RESULTS BY LOCATION REPORT 02/_0/95 pg 1

'ROM DATE: 01/01/80 WATERSHED: MIL
'O DATE: 02/10/95 STATION #: 2000

MIRROR LAKE WEST SIDE NEAR OLD GLEN HWY.

'ARAMETERS SELECTED:

'ATABASE	ABBREVIATION	DESCRIPTION
TL1 LAB	FE_COL	Fecal Coliform Col
TL1 LAB	E_COLI	E. Coli Col
TL1 LAB	ENTEROC	Enterococci Col

DATE	WSH	STA#	NTL1 LAB FE_COL	NTL1 LAB E_COLI	NTL1 LAB ENTEROC
7/22/88	MIL	2000	62.0000	50.0000	148.0000
9/27/88	MIL	2000	2.0000<	2.0000<	2.0000<
2/27/89	MIL	2000	2.0000<	2.0000<	2.0000<
2/27/89	MIL	2000	2.0000<	2.0000<	2.0000<
2/28/89	MIL	2000	2.0000<	2.0000<	2.0000<
2/28/89	MIL	2000	2.0000<	2.0000<	2.0000<
5/17/89	MIL	2000	2.0000<	2.0000<	2.0000<
7/31/89	MIL	2000	4.0000	4.0000	2.0000<
9/22/89	MIL	2000	2.0000<	4.0000	2.0000<
2/15/90	MIL	2000	2.0000<	2.0000<	2.0000<
3/08/91	MIL	2000	12		
5/23/91	MIL	2000	7		
9/24/91	MIL	2000	8		
2/10/92	MIL	2000	2<		
8/13/92	MIL	2000	5		
0/01/92	MIL	2000	2<		

UMMARY:

UMBER OF ENTRYS	16	10	10
VERAGE VALUE	7.3750	7.2000	16.6000
TANDARD DEVIATION	14.8588	15.0614	46.1693
UM BELOW DETECTION	10	7	9
%) BELOW DETECTION	62.50	70.00	90.00
AXIMUM VALUE	62.0000	50.0000	148.0000
INIMUM VALUE	2.0000	2.0000	2.0000
EOMETRIC MEAN	3.6157	3.1698	3.0758
EDIAN	2.0000	2.0000	2.0000

* end of report **

RESULTS BY LOCATION REPORT 02/_0/95 pg 1

ROM DATE: 01/01/80 WATERSHED: MIL
O DATE: 02/10/95 STATION #: 1000

MIRROR L/C AT BEACH
NORTH END

WB File # 78(a)

ARAMETERS SELECTED:

ATABASE	ABBREVIATION	DESCRIPTION
TL1 LAB	FE_COL	Fecal Coliform Col
TL1 LAB	E_COLI	E. Coli Col
TL1 LAB	ENTEROC	Enterococci Col

DATE	WSH	STA#	NTL1 LAB FE_COL	NTL1 LAB E_COLI	NTL1 LAB ENTEROC
7/22/88	MIL	1000	84.0000	80.0000	420.0000
9/27/88	MIL	1000	2.0000<	2.0000<	2.0000<
2/27/89	MIL	1000	2.0000<	2.0000<	2.0000<
2/27/89	MIL	1000	2.0000<	2.0000<	2.0000<
5/17/89	MIL	1000	2.0000<	2.0000<	2.0000
7/31/89	MIL	1000	16.0000	20.0000	10.0000
9/22/89	MIL	1000	2.0000<	2.0000<	2.0000<
2/15/90	MIL	1000	2.0000<	2.0000<	2.0000<
3/08/91	MIL	1000	2500		
5/23/91	MIL	1000	8		
9/24/91	MIL	1000	4		
2/10/92	MIL	1000	2<		
5/28/92	MIL	1000	2<		
3/13/92	MIL	1000	22		
0/01/92	MIL	1000	2<		

JMMARY:

JMBER OF ENTRYS	15	8	8
/ERAGE VALUE	176.8000	14.0000	55.2500
TANDARD DEVIATION	643.0418	27.4018	147.4078
JM BELOW DETECTION	9	6	5
%) BELOW DETECTION	60.00	75.00	62.50
AXIMUM VALUE	2500.0000	80.0000	420.0000
INIMUM VALUE	2.0000	2.0000	2.0000
EOMETRIC MEAN	6.3907	4.2295	4.7718
EDIAN	2.0000	2.0000	2.0000

end of report **

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

1988 STATEWIDE WATER QUALITY ASSESSMENT

*** WATERBODY ***

Name of Waterbody: Mirror Lake

ID#: AK 190 20401-401
3041: N (L) M S
WQL: 0 - N
1 - PS
(2 - NPS)
3 - WQS
4 - Con/Enf
Stat: I (T) U
[ADEC Use Only]

Type/Size:
- [] River/Stream ____ Miles
- [X] Lake 58.8 (Acres)/Hectares
- [] Fresh Wetland ____ Acres/Hectares
- [] Tidal Wetland ____ Acres/Hectares
- [] Estuary ____ Square Miles
- [] Coastal Shoreline ____ Miles
- [] Groundwater

USGS Hydrological Unit #: 190- 20401

ST; RD

Location or Lat/Long: 61°25'44" 149°24'51"

Is the waterbody in a national or state park, monument, refuge, preserve, or similar area?: [] Yes , [X] No , Name ____

*** ASSESSMENT ***

Assessment Date: Yr 85 , Mo 7 / By R. Baker and T. Spurkland (Bruce Rummel, Great Water Assoc.)
Sampling: Begin Yr 82 , Mo 1 / End Yr 82 , Mo 12 / By R. Baker, T. Spurkland
Reference for Data: Baker R. O., and Spurkland, T. 1985, A diagnostic study of Mirror Lake, Alaska: Alaska Div. Parks and Outdoor Recreation.

Basis for Assessment:
- [] 1 Qualitative, land use/sources
- [] 1 Qualitative, complaints/2nd hand
- [] 2 Predictive models, unverified
- [] 3 Calibrated models
- [] 4 Fixed station data, Bio or Chem
- [] 5 Effluent toxicity testing
- [] 6 Limited site visit
- [X] 7 Intensive field assessment

Assessment Category:
- [X] Monitored (Data)
- [X] Evaluated (Judgement)

Next Planned Assessment: Yr ___ , Mo ___ / By ____

Comments: 6 sites sampled

Rummel, B. 1985 Management Study of Mirror Lake, Alaska: Prepared for Alaska Dept. Natural Resources, Div. Parks and Outdoor Recreation. [attachment to Baker, Spurkland report]

Size-A	Size-M	Support	Partial	Not-Sup	Cause-%	Size-10	Size-No	Why?

Mirror Lake

*** USE STATUS ***

Meets Clean Water Act Goals:

- [X] Fishable
- [] Not Fishable
- [] Fishable Not Attainable
- [X] Swimmable
- [] Not Swimmable
- [] Swimmable Not Attainable

Impaired or Threatened Uses:

IMP	THR	FRESHWATER	IMP	THR	MARINE
[]	[]	Drinking	[]	[]	Aquaculture
[]	[]	Agriculture	[]	[]	Seafood Processing
[]	[]	Aquaculture	[]	[]	Industry
[]	[]	Industry	[]	[]	Recreation, Contact
[]	[X]	Recreation, Contact	[]	[]	Recreation, Secondary
[]	[]	Recreation, Secondary	[]	[]	Fish, Shellfish, Wildlife
[]	[X]	Fish, Shellfish, Wildlife	[]	[]	Harvest of Fish, Shellfish

Support of Designated Uses:

- [] All Uses Fully Supported, no sources present
- [] All Uses Fully Supported, sources present
- [X] One or More Uses Threatened
- [] One or More Uses Partially Supported
- [] One or More Uses Not Supported

Trophic Status:

- [] Oligatrophic
- [X] Mesatrophic
- [] Eutrophic
- [] Hypereutrophic
- [] Dystrophic
- [] Unknown

Trophic Trend:

- [] Improving
- [] Stable
- [X] Deteriorating

*** TOXICS ***

Monitored for Toxics: [X] Yes , [] No

Type of Toxics Monitoring:

- [] 1 Organics in water column
- [] 2 Organics in sediments
- [] 3 Organics in fish tissue
- [] 4 Organics in discharges
- [] 5 Pesticides in water column
- [] 6 Pesticides in sediments
- [] 7 Pesticides in fish tissue
- [] 8 Pesticides in discharges
- [X] 9 Metals in water column
- [] 10 Metals in sediments
- [] 11 Metals in fish tissue
- [] 12 Metals in discharges
- [X] 13 Other inorganics in water column
- [] 99 Other inorganics in sediments
- [] 99 Other inorganics in fish tissue
- [] 14 Other inorganics in discharges
- [] 15 Toxicity testing of water column
- [] 16 Toxicity testing of sediments
- [] 17 Toxicity testing of discharges

Mirror Lake

Pollutants: (H = High, M = Medium, S = Slight)

__ 1 Unknown toxicity
__ 2 Pesticides Type _____
__ 3 Priority organics Type _____
__ 4 Nonpriority organics Type _____
__ 5 Metals Type _____
__ 6 Ammonia
__ 7 Chlorine
__ 8 Other inorganics
H 9 Nutrients
__ 10 pH
__ 11 Siltation
H 12 Organic enrichment
__ 13 Salinity/TDS/Chlorine
__ 14 Thermal modifications
__ 15 Flow alteration
__ 16 Habitat alteration
H 17 Pathogens
__ 18 Radiation
__ 19 Oil and Grease
__ 20 Taste and Odor
__ 21 Suspended solids
H 22 Noxious aquatic plants (algae)
__ 23 Filling and draining

Sources of Pollutants: (H = High, M = Medium, S = Slight)

Point Sources
__ 1 Industrial
__ 2 Municipal
__ 3 Municipal pretreatment
__ 4 Combined sewers
__ 5 Storm sewers

Nonpoint Sources
__ 9 Unspecified

Agriculture
__ 11 Non-irrigated crop production
__ 12 Irrrigated crop production
__ 13 Specialty crop production
__ 14 Pasture land
__ 15 Range land
__ 16 Feedlots
__ 17 Aquaculture
__ 18 Animal holding areas

Silviculture
__ 21 Harvest, restoration
__ 22 Forest management
__ 23 Road construction/maintenance

Construction
__ 31 Highway/road/bridge
__ 32 Land development

Urban Runoff
__ 41 Storm sewers
__ 42 Combined sewers
M 43 Surface runoff

Source Unknown
__ 90 Source Unknown

Resource extraction/exploration
__ 51 Surface mining
__ 52 Subsurface mining
__ 53 Placer mining
__ 54 Dredge mining
__ 55 Petroleum activities
__ 56 Mill tailings
__ 57 Mine tailings

Land Disposal (Permitted Activities)
__ 61 Sludge
__ 62 Wastewater
__ 63 Landfills
__ 64 Industrial land treatment
__ 65 Onsite wastewater systems
__ 66 Hazardous waste

Hydromodification
__ 71 Channelization
__ 72 Dredging
__ 73 Dam construction
__ 74 Flow regulation/modification
__ 75 Bridge construction
__ 76 Removal of riparian vegetation
__ 77 Streambank modification

Other
__ 81 Atmospheric deposition
__ 82 Waste storage/storage tank leaks
M 83 Highway maintenance and runoff
__ 84 Spills
__ 85 In-place contaminants
__ 86 Natural
__ 87 Recreational activities
__ 88 Upstream impoundment
H 89 Septic tank seepage

Mirror Lake

*** FISH AND SHELLFISH CONTAMINATION ***

Fish and Shellfish Contamination:

- [] 0 None detected
- [] 1 Contaminated fish
- [] 2 Fishing advisory
- [] 3 Fishing ban
- [] 4 Fish abnormalities
- [] 5 Shellfish restrictions due to pathogens
- [] 6 Fish kill

*** POINT AND NONPOINT SOURCES ***

Point Sources:

1 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [] Yes , [] No , Pollutant _____

2 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [] Yes , [] No , Pollutant _____

3 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [] Yes , [] No , Pollutant _____

Nonpoint Sources:

1 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

2 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

3 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

Mirror Lake

[Including extent of impairment of uses; significance of impacts on public health and the environment; water quality trend; efforts to control pollutants; current priority for developing pollutant controls; and adequacy of data]

Problems: high turbidity, algal blooms, cercarial dermatitis (swimmer's itch), fecal coliform bacteria.

Baker & Spurkland report: "higher levels [nutrients] within the southern portion of Mirror Lake suggest that phosphorus is entering the system from the residential sewage system which consists of individual septic tanks."

Baker & Spurkland report: "the DO could drop to levels which would not support fishes during winter months if the lake becomes eutrophic. The present data suggest that this is a distinct possibility unless restoration action is taken."

Baker & Spurkland report: Restoration techniques: remove organic detritus on lake bottom; chemically fixing remaining excess nutrients.

Rummel's report: Sediment removal is probably the most appropriate restoration technique.

I fall

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

1988 STATEWIDE WATER QUALITY ASSESSMENT

***** WATERBODY *****

Name of Waterbody: _Mirror Lake_____ ID#: AK 190 20401 416

GS#: _____

Type/Size: [ ] River/Stream ____Miles
[X] Lake 131 Acres
[ ] Fresh Wetland ____Acres/Hectares
[ ] Tidal Wetland ____Acres/Hectares
[ ] Estuary ____Square Miles
[ ] Coastal Shoreline ____Miles
[ ] Groundwater

3041: N L M S
HQW: Y N
WQL: 0 - N
1 - PS
2 - NPS
3 - WQS
4 - Con/Enf
[ADEC Use Only]
UR

USGS Hydrological Unit #: 190-20401

Location or Lat/Long: _Anchorage, AK_____

Is the waterbody in a national or state park, monument, refuge, preserve, or similar area?: [ ] Yes, [X] No, Name _____

***** ASSESSMENT *****

Assessment Date: Yr _88 , Mo _04 / By _James Cross, MOA/DHHS_____
Sampling: Begin Yr _85 , Mo _06 / End Yr ___ , Mo ___ / By _____
Reference for Data: _MOA/DHHS_____

Assessment Type:
[ ] 1 Qualitative, land use sources
[ ] 1 Qualitative, complaints/2nd hand
[ ] 2 Predictive models, unverified
[ ] 3 Calibrated models
[X] 4 Fixed station data, Bio or Chem
[ ] 5 Effluent toxicity testing
[ ] 6 Limited site visit
[ ] 7 Intensive field Assessment

Assessment Category:
[X] Monitored (Data)
[ ] Evaluated (Judgement)

Next Planned Assessment: Yr ___ , Mo ___ / By _____

Comments: _____

Size-A	Size-M	Support	Partial	Not-Sup	Cause-%	Size-10	Size-No	Why?

Meets Clean Water Act Goals:

[X] Fishable	[ ] Swimmable
[ ] Not Fishable	[X] Not Swimmable
[ ] Fishable Not Attainable	[ ] Swimmable Not Attainable

Impaired or Threatened Uses:

IMP THR - FRESHWATER	IMP THR - MARINE
[X] [ ] Drinking	[ ] [ ] Aquaculture
[ ] [ ] Agriculture	[ ] [ ] Seafood Processing
[ ] [ ] Aquaculture	[ ] [ ] Industry
[ ] [ ] Industry	[ ] [ ] Recreation, Contact
[X] [ ] Recreation, Contact	[ ] [ ] Recreation, Secondary
[X] [ ] Recreation, Secondary	[ ] [ ] Fish, Shellfish, Wildlife
[ ] [ ] Fish, Shellfish, Wildlife	[ ] [ ] Harvest of Fish, Shellfish

Support of Designated Uses:

[ ] All Uses Fully Supported, no sources present
[ ] All Uses Fully Supported, sources present
[ ] One or More Uses Threatened
~~[X]~~ One or More Uses Partially Supported
[X] One or More Uses Not Supported Posted - swimmer's itch

Trophic Status:

[ ] Oligatrophic
[X] Mesatrophic
[ ] Eutrophic
[ ] Hypereutrophic
[ ] Dystrophic
[ ] Unknown

Trophic Trend:

[ ] Improving
[X] Stable
[ ] Deteriorating

*** **TOXICS** ***

Monitored for Toxics: [ ] Yes , [X] No

Types of Toxics Monitoring:

[ ] 1 Organics in water column	[ ] 10 Metals in sediments
[ ] 2 Organics in sediments	[ ] 11 Metals in fish tissue
[ ] 3 Organics in fish tissue	[ ] 12 Metals in discharges
[ ] 4 Organics in discharges	[ ] 13 Other inorganics in H2O col
[ ] 5 Pesticides in water column	[ ] 99 Other inorganics in sedimnt
[ ] 6 Pesticides in sediments	[ ] 99 Other inorganics in fish ts
[ ] 7 Pesticides in fish tissue	[ ] 14 Other inorganics in dscgs
[ ] 8 Pesticides in discharges	[ ] 15 Toxicity testing of water
[ ] 9 Metals in water column	[ ] 16 Toxicity testing of sediment
	[ ] 17 Toxicity testing of dscgs

Pollutants: (H = High, M = Medium, S = Slight)

__1 Unknown toxicity
__2 Pesticides Type _____
__3 Priority organics Type _____
__4 Nonpriority organ Type _____
__5 Metals Type _____

__6 Ammonia	__12 Organic enrichment	__18 Radiation
__7 Chlorine	__13 Salinity/TDS/Chlor	__19 Oil and Grease
__8 Other inorganics	__14 Thermal modificatn	__20 Taste and Odor
__9 Nutrients	__15 Flow alteration	M_21 Suspended solids
__10 pH	__16 Habitat alteration	__22 Noxious aqua plants
M_11 Siltation	M_17 Pathogens	__23 Filling and drain

Pollutant Categories: (H = High, M = Medium, S = Slight)

Point Sources
__1 Industrial
__2 Minicipal
__3 Municipal pretreatment
__4 Combined sewers
M_5 Storm sewers

Nonpoint Sources
M_9 Unspecified

Agriculture
__11 Non-irrig crop production
__12 Irrigated crop production
__13 Specialty crop production
__14 Pasture land
__15 Range Land
__16 Feedlots
__17 Aquaculture
__18 Animal holding areas

Silviculture
__21 Harvest, restoration
__22 Forest management
__23 Road construction/maint

Construction
__31 Highway/road/bridge
__32 Land development

Urban Runoff
M_41 Storm sewers
__42 Combined sewers
M_43 Surface runoff

Source Unknown
__90 Source unknown

Resource extraction/exploration
__51 Surface mining
__52 Subsurface mining
__53 Placer mining
__54 Dredge mining
__55 Petroleum activities
__56 Mill tailings
__57 Mine tailings

Land Disposal (Permitted Activities)
__61 Sludge
__62 Wastewater
__63 Landfills
__64 Industrial land treatment
__65 Onsite wastewater systems
__66 Hazardous waste

Hydromodification
__71 Channelization
__72 Dredging
__73 Dam Construction
__74 Flow regulation/modification
__75 Bridge Construction
__76 Removal of riparian vegetation
__77 Streambank modification

Other
__81 Atmospheric deposition
__82 Waste storage/storage tank leaks
__83 Highway maintenance and runoff
__84 Spills
__85 In-place contaminants
__86 Natural
__87 Recreational activities
__88 Upstream impoundment
__89 Septic tank seepage

*** FISH AND SHELLFISH CONTAMINATION ***

Fish and Shellfish Contamination:

- [X] 0 None detected
- [ ] 1 Contaminated fish
- [ ] 2 Fishing advisory
- [ ] 3 Fishing ban
- [ ] 4 Fish abnormalities
- [ ] 5 Shellfish restrictions due to pathogens
- [ ] 6 Fish kill

*** POINT AND NONPOINT SOURCES ***

1 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [ ] Yes, [ ] No, Pollutant _____

2 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [ ] Yes, [ ] No, Pollutant _____

3 NPDES Permit Number: _____
NPDES Permit Name: _____
Causes Nonattainment: [ ] Yes, [ ] No, Pollutant _____

1 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

2 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

3 Nonpoint Source Name: _____
Nonpoint Source Type: _____
Nonpoint Source Description: _____
_____

[Including extent of impairment of uses; significance of impacts on public health and the environment; water quality trend; efforts to control pollutants; current priority for developing pollutant controls; and adequacy of data]

May 1989 304(l) Long List based on posting by City of Anchorage against use due to swimmer's itch.

D Sturdevant

6-5-89