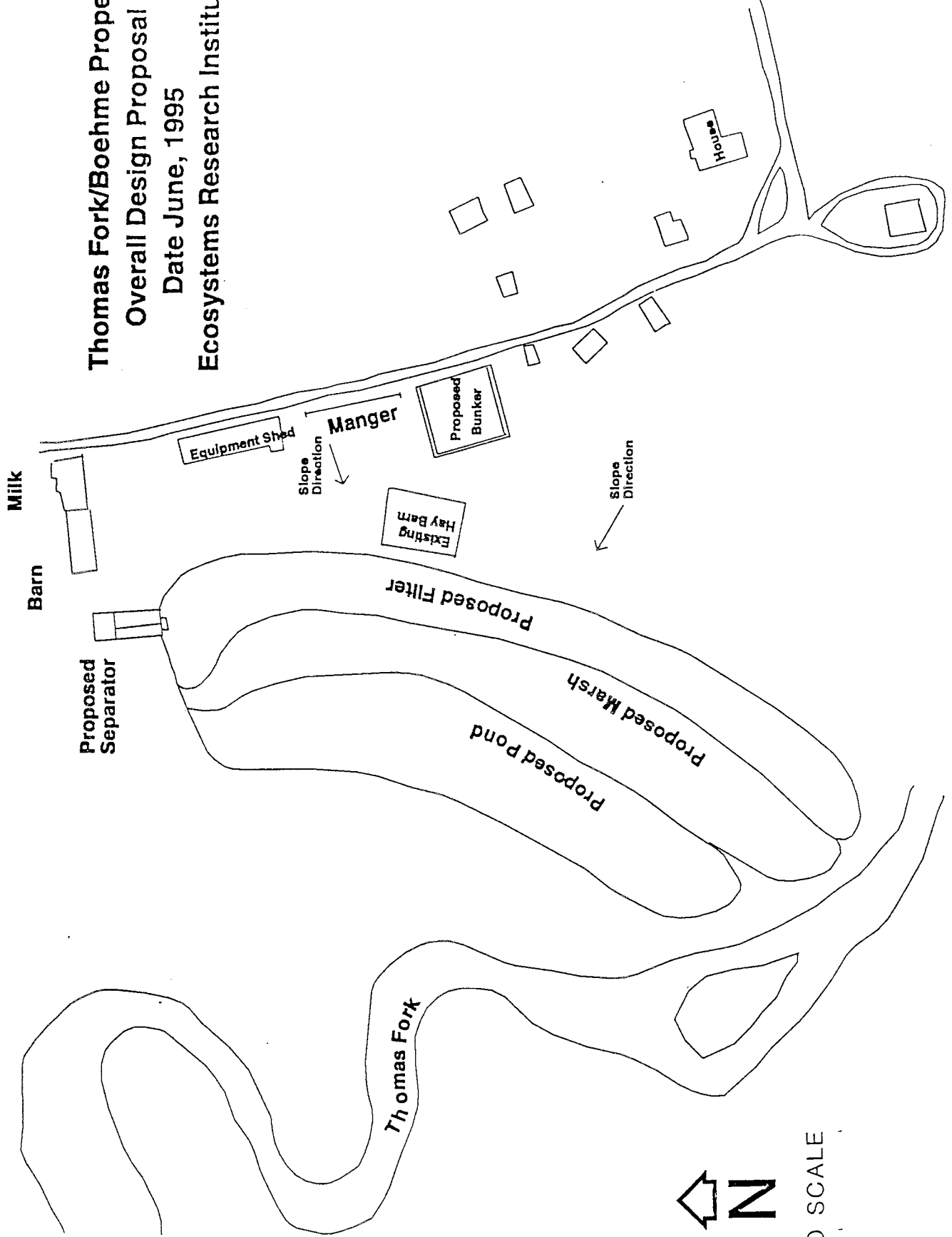
Thomas Fork/Boehme Property
Project Location
Date June, 1995
Ecosystems Research Institute

THOMAS FORK RIVER NUTRIENT LOADING (KG/DAY) 3-10-95



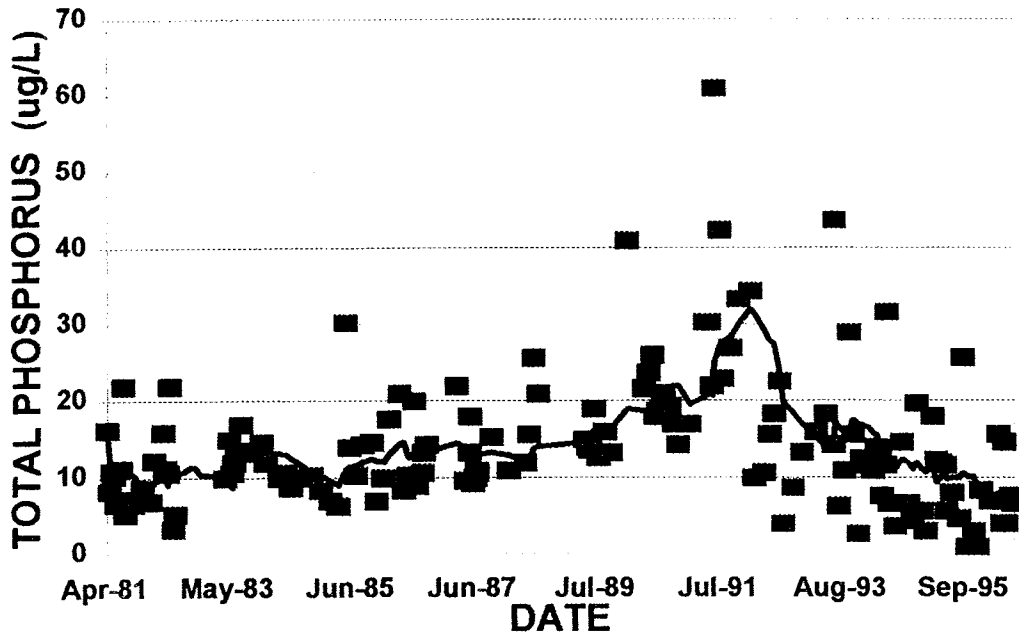
Thomas Fork/Boehme Property
Nutrient Loading Data
Ecosystems Research Institute

**Thomas Fork/Boehme Property
Overall Design Proposal
Date June, 1995
Ecosystems Research Institute**

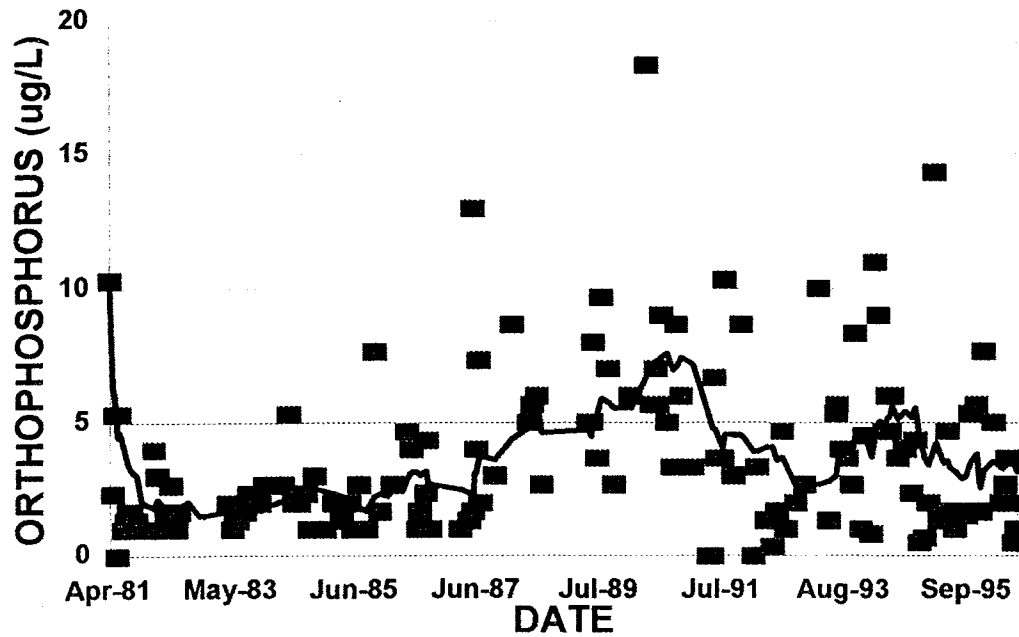


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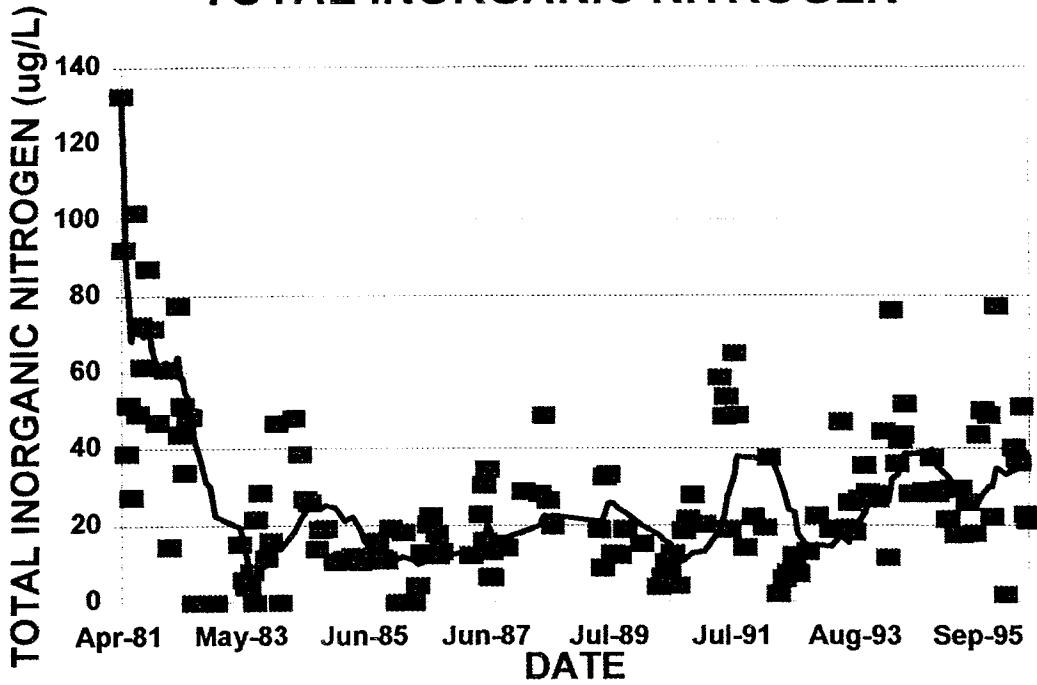
BEAR LAKE LONG TERM MONITORING TOTAL PHOSPHORUS



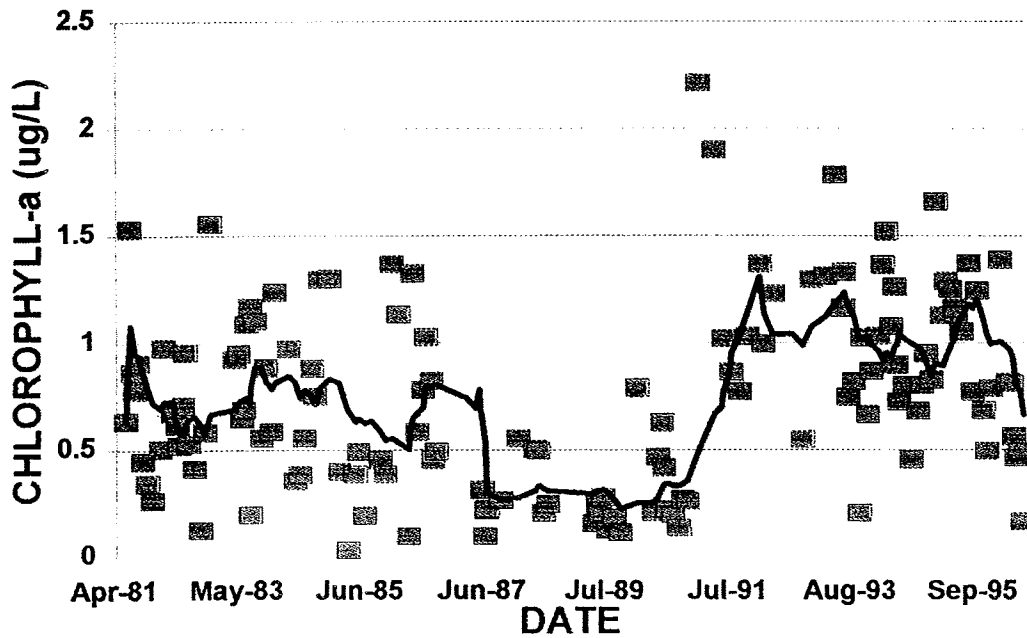
BEAR LAKE LONG TERM MONITORING ORTHOPHOSPHORUS



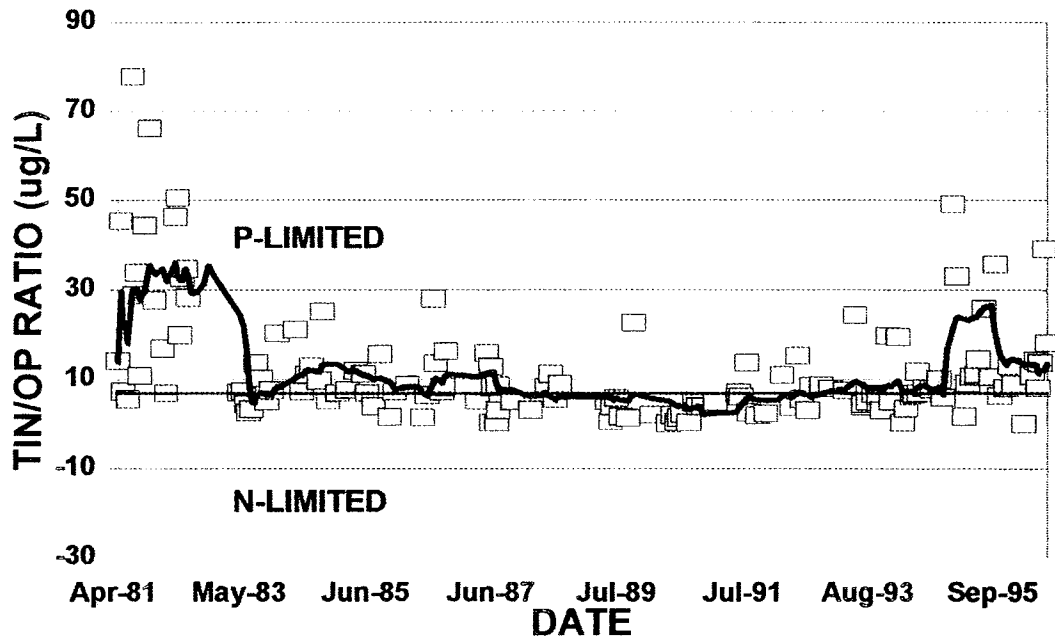
BEAR LAKE LONG TERM MONITORING TOTAL INORGANIC NITROGEN



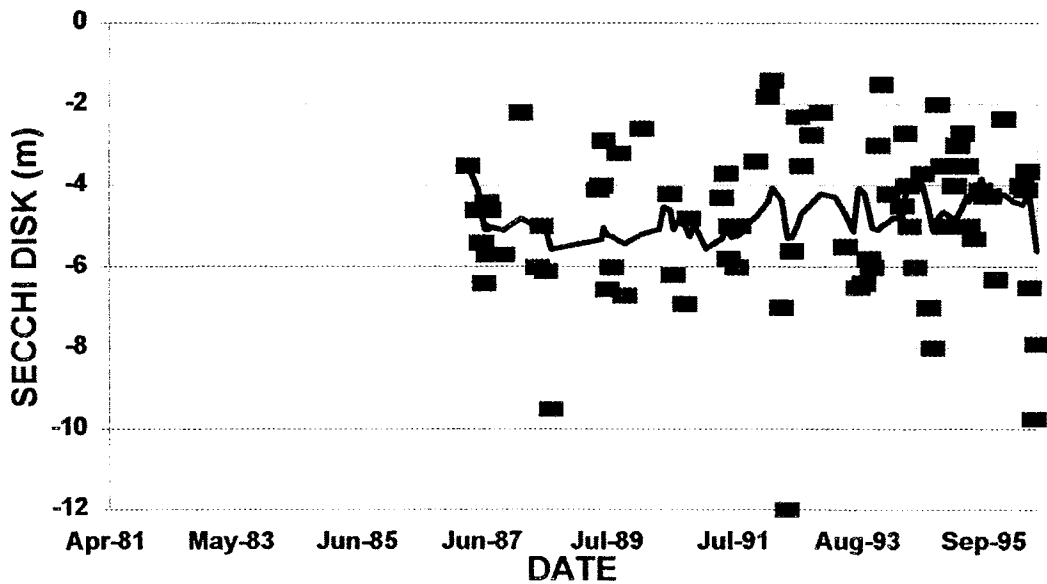
BEAR LAKE LONG TERM MONITORING CHLOROPHYLL-a

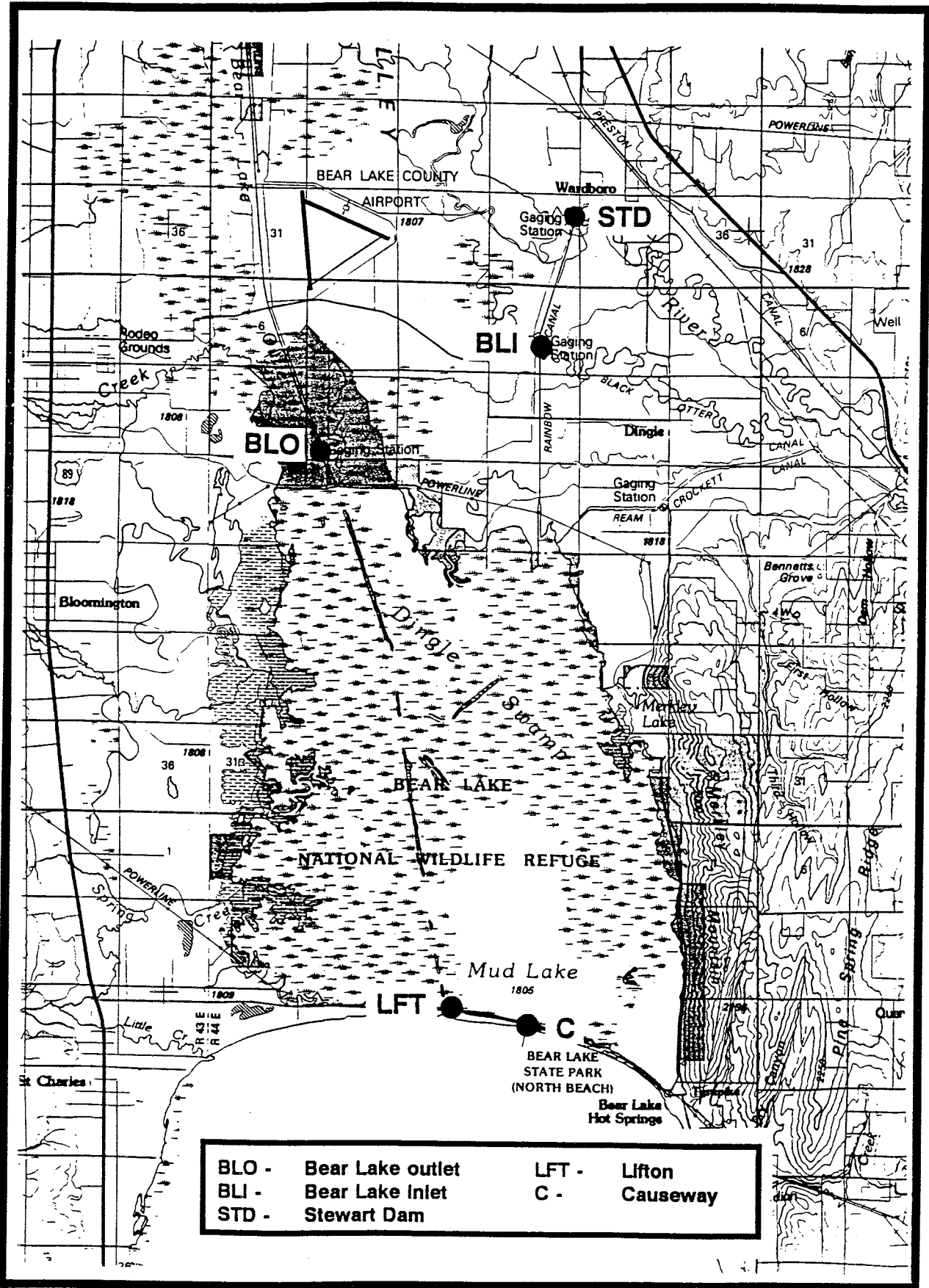


BEAR LAKE LONG TERM MONITORING TIN/OP RATIO



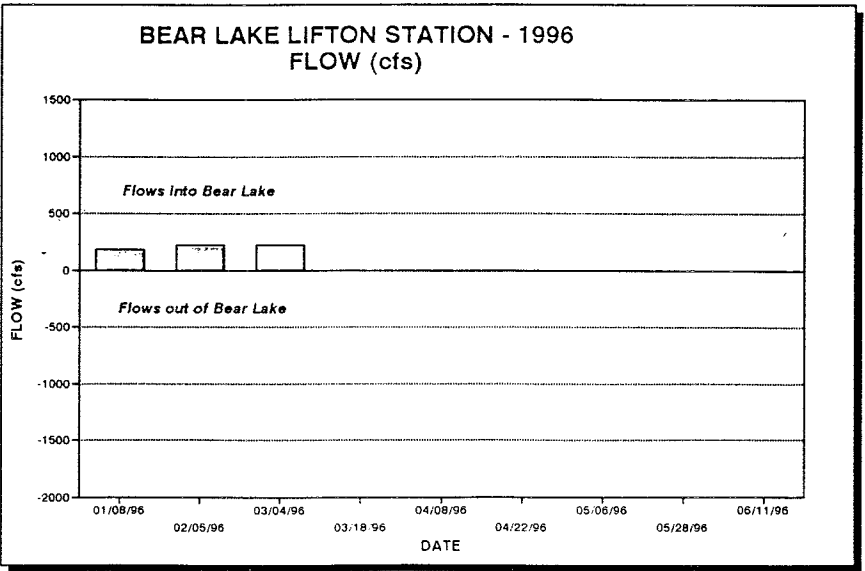
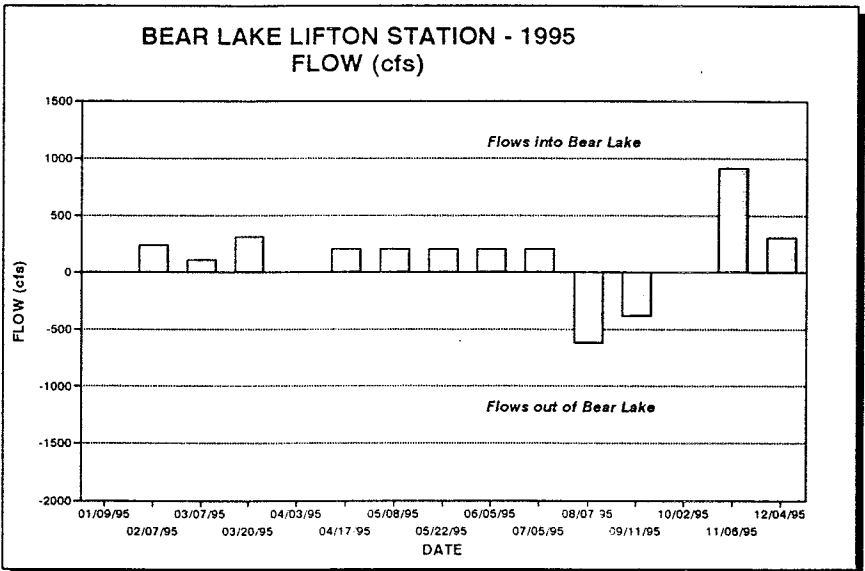
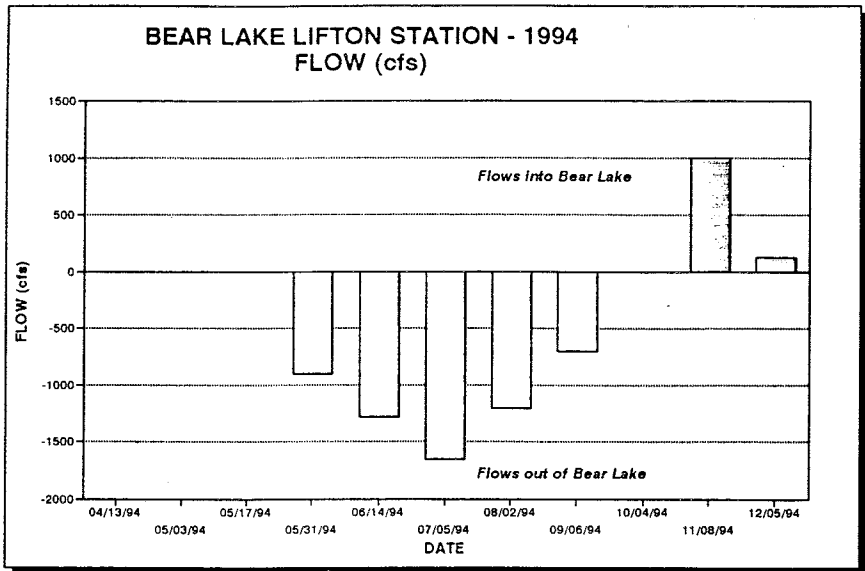
BEAR LAKE LONG TERM MONITORING SECCHI DISK TRANSPARENCY



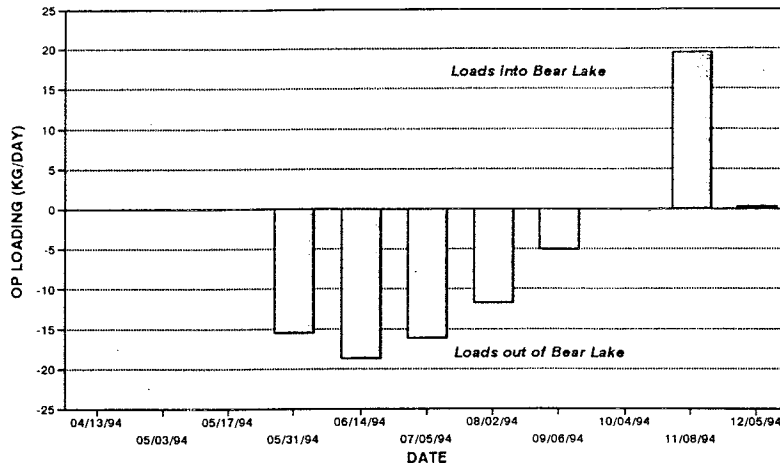


BLO -	Bear Lake outlet	LFT -	Lifton
BLI -	Bear Lake Inlet	C -	Causeway
STD -	Stewart Dam		

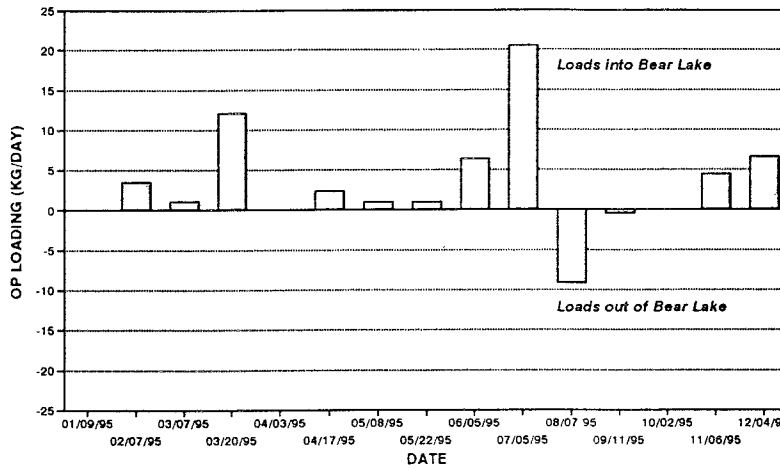
Bear Lake watershed monitoring sites.



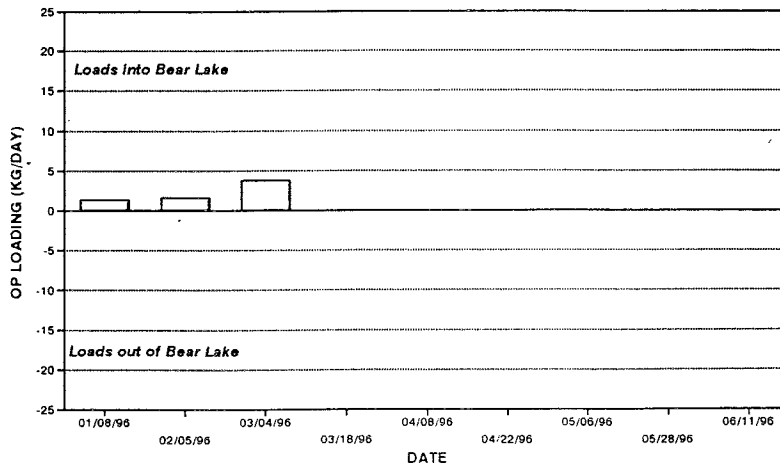
**BEAR LAKE LIFTON STATION - 1994
ORTHOPHOSPHORUS LOAD (KG/DAY)**

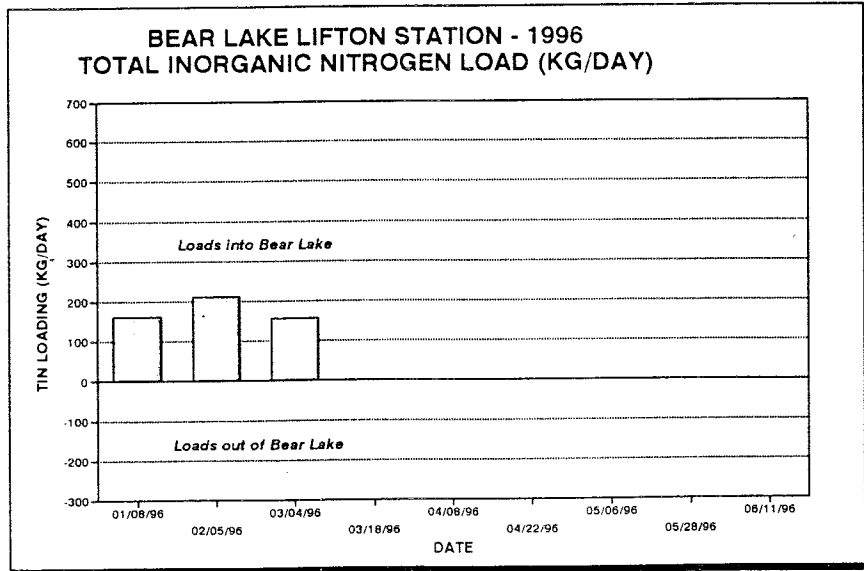
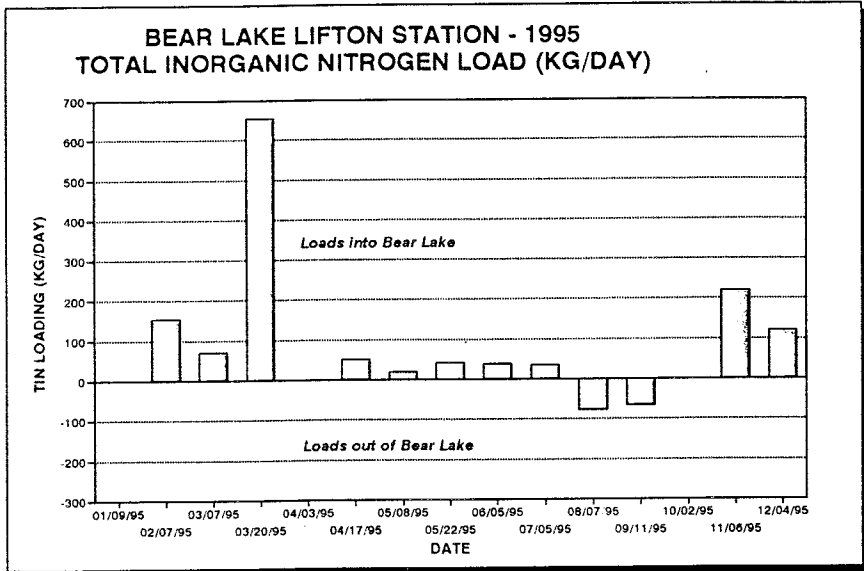
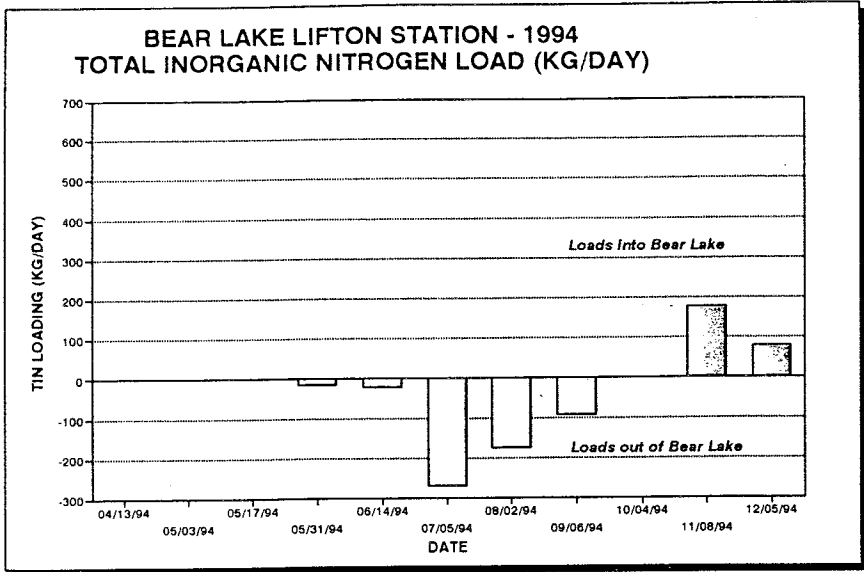


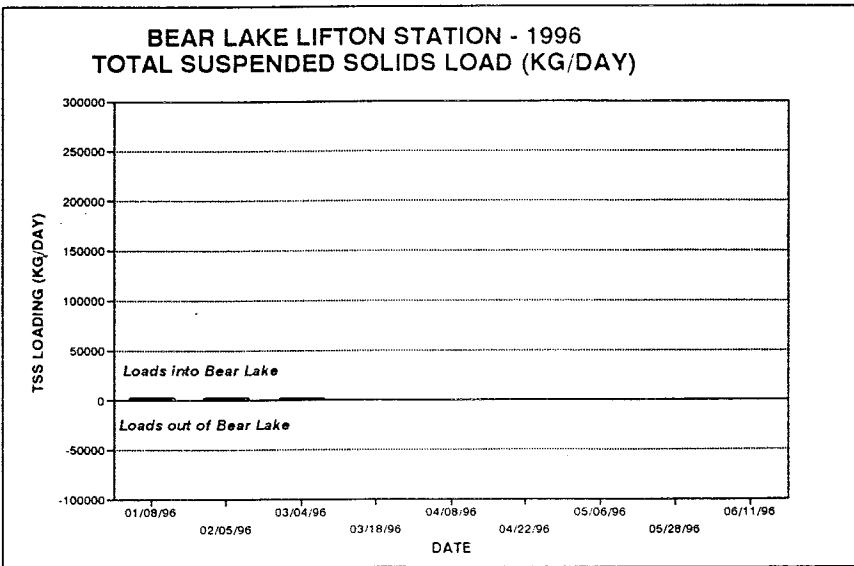
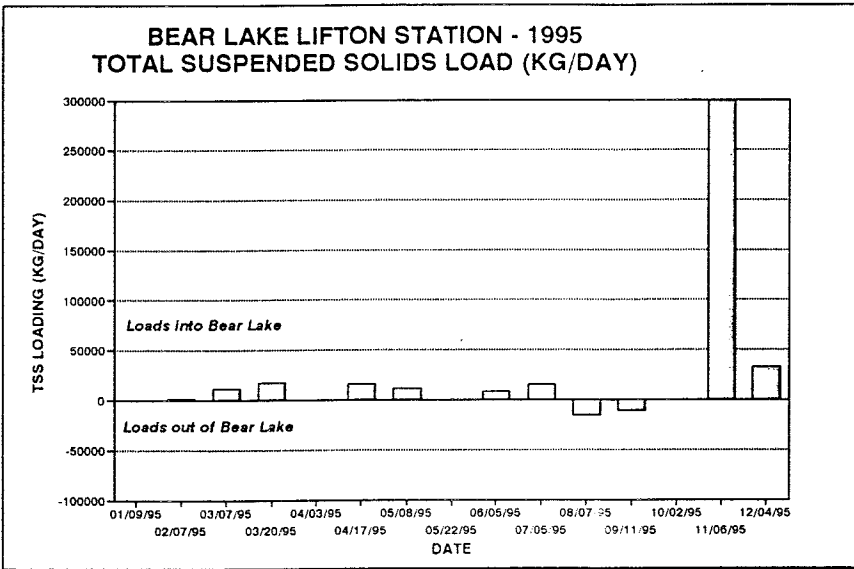
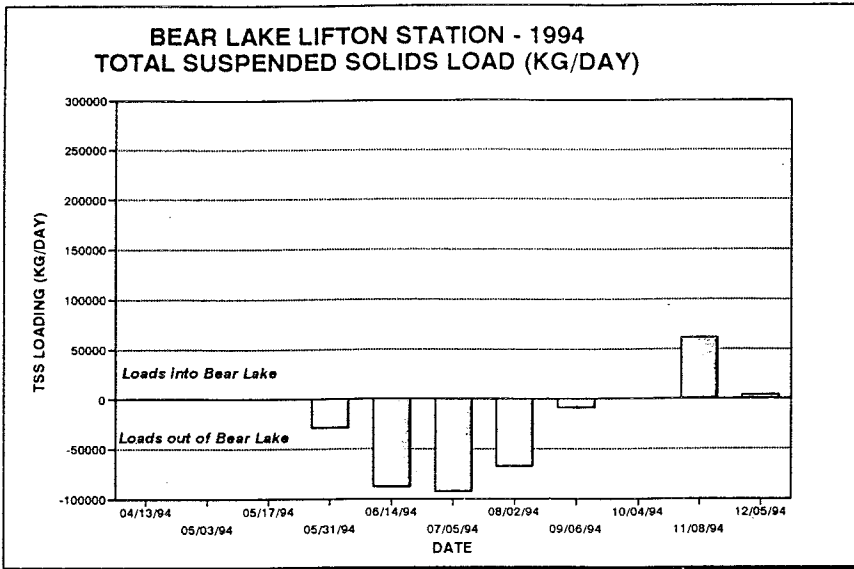
**BEAR LAKE LIFTON STATION - 1995
ORTHOPHOSPHORUS LOAD (KG/DAY)**

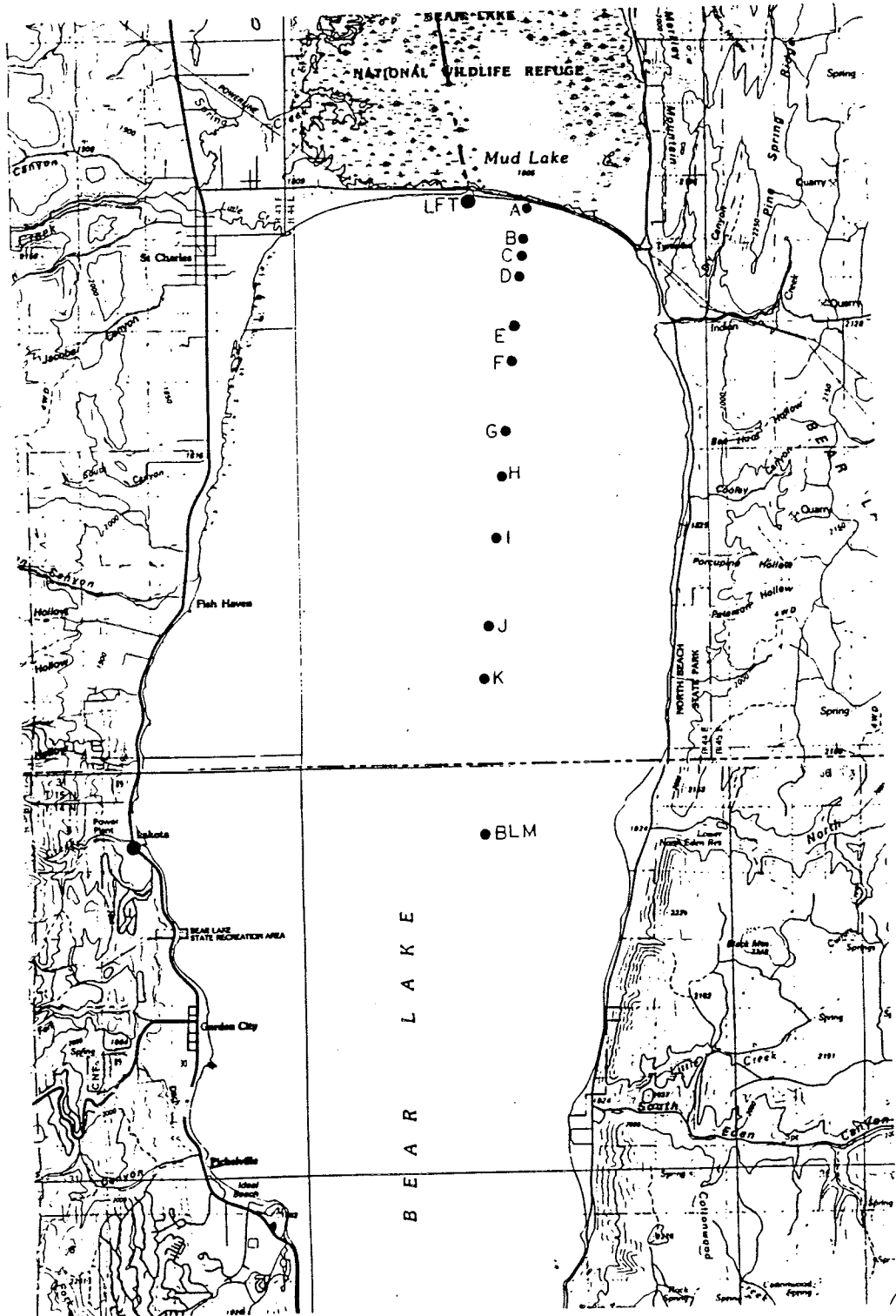


**BEAR LAKE LIFTON STATION - 1996
ORTHOPHOSPHORUS LOAD (KG/DAY)**









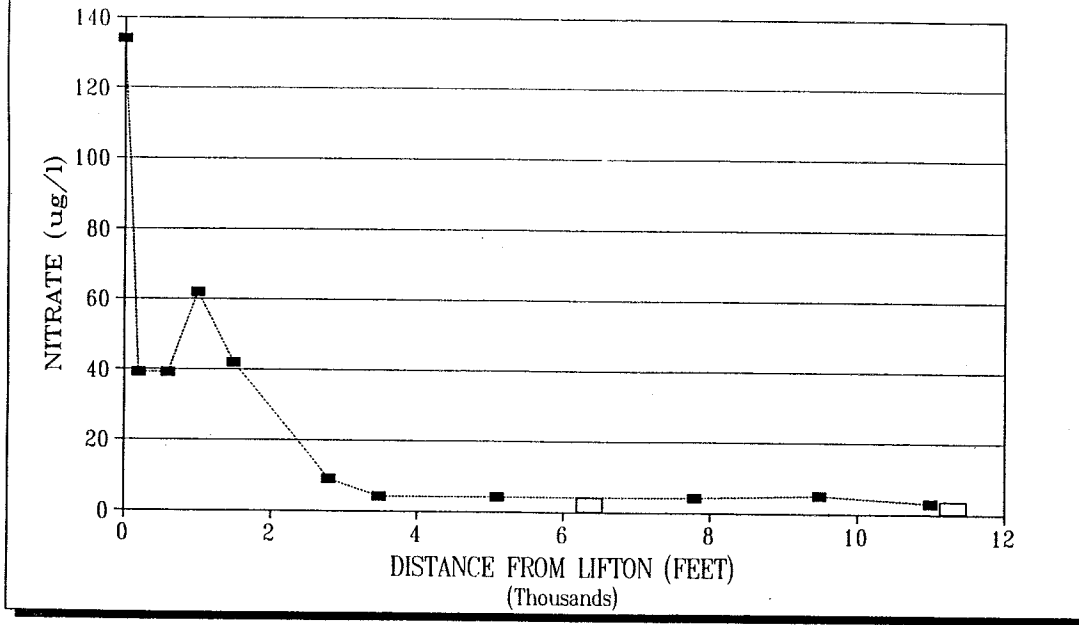
Ecosystem Research Institute

Special study monitoring stations.

The results of the special study collected on May 10, 1993.

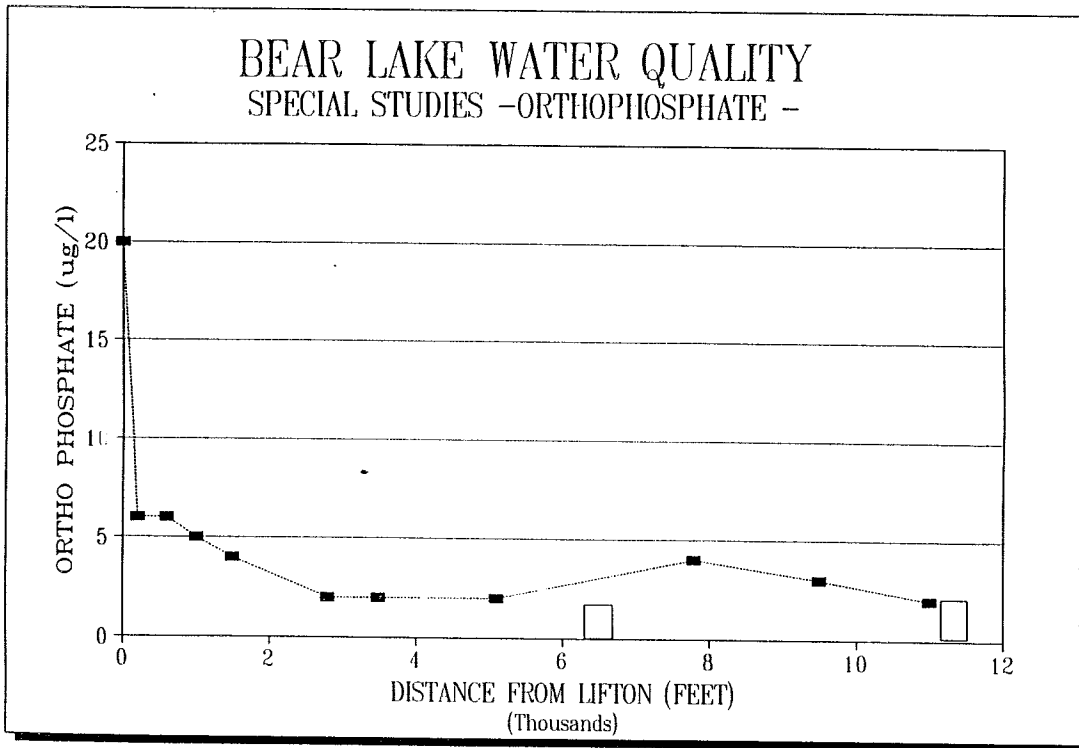
SITE	Depth (ft)	Distance (ft)	S.D. (m)	Turbidity	TSS	NO ₃	OP	TP	COMMENTS
LIFTON	0	0	0	155	311	134	20	361	
A	2	200	.1	130	238	39	6	182	Some flowing water in Bear Lake. Muddy, lots of carp.
B	4	600	.1	35	43	39	6	57	Muddy water, lots of carp.
C	11	1,000	.2	29	37	62	5	6	Muddy water, cattails floating on surface.
D	15	1,500	.2	18	27	42	4	45	Not as muddy, large pieces of wood and cattails floating on surface.
E	30	2,800	.3	4.2	7	9	2	19	Not as muddy, large pieces of wood and cattails floating on surface.
F	40	3,500	.3	5.2	10	4	2	20	Lots of reeds and snails floating.
G	50	5,100	.3	9.4	14	4	2	35	Lots of large wooden planks.
H		6,100	4.8	1.3	5	3	2	18	Water appears to be clear. A piece of wood. Some wood subsurface (6").
I		7,800	2.2	7.4	7	4	4	21	Large pieces of wood.
J		9,500	1.8	6.9	5	5	3	24	Some reeds. Strange bubble masses on surface.
K		11,000	4.3	3.3		3	2	17	Clear water. Nothing on surface.
BLM	180	25,000	5.5	0.9	3	16	1	26	Clear water. Nothing on surface

BEAR LAKE WATER QUALITY SPECIAL STUDIES - NITRATE -



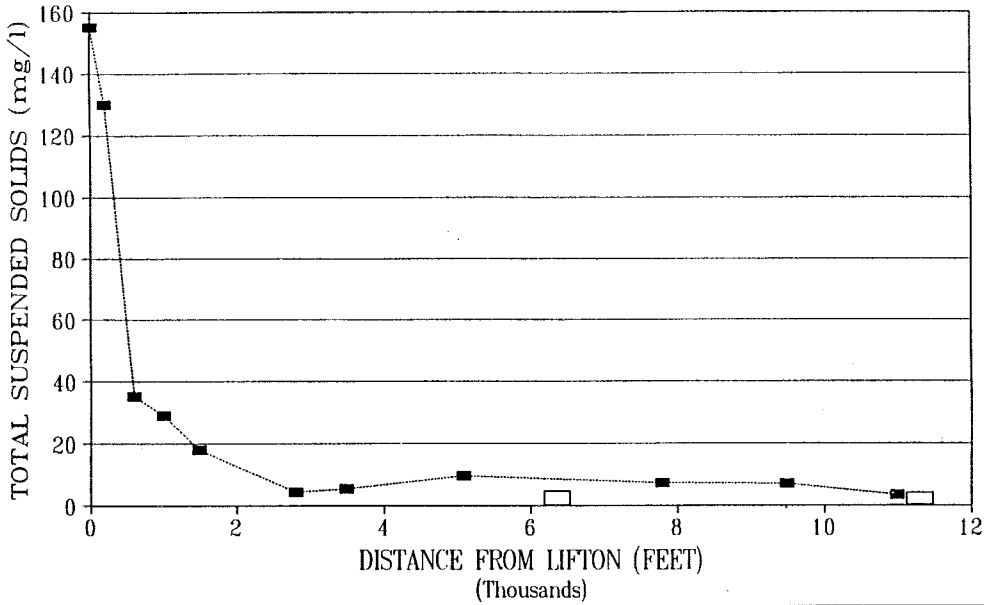
The nitrate concentration at ten Bear Lake stations plotted against distance from the causeway break into Bear Lake. Inserted bars represent data immediately adjacent, but outside the sediment plume.

BEAR LAKE WATER QUALITY SPECIAL STUDIES - ORTHOPHOSPHATE -



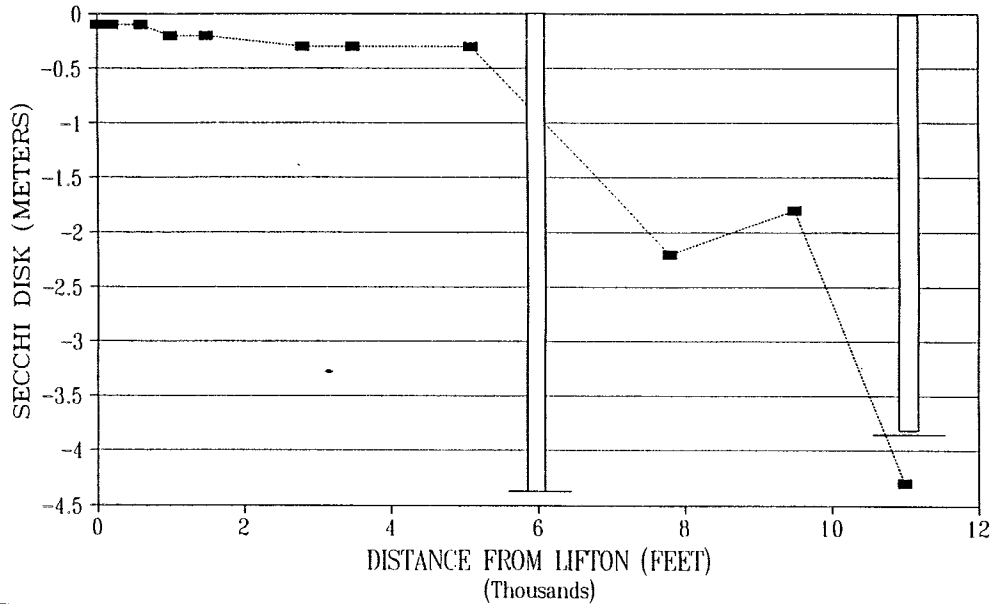
The ortho-phosphate concentration at ten Bear Lake stations plotted against distance from the causeway break into Bear Lake. Inserted bars represent data immediately adjacent, but outside the sediment plume.

BEAR LAKE WATER QUALITY SPECIAL STUDIES -T S S -



The total suspended solids concentration at ten Bear Lake stations plotted against distance from the causeway break into Bear Lake. Inserted bars represent data immediately adjacent, but outside the sediment plume.

BEAR LAKE WATER QUALITY SPECIAL STUDIES -SECCHI DISK-



The secchi disk transparency at ten Bear Lake stations plotted against distance from the causeway break into Bear Lake. Inserted bars represent data immediately adjacent, but outside the sediment plume.