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LIMNOLOGY IN THE WOOD RIVER LAKES

D.E. ROGERS AND B.J. ROGERS

ACKNOWLEDGMENTS

R.L. “Bud” Burgner was responsible for establishing the limnological program in the Wood River Lakes that has now provided a valuable database to complement our observations on the sockeye salmon populations. We thank Marcus Duke for compiling the manuscript.

KEY WORDS

chlorophyll, lake level, solar radiation, temperature, zooplankton

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INTRODUCTION

Limnological sampling was started in the Wood River lake system in the early 1960s. However, annual measurements of some physical parameters (lake level and surface temperatures) began soon after the Fisheries Research Institute began the investigation of Wood River sockeye salmon (*Oncorhynchus nerka*) stocks in 1946. Some of the results of the early limnological observations were used to establish the first escapement goals in the Bristol Bay river systems (Burgner et al. 1969)

Juvenile sockeye salmon are greatly dependent on zooplankton for their growth and survival (Rogers et al. 1982), and the production of zooplankton is partially dependent on the phytoplankton populations (Burgner 1964). Phytoplankton production is dependent on solar radiation and essential nutrients (Gadau 1966, Hardy 1979). Temperature affects both the production of phytoplankton and zooplankton as well as the growth of juvenile sockeye (Rogers 1973). Water temperature during the summer is influenced by the timing of ice breakup in the spring, which is largely determined by spring air temperature and amount of solar radiation (Rogers et al. 1970). Lake level in the spring may affect the survival of seaward migrant smolt, and levels in the fall may affect the success of sockeye spawning. The survival of sockeye eggs may be affected by the combination of water level, snow pack, and winter air temperatures.

The purpose of this report is to present the methods used in the field sampling and in the laboratory, and to document a summary of the results. Detailed observations are available in computer data files. Weather records for the region date back to 1919 (Rogers 1964). Since 1967, project personnel have sampled zooplankton communities in a consistent manner in each lake of the Wood River system (Fig. 1). In addition, there have been some special studies on zooplankton (Waters 1967, Work 1992, Reischauer 1996). Phytoplankton communities (measured as chlorophyll *a* concentrations) have been sampled monthly in Lake Aleknagik since 1963. Associated physical measurements (surface temperature, Secchi depth, conductivity) have also been taken. Measurements of zooplankton and chlorophyll concentrations from earlier years as well as primary productivity measurements (1962–70) are given in Siler et al. (1971) and Rogers (1971).

METHODS

Limnological sampling is done at 6 stations on Lake Aleknagik (Fig. 2); 18 stations on Lake Nerka (Fig. 3)—6 on South Nerka , 6 on Central Nerka , and 6 on North Nerka; and 6 stations on Little Togiak Lake (Fig. 4), Lake Beverley (Fig. 5) and Lake Kulik (Fig. 6). In recent years, Lake Aleknagik has been sampled biweekly throughout the summer, whereas the other lakes are sampled only once. Typically, two or three people do a round of sampling. Some of the methods presented here were taken from Koo (1964)

GPS readings have been established for the stations on Lake Aleknagik. They are as follows:

Yako (sta 6)	59°16.709N
	158°42.106W
Bear Bay Point (5)	59°18.411N
	158°43.624W
Ice (4)	59°20.230N
	158°48.063W
Youth Camp (3)	59°21.067N
	158°50.784W
Agulowak (2)	59°23.832N
	158°55.766W
Sunshine (1)	59°26.120N
	158°59.904W

Field

The following are needed for a limnology round:

1. Secchi disc with a rope marked in meters
2. Weighted zooplankton net
3. Gasoline winch with a meter block or a hand pulling rope marked at 1, 3, 5, 7, 10, 15, 20, 30, 45, and 60 m.

4. Bottle of 10% formalin
5. Six zooplankton jars
6. Labels for the zooplankton samples
7. Wash bottle filled with water
8. Van Dorn water sampler and rope marked at 1,3,5,7,10,15, and 20 m.
9. Two sets of darkened 2-L water bottles marked 1- or 2- for the station and 1, 3, 5, 7, 10, 15, 20, 30, or 45 for the depth
10. Messenger to trip the Van Dorn sampler
11. Thermometer with an attached float
12. Thermister and cable marked at 1, 3, 5, 7, 10, 15, 20, 25, 20, 35, 40, 45, and 50 m. (On Lake Aleknagik, every other sampling round; every round for the other lakes)
13. Sea anchor (for use on windy days)
14. Pencil
15. Rite in the Rain notebook
16. Polarized sunglasses

Some procedures are done at each station. Note the time of arrival, take a surface temperature with the thermometer, do a Secchi depth, and take a zooplankton sample. Thermister readings are taken every other sampling round at Bear Bay Point, Youth Camp, and Sunshine on Lake Aleknagik, and at every round on the other lakes. They are taken at stations 1, 3, and 5 on Central Nerka, North Nerka, and Little Togiak; at stations 1, 3, and 6 on South Nerka; and at stations 1, 3, and 5 on Lakes Beverley and Lake Kulik. Water samples for chlorophyll analysis and conductivity are taken at Bear Bay Point and Youth Camp on Lake Aleknagik, but not on the other lakes.

Secchi Depth

Release the Secchi disc slowly into the water. Wear polarized sunglasses to shield the view from the sun's glare. As the disc goes down, count the meters as they go by. Stop when the disc disappears from view. Haul it up until it barely reappears and write this number down as the Secchi depth for that station.

Zooplankton

Vertical hauls are made with a half-meter conical net (with a mouth opening to length ratio of 1:3) that has a #6 (247 μm) mesh. A 15-lb (6.8 kg) weight is suspended below the collecting bucket from two cables attached to the circular frame. The net is released to the proper depth and then retrieved by a gasoline winch, or by hand at the rate of approximately 120 feet per minute. Once the net reaches the surface, it is dunked several times to about halfway up the net to move the trapped zooplankton down into the collecting bucket. The collecting bucket is removed from the net and excess water is swished out of it through its screen. Water is removed to fill no more than half the plankton jar. Pour the zooplankton into the jar, washing the clinging zooplankton from the bucket into the jar with water from the wash bottle. Pour in 10% formalin to make at least a 5% solution. Include a label which has on it the date (year also), the lake, station, depth, and the names of the collectors.

Stations are generally 60 m deep, except as follows:

Lake	Station	Depth (m)
Aleknagik	Yako	20
North Nerka	3,4,5,6	50,30,20,20
South Nerka	3,4,5,6	50,20,40,40
Central Nerka	5	40
Little Togiak	1,2,3	20,20,40

After a day of sampling, spread or hang the zooplankton net out to dry. Examine it frequently for holes. Smaller holes can be filled with rubber cement. There should always be a spare net available. For transport, the net should be protected by carrying it in a trunk or by wrapping it around a sea anchor or in a tarp.

Water Sampling

Set the Van Dorn sampler, then let it over the side to the required depth. Throw the messenger down to trip the sampler. Haul it up with either the winch or by hand. Fill each 2-L darkened bottle with water taken at the correct depth. The bottles are marked 1-1, 1-3, 1-5, 2-1, 2-3, 2-5, and so forth for stations 1 and 2. In the log book, be sure to write which station—Youth Camp or Bear Bay Point—you are designating as station 1 or 2. Get these water samples back to the camp as soon as possible for filtration. After sampling, place paper towels between the stops and the tube of the sampler to keep the stops from sticking.

Temperatures Profiles

The thermister should be calibrated at the beginning of each year with a new battery installed. Temperatures are taken at the surface and at 1, 3, 5, 7, 10, 15, 20, 25, 30, 35, 40, 45, and 50 m, if the depth of the station permits. Release the weighted probe to the proper depth, turn on the thermister, record the reading in the notebook, do the next reading and so forth. At the end of the series, turn the thermister off.

Laboratory

Zooplankton

Determine the settled volume of a zooplankton catch by pouring it into a graduated cylinder. Allow the sample to settle for 30 min, then read the volume. Transfer the sample back to the jar. If any water is added to the sample in transferring it back and forth between the sample jar and the graduated cylinder, be sure to add enough 10% formalin to keep the formalin concentration in the sample at 5%. Using stick-on labels or masking tape, label the top of the jar with the lake, station, and date. This makes it easier to organize the samples for later laboratory analysis. Zooplankton samples are generally read in Seattle during the fall and winter.

To analyze the composition of a sample, pour it through a 150 µm Tyler sieve, saving the formalin. Dilute the concentrated zooplankton with water in a 150-, 250-, 400-, 600-, or 1,000-ml beaker that will give a subsample containing between 100–200 organisms in a 1-ml subsample. This becomes fairly easy to judge with experience. Stir the sample using a crosswise motion until the organisms are evenly distributed. Take a subsample with a 1-ml Stempel pipette. Pour the contents of the pipette into a counting cell that measures 5 cm x 2.5 cm x 0.5 cm and has a counting grid of 0.5 cm^2 per square.

Count the organisms using a five-key laboratory counter. Categories counted are as follows: calanoid copepods (includes *Eudiaptomous gracilis* [Sars 1863], *Leptodiaptomous pribilofensis* [Juday and Muttkowski 1915], and *Eurytemora yukonensis* [Wilson 1953], cyclopoid copepods (*Cyclops columbianus* [Lindberg 1956] and *Acanthocyclops brevispinosus* [Herrick 1884]), *Daphnia* sp., *Bosmina* sp., *Holopedium gibberum* (Zaddach 1855), the rotifer *Asplanchna* sp. (the only rotifer counted), and nauplii. Count two subsamples. If the numbers vary widely, count a third. Record the counts on a sheet that includes lake, station, date, and sample volume. Calculate the number of each organism per sample by adding up the number per subsample and dividing by two or three, then multiplying by the sample volume. To calculate 100s per m^2, multiply the number in the sample by .05093.

Pour the sample back through the Tyler sieve to drain off all the water. With a wash bottle filled with water or formalin, wash the sample back into the jar. Add the reserved formalin and the label. Store until the sample is no longer needed.

Conductivity

Each 5- and 15-m water sample is measured for conductivity. Attach the probe to the meter (it doesn't matter which wire goes to which contact) and place it in a beaker filled with distilled water. Pour 500 ml of water from the 2-L bottle into a clean beaker. Measure the water temperature and set the temperature on the conductivity meter (a Solu-Bridge). Place the probe into the sample beaker, not touching the bottom with it, but making sure the hole in the probe is under water. Adjust the conductance dial until the pie-shaped area on the meter shows the maximum dark area. The reading on the dial shows the conductivity of the sample at that point. Write this number down on the chlorophyll *a* form (Fig. 7). Place the probe back into the distilled water, then do the next sample. Throw the sample water out after it has been read.

Chlorophyll

Place a Millipore filter with a pore size of 0.8 µm on each filter holder and clamp the water holding top in place (Figs. 8 and 9). Using one sample per filtering flask, pour enough water in to fill each water holder. Turn on the vacuum to 15 atm, but no higher. Refill the tops as they empty, never allowing the holders to run dry. If the samples are to be stored prior to analysis, add three drops of $MgCO_3$ solution (after shaking to resuspend the $MgCO_3$) to the last portion of a sample.

When each sample has been filtered, turn off the vacuum to that sample. Do not allow air to run through a dry filter. Remove the filter with forceps and cut the excess edge from the filter. Place the filter in a clean, labeled centrifuge tube (all glassware in this section is washed in Labtone, rinsed with distilled water and allowed to dry), using forceps only. The tube is then filled with 5 ml of 90% buffered acetone (an automatic pipette helps), corked with a rubber stopper, and then shaken until the filter disintegrates. Record the amount of water filtered on the chlorophyll *a* form.

If the filter is to be stored, first place it in a clean, labeled glass vial. Place the vial and its lid in an opaque desiccator that contains active (blue) Drierite. Put the desiccator and all its samples under a vacuum for at least 2 h or overnight. After this period, remove the vials and loosely screw on their lids. Place the vials in an airtight, opaque container that contains active Drierite. Label. If using a coffee can, tape the lid in place. Put the container in a refrigerator. If the filters are dry and are kept in a cold, dark place (but not frozen), they may be stored for up to 6 months. If filters are stored for long periods of time, however, the indicator Drierite needs to be checked periodically, and if it turns pink, the filters should be redesiccated.

When it is time to process the filters, dissolve them in acetone as outlined previously.

After the filters are dissolved, place the centrifuge tubes in a test tube rack and then place the rack into a dark box in the refrigerator. Refrigerate them for 18–22 h and shake each tube 2–3 times during that period.

After this extraction period, turn on the spectrophotometer and let it warm-up for 15 min. (We use a Bausch and Lomb Spectronic 20 with a 1-cm path length cell.) Centrifuge the samples, after removing the rubber stoppers, at high speed for about 2 min or until the precipitate settles. Do not allow the samples to become heated during this or any other procedure. Decant the clear supernatant into Spec 20 test tubes and stopper them with the rubber stoppers. Add one test tube with 5 ml of pure buffered 90% acetone. This will act as a blank. Do not use any test tubes that have been scratched in the area of the light path or that are foggy with soap scum. Keep the samples out of the light whenever possible, since both heat and light destroy chlorophyll *a*.

Adjust the wavelength on the Spec 20 to 630 µm. Adjust the zero control with nothing in the chamber and the chamber lid closed until the meter reads 0% transmittance. Then place the blank in the chamber after removing the stopper, close the lid to the chamber, and adjust the light control until the meter reads 100% transmittance. Recheck for 0% transmittance without the blank and for 100% transmittance with the blank. Repeat until the readings stabilize. This procedure is called zeroing and must be repeated whenever the wavelength is changed and after approximately every three readings at the same wavelength (more often if the readings are not stable and less often if they are exceedingly stable).

Read each sample at 630 µm, always being careful that the line on the Spec 20 test tube is aligned with the line on the chamber door and that the door is closed. Then adjust the wavelength to 645 µm and read each sample at that wavelength. Repeat for 665 µm and 750 µm (the turbidity reading—it is usually close to zero; if it reads minus, record that as a zero). Record the readings in absorbance units.

The equation for determining chlorophyll *a* concentrations comes from Parsons and Strickland (1963). The equation calculates milligrams of pigment per liter of 90% acetone.

$$\text{Chlorophyll } a \text{ (mg/liter)} = 11.6e(665) \\ -1.31e(645) - 0.14e(630)$$

where each value of e is reduced by the 750 absorbance reading. To calculate mg/m^3 in lake water, multiply the above value by v/V x 1 where v = volume of acetone used (5 ml), V = volume of water filtered, and l = the path length of the Spec 20 tube.

Reagents are made as follows:

1. $MgCO_3$ solution: Add $MgCO_3$ (magnesium carbonate) to distilled water until the solution is super-saturated.
2. Acetone buffer solution: Add 10.5 gm $NaHCO_3$ (sodium bicarbonate) to 125 ml distilled water.
3. 90% buffered acetone: Mix 900 ml acetone (reagent grade or better) with 100 ml distilled water. Add four drops of the acetone buffer solution to each 1,000 ml of 90% acetone. Acetone evaporates easily, so make up only small volumes of this solution.

RESULTS

Weather

Air Temperature

Mean air temperatures usually rise above freezing in mid-April and drop below freezing in late October in Dillingham, which is located about 20 miles (32 km) from Aleknagik (Fig. 10 and Table 1). Temperatures are somewhat colder in the lakes during the winter and a little warmer in the lakes during the summer than at the coastal location of Dillingham; however, there is a high degree of correlation in monthly means from year to year. January is the coldest month, but in 1977 the average air temperature was just above freezing.

Precipitation

Total monthly precipitation is usually greatest in August and September and lowest in April (Fig. 10 and Table 2). In contrast to air temperature, there is a low degree of correlation in precipitation among weather stations in Bristol Bay. Winter precipitation (snowfall) is greater in the lake system than at Dillingham (Rogers 1964).

Physical Measurements

Lake Level

Water level in the Wood River Lakes system has been measured from a marker cemented into a rock near the Lake Nerka field station since 1952. The marker is at 200 cm with zero near the annual low water, which occurs in mid-April (Fig. 11). Lake level usually peaks in June about 20 days after ice breakup, and there is often a second peak in the fall from heavy rainfall. In June–July, the lowest water level recorded was in 1997 and the highest in 1998

(Table 3). In August–September, the lowest level was recorded in 1984 and the highest level in 1965.

Solar Radiation

Incident solar radiation has been measured with a Belfort pyroheliometer at the Aleknagik field station. Three instruments have been used since 1965. For the last change in 1992, the old and new instruments were used together and there was no significant difference in the readings. The highest summer solar radiation was in 1974 and the lowest in 1992. Sunlight peaks in June and declines during the rest of the year (Table 4).

Water Temperature

The first measurements of water temperature in the Wood River Lakes system were made near the outlet of Lake Aleknagik at the site of the smolt sampling program. These daily measurement were averaged by 15-day periods (Table 5). With the termination of smolt sampling in 1990, temperatures have been measured at the Aleknagik dock or estimated from temperatures measured at insect traps. Surface temperatures usually start increasing just before ice breakup and reach 4˚C by June (Fig. 12). Record surface temperatures were recorded in 1997.

Temperature profiles have been made monthly at 3 stations in Lake Aleknagik since 1962, and averages have been calculated for 0–20 m and 0–60 m (Table 6). Temperatures were measured with a bathythermograph until the 1980s when an electronic thermister was put into use. A thermocline usually develops by early August; however, there is considerable year-to-year variation associated with date of ice breakup and solar radiation (Fig. 13). Spring temperatures are correlated with date of ice breakup; however the weather also has a strong influence. The coldest temperatures were recorded in 1971 and the warmest (upper 20 m) in 1997. Temperatures for the lake system have been measured annually in late- August to early-September since 1958 (Tables 7 and 8).

Conductivity

Specific conductance has been measured in Lake Aleknagik since 1968. Alkalinity was measured in earlier years. Conductivity was also measured in Little Togiak Lake during the years when a fertilization experiment was conducted (Table 9). There has been little variation during the summer; however, some annual variation is evident as measurements have declined in recent years.

Biological Measurements

Lake Aleknagik

Primary production was measured annually during 1962–1970 by the C^{14} method; however, no significant differences were detected within or between years and the measurements were discontinued (Siler et al. 1971). Significant seasonal and annual differences were evident for chlorophyll *a* measurements, and they were thus continued as a measure of phytoplankton standing crop. Primary production peaked between 5 m and 15 m and dropped off greatly below 20 m. Chlorophyll was measured down to 45 m until 1981 when measurements were confined to the upper 20 m. Chlorophyll concentrations usually peaked at 10 m to 15 m, and densities were highest in June-July (Fig. 14). Averages of zooplankton, chlorophyll, Secchi depth, and surface temperature are given by sampling date in Table 10.

Lake System

Measurements of chlorophyll concentrations throughout the Wood River Lakes in 1961–62 failed to detect any significant difference between the lakes, so measurements were continued only in Lake Aleknagik. Zooplankton densities did vary among the lakes and sampling has been conducted annually in late-August since 1967 (Table 11).

LITERATURE CITED

Burgner, R.L. 1964. Factors influencing production of sockeye salmon in lakes of western Alaska. Verh. Internal. Verein. Limnol. 15:504-513.

Burgner, R.L., and 7 others. 1969. Biological studies and estimates of optimum escapements of sockeye salmon in the major rivers of southwestern Alaska. U.S. Fish Wildl. Serv., Fish. Bull. 67(2):405-459.

Gadau, E.L. 1966. Mineral study of the four lake systems in the Nushagak District of Alaska. M.S. thesis. Univ. Washington, Seattle.

Hardy, F.J. 1979. Effects of inorganic fertilization on phytoplankton in Little Togiak lake, Alaska. M.S. thesis. Univ. Washington, Seattle.

Koo, T.S.Y. (ed.). 1964. F.R.I. field manual. Univ. Washington, Fish. Res. Inst. Circ.143.

Parsons, T.R., and J.D.H. Strickland. 1963. Discussion of spectrophotometric determination of marine plant pigments, with revised equations for ascertaining chlorophyll and carotinoids. J. Mar. Res. 21:155-163.

Reischauer, A. 1996. A comparison of the zooplankton in sockeye and barren lakes in the Nushagak District of Bristol Bay, Alaska. M.S. thesis. Univ. Washington, Seattle.

Rogers, D.E. 1964. A summary of climatological observations and water temperatures in the Wood River lake system. Univ. Washington, Fish. Res. Inst. Circ. 209.

Rogers, D.E. 1971. The study of red salmon in the Nushagak District. Univ. Washington, Fish. Res. Inst. Periodic Rep. No.3 (NMFS). April, 1971.

Rogers, D.E. 1973. Abundance and size of juvenile sockeye salmon, *Oncorhynchus nerka*, and associated species in Lake Aleknagik, Alaska, in relation to their environment. Fish. Bull. 71(4):1061-1075.

Rogers, D.E., D. Siler, and T. Croker. 1970. A summary of climatological observations and water temperatures in the Wood River lake system. Univ. Washington, Fish. Res. Inst. Circ. 70-10.

Rogers, D.E., B.J. Rogers, and F.J. Hardy. 1982. Effects of fertilization of Little Togiak lake on the food supply and growth of sockeye salmon. Proc. N. Pac. Aquaculture Symposium. Univ. Alaska. Sea Grant Rep. 82-2:125-142.

Siler, D., D.E. Rogers, and L. Gilbertson. 1971. The study of red salmon in the Nushagak District. Univ. Washington, Fish. Res. Inst. Periodic Rep. 2 (NMFS) January 1971.

Waters, B. 1967. Abundance, distribution, and species composition of zooplankton in the lakes of the Nushagak District, Alaska. Univ. Washington, Fish. Res. Inst. Circ. 67-2.

Work, K. 1992. Selective predation on zooplankton and the factors that affect sockeye salmon growth in Lake Aleknagik, Alaska. M.S. thesis. Univ. Washington, Seattle.

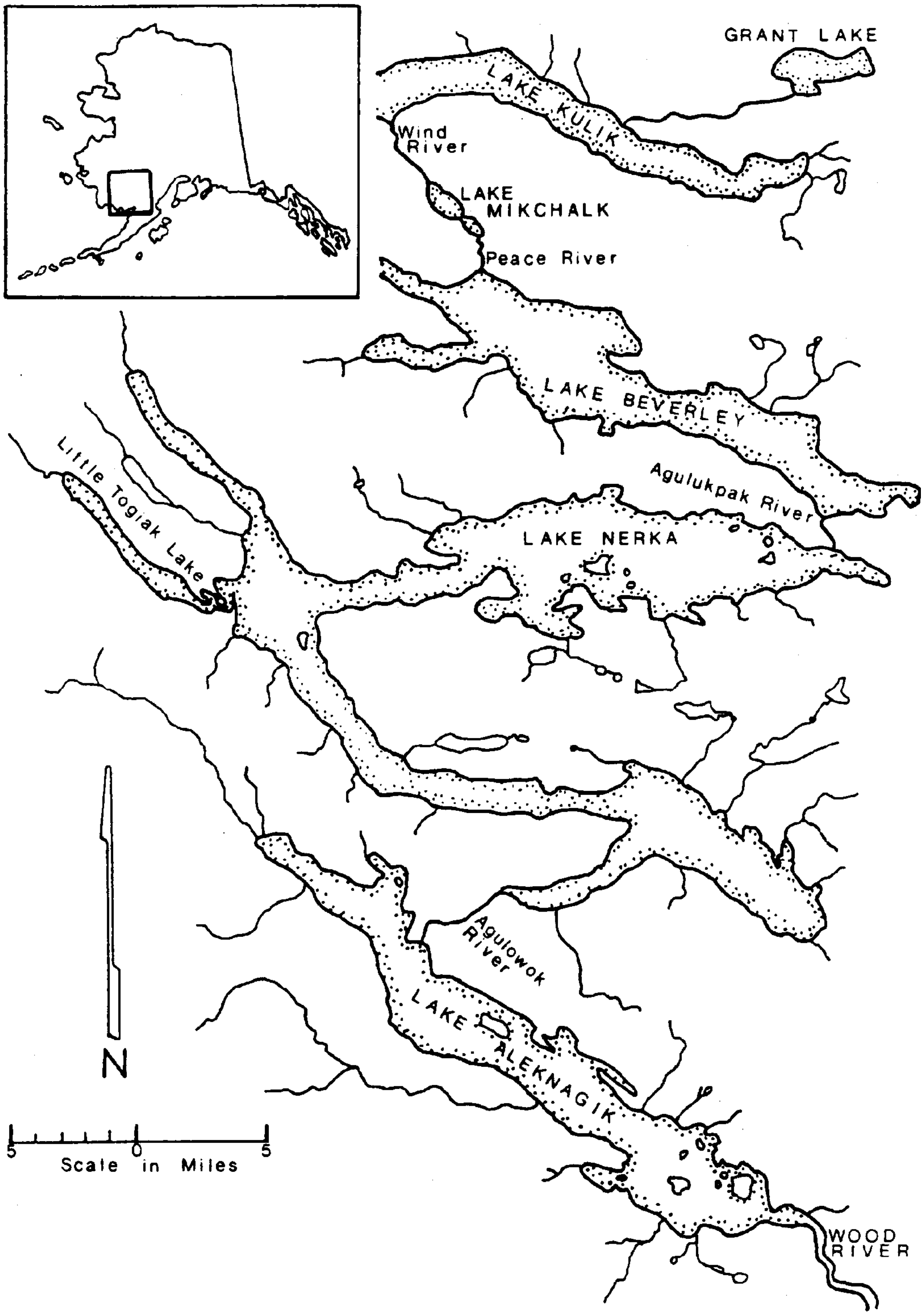

FIGURE 1. Wood River Lakes system, Bristol Bay, Alaska.

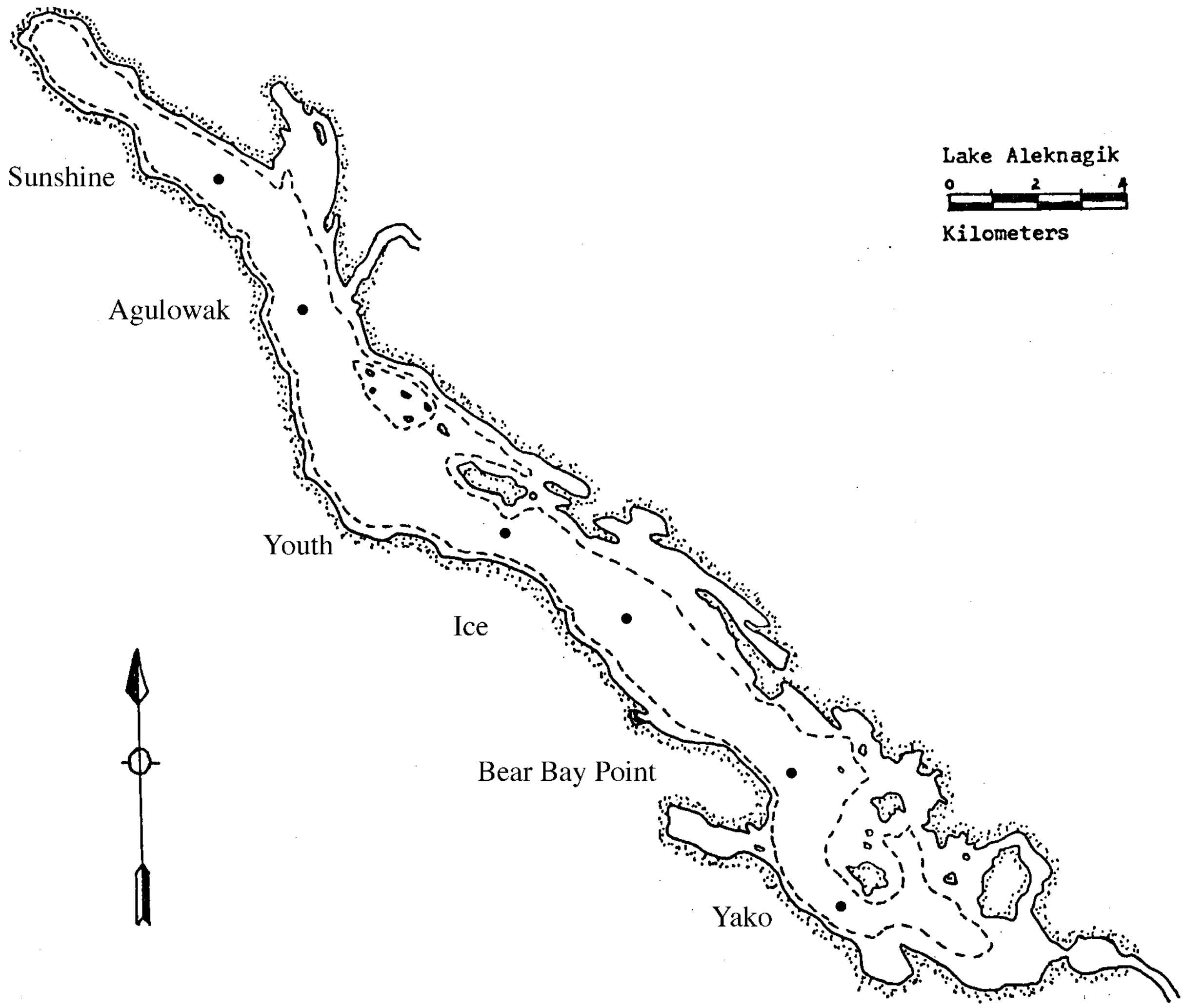

FIGURE 2. Lake Aleknagik with 20-m depth contour.

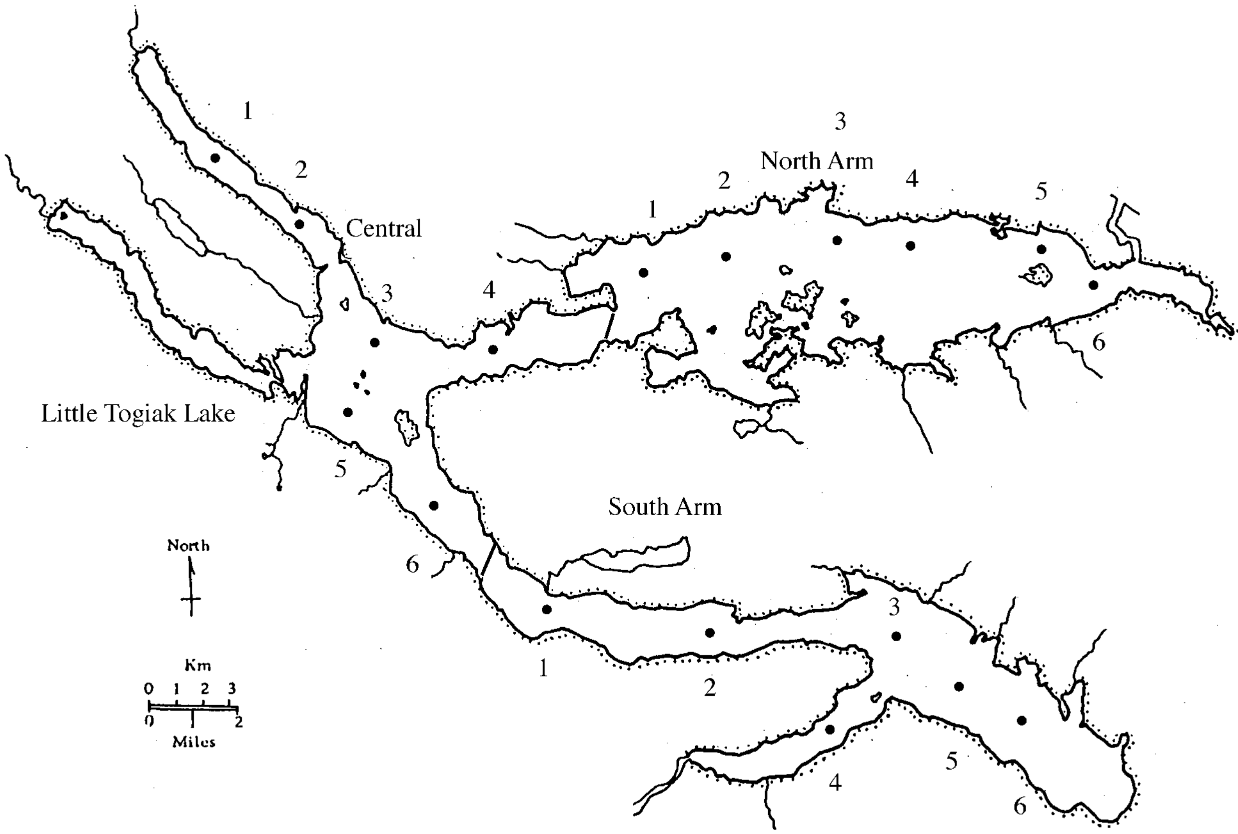

FIGURE 3. Lake Nerka and Little Togiak Lake.

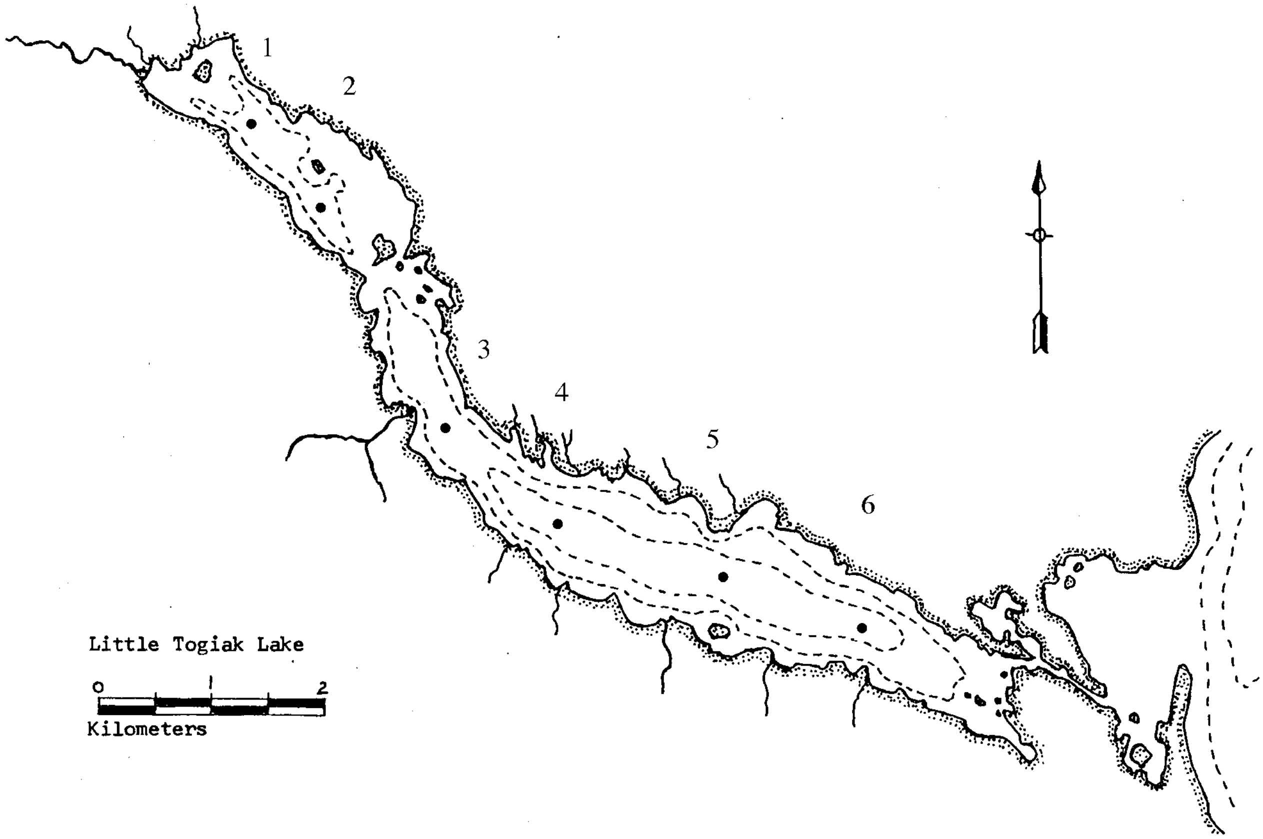

FIGURE 4. Little Togiak Lake with 20- and 60-m depth contours.

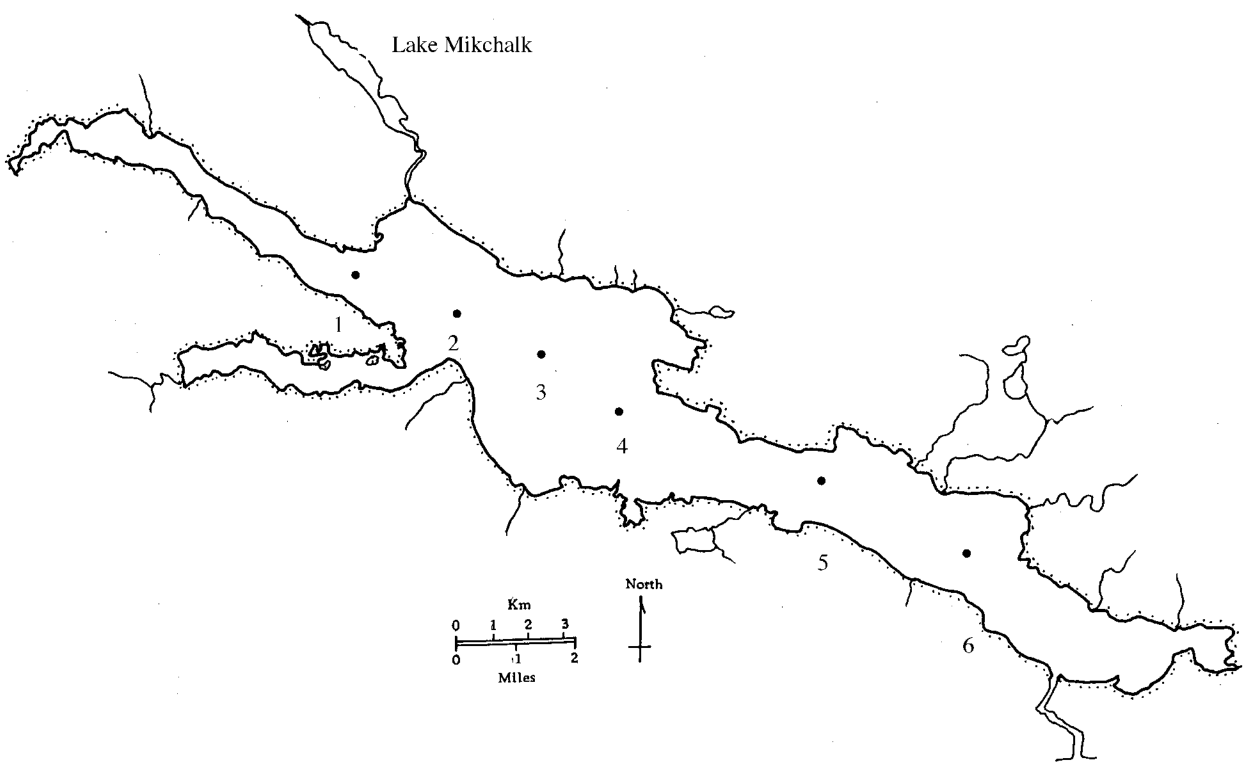

FIGURE 5. Lake Beverley.

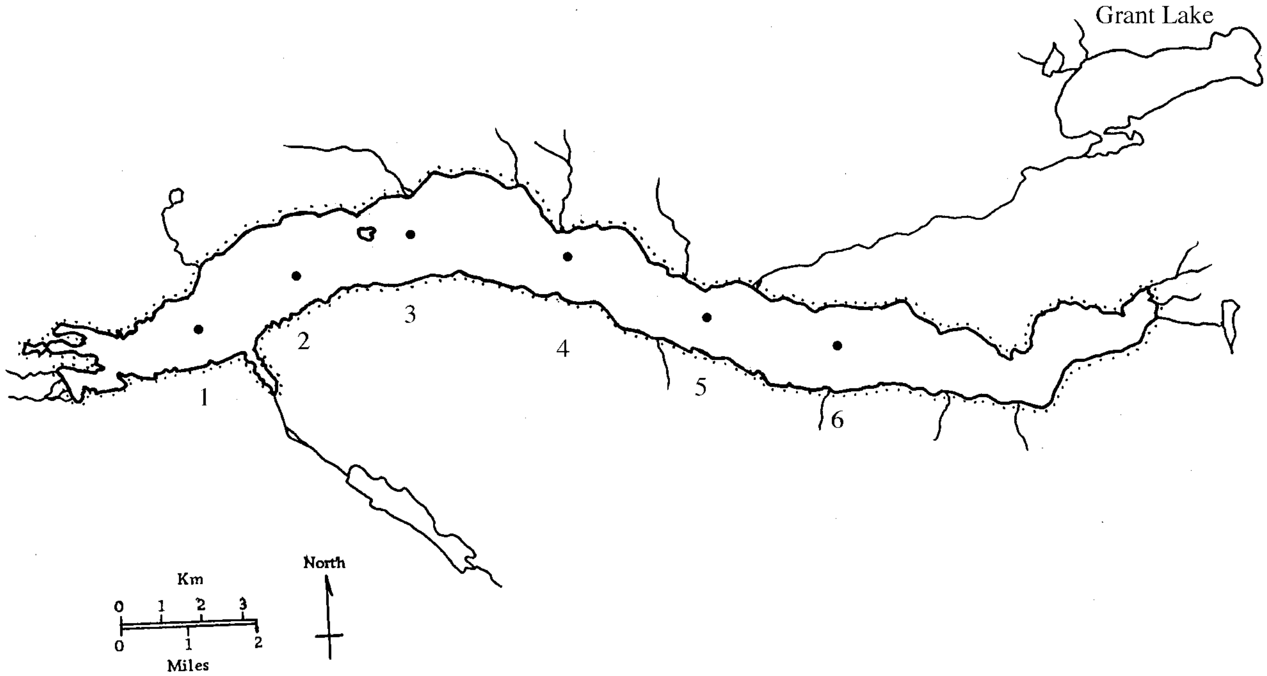

FIGURE 6. Lake Kulik.

PLANKTON PIGMENT ANALYSIS FOR CHLOROPHYLL a

Location	Stat no.	Date Mo.	Day	Yr	Depth	Sample volume (L)	Cell vol. (5ml)	Readings (.xx) 750	665	645	630
Conductivity					5						
					15						
					5						
					15						

Bottles 1=
Bottles 2=

Time filters dissolved: Time read : By: ______________

FIGURE 7. Data form for plankton pigment analysis.

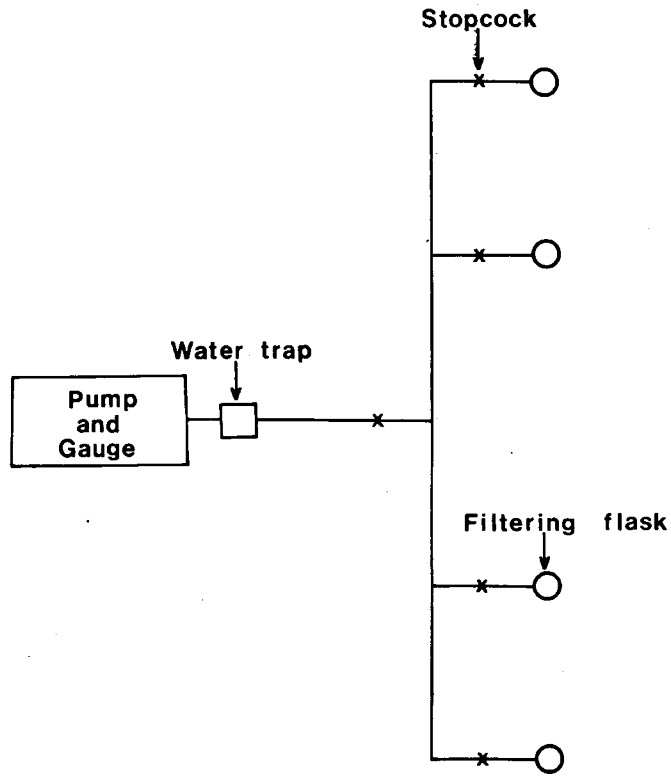

FIGURE 8. Vacuum system.

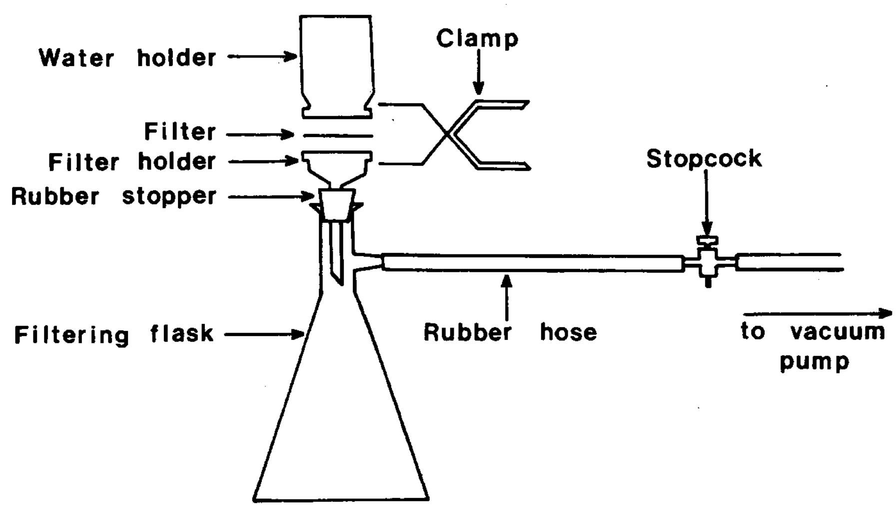

FIGURE 9. Filtering apparatus.

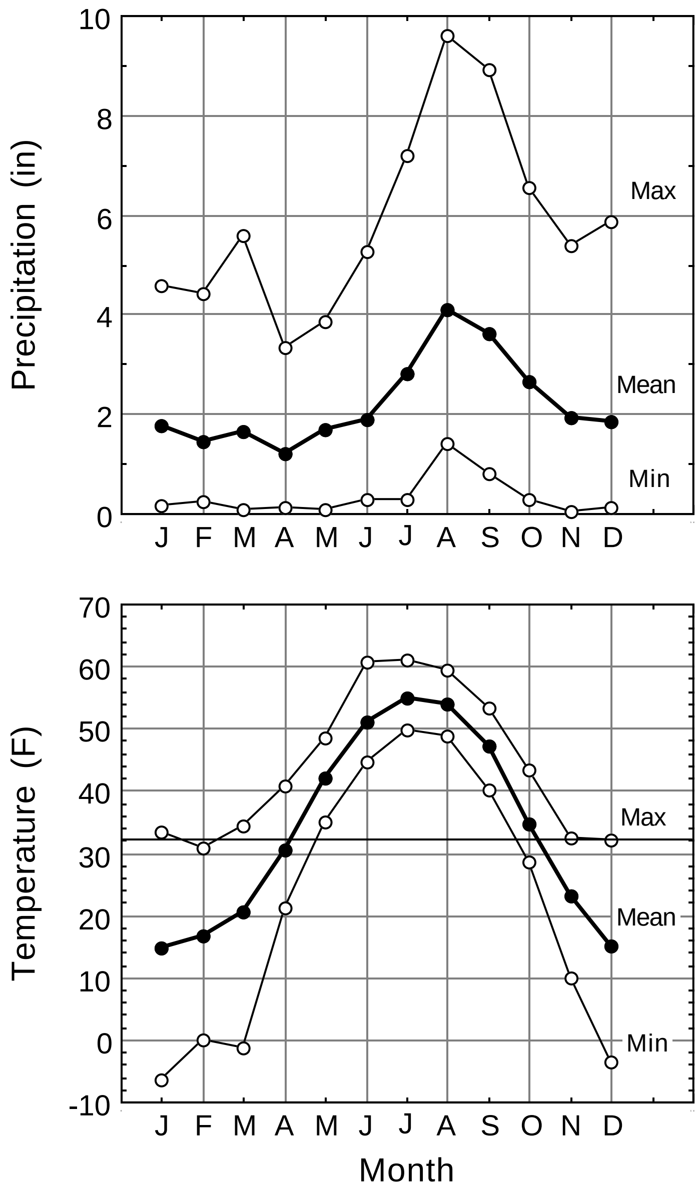

FIGURE 10. Averages of monthly precipitation (top) and air temperature (bottom) at Dillingham, 1946–96).

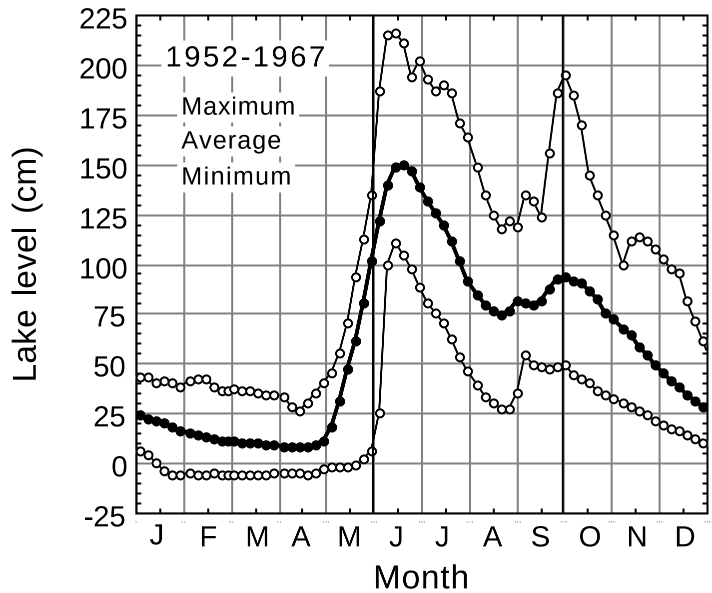

FIGURE 11. Lake Nerka water level, means of 5-day averages.

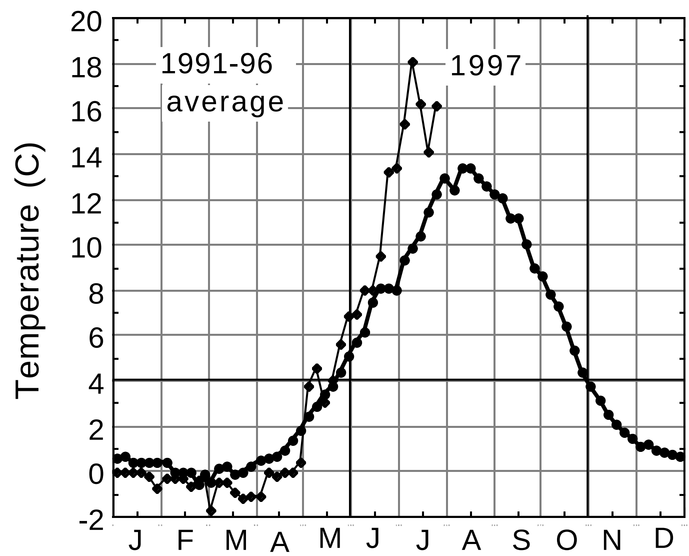

FIGURE 12. Water temperature at 1 m near outlet of Lake Aleknagik.

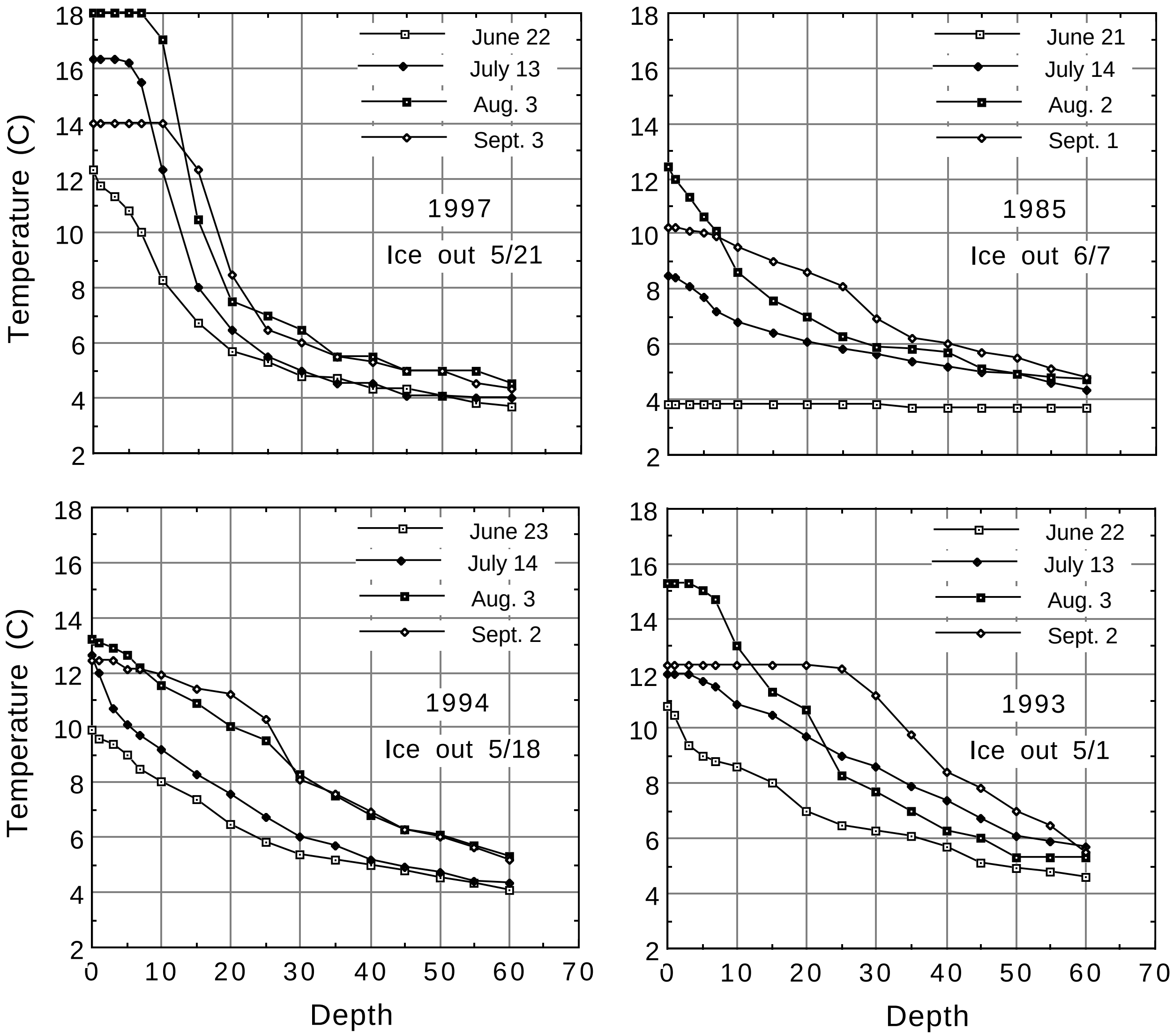

FIGURE 13. Water temperature profiles from Lake Aleknagik.

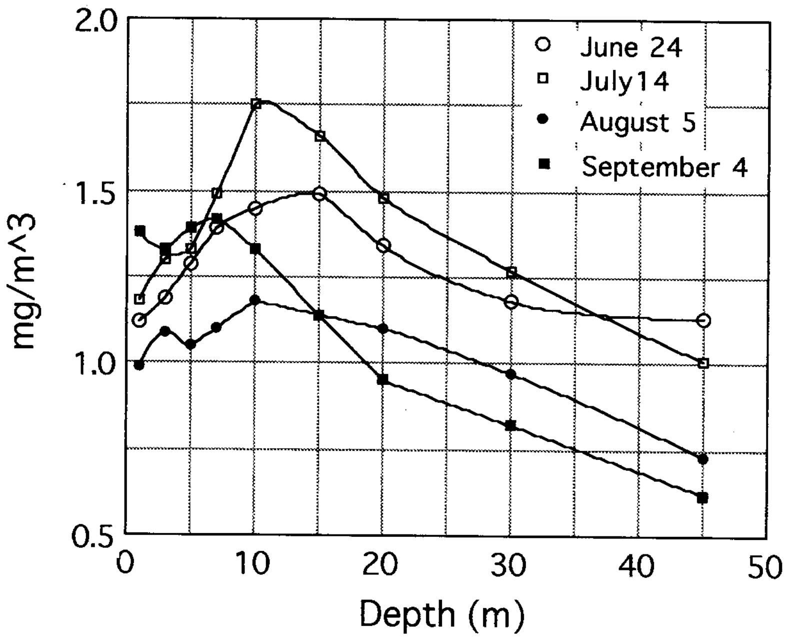

FIGURE 14. Averages of depth profiles of chlorophyll *a*.

TABLE 1. Monthly means of Dillingham air temperatures (˚F), 1946–97.

										Year +1			Apr-	Nov-
Year	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Mar
46	30.6	36.9	48.0	54.7	52.5	45.0	41.3	21.2	5.2	0.0	22.0	17.7	44.2	13.0
47	32.8	42.7	50.4	53.6	54.2	48.0	34.1	23.5	10.9	14.5	11.9	20.1	45.1	16.2
48	29.3	42.3	50.7	52.5	51.9	46.8	34.4	15.7	12.2	12.5	11.1	25.4	44.0	15.5
49	26.5	40.8	48.5	54.9	54.2	49.0	36.3	27.6	11.7	15.4	5.5	27.2	44.4	17.7
50	30.3	41.1	49.9	55.1	55.6	47.7	34.9	17.5	10.3	6.7	19.5	11.2	45.0	12.9
51	33.2	44.0	51.1	55.6	55.2	47.1	34.3	23.8	15.1	11.6	16.2	19.8	45.8	17.3
52	25.9	37.7	48.7	52.0	53.1	44.7	38.1	30.8	11.0	10.0	16.3	17.9	42.9	17.1
53	33.6	45.3	56.7	60.2	55.1	46.8	31.9	23.1	20.7	2.0	1.3	18.0	47.1	13.2
54	28.3	44.7	53.6	55.2	53.6	47.0	37.6	28.7	1.8	22.2	13.9	23.6	45.8	18.1
55	25.8	40.8	47.7	54.2	52.8	46.9	30.8	19.5	8.2	-1.1	8.7	15.9	42.8	10.2
56	26.5	40.7	47.5	55.2	48.9	45.3	28.6	12.4	4.0	20.8	14.0	26.0	41.8	15.5
57	35.3	45.6	55.7	57.9	55.9	47.4	39.8	30.8	3.8	12.9	22.2	26.9	48.3	19.2
58	34.9	41.4	49.5	53.0	52.4	45.6	31.4	19.8	16.9	14.1	23.6	8.7	44.0	16.5
59	28.3	44.2	52.6	52.0	53.4	45.5	34.2	26.9	3.4	18.8	19.4	17.1	44.3	17.0
60	22.9	45.8	50.4	57.1	53.0	46.9	35.4	22.6	26.5	20.5	8.2	13.3	44.6	18.4
61	31.0	45.2	50.8	53.5	52.5	47.3	29.2	22.4	7.8	10.7	24.0	19.0	44.2	16.6
62	33.7	41.1	53.5	59.5	55.0	46.1	35.9	25.5	14.9	23.5	22.3	25.2	46.4	22.3
63	27.5	43.4	47.5	53.3	52.8	50.4	30.9	9.8	21.9	13.6	10.2	15.3	43.7	14.3
64	26.2	37.2	52.5	53.4	53.5	48.9	35.3	21.4	4.6	10.4	9.5	29.5	43.9	15.1
65	34.1	39.2	47.8	55.0	53.1	50.9	29.2	24.7	9.6	17.5	19.6	9.3	44.2	16.0
66	30.2	37.8	50.5	51.7	52.7	46.7	30.4	25.3	12.3	14.6	16.8	26.5	42.9	19.1
67	32.8	46.5	52.8	57.1	55.4	49.0	33.8	27.9	14.1	17.5	15.0	28.5	46.8	20.7
68	28.6	45.3	50.5	55.4	54.1	44.1	30.0	25.9	5.7	7.8	14.0	24.3	44.0	15.5
69	32.6	43.3	51.9	54.4	51.7	48.0	37.9	18.2	29.2	-1.1	24.5	27.5	45.7	19.6
70	28.6	44.0	50.8	53.0	52.2	45.3	30.7	28.5	12.4	-6.5	13.3	7.3	43.5	10.8
71	24.9	37.7	50.2	53.8	54.3	45.7	35.0	21.1	16.3	7.6	8.9	6.0	43.1	12.0
72	22.0	40.4	47.2	55.2	54.0	45.9	35.8	25.2	16.2	1.9	16.5	15.1	43.0	14.9
73	31.2	40.9	50.6	53.2	51.1	46.7	33.7	23.2	16.7	10.9	2.5	22.3	43.9	15.3
74	33.0	44.9	51.7	55.4	55.6	50.0	33.8	20.8	8.6	6.4	6.8	16.5	46.4	11.9
75	24.9	39.0	47.6	54.8	55.2	46.9	36.6	14.7	11.9	13.1	9.2	12.0	43.6	12.2
76	27.6	40.1	49.0	56.2	56.6	48.0	35.5	27.9	20.4	33.4	30.8	19.2	44.8	26.2
77	25.5	40.2	54.0	57.6	58.4	48.4	31.3	12.6	10.2	26.1	22.1	23.4	45.1	18.9
78	34.6	43.6	47.7	53.0	55.5	47.2	34.0	28.3	25.3	26.9	7.9	26.4	45.1	23.2
79	35.5	44.5	49.8	56.5	54.4	49.3	38.7	29.4	6.7	12.3	20.1	25.2	47.0	18.6
80	35.7	42.0	48.9	55.0	52.3	48.2	35.3	25.5	7.3	27.7	20.0	34.3	45.4	23.0
81	36.5	47.3	50.3	53.8	53.5	46.3	33.7	24.4	13.1	16.3	15.0	22.5	45.9	18.3
82	24.7	39.3	48.9	51.8	53.0	46.3	29.3	25.9	22.3	14.8	19.9	29.4	41.9	22.5
83	34.3	44.1	53.8	54.9	53.0	44.9	29.7	27.0	26.2	15.6	2.4	31.1	45.0	20.8
84	27.4	41.6	52.3	54.7	53.8	48.0	31.9	21.7	22.3	30.9	12.3	20.8	44.3	21.8
85	21.3	37.7	47.4	54.4	51.6	47.3	29.8	26.1	32.0	17.2	23.6	19.6	41.4	23.7
86	26.8	42.2	49.9	54.7	51.5	47.1	36.1	26.0	28.0	20.5	22.3	26.3	44.1	24.7
87	29.8	41.0	49.3	55.6	56.9	45.0	37.1	17.8	8.1	21.6	20.3	20.4	45.0	17.6
88	27.2	42.1	52.8	57.2	52.0	46.0	30.1	14.0	16.5	-2.9	25.5	21.6	43.9	14.7
89	33.9	42.0	51.6	56.1	56.0	49.9	36.6	17.3	19.7	12.4	-0.2	24.1	46.6	14.9
90	36.0	43.2	51.4	54.8	54.9	47.5	31.3	17.3	16.8	14.7	13.7	22.5	45.6	17.1
91	33.3	43.3	50.4	56.2	52.6	49.1	36.1	20.5	12.3	16.4	6.7	19.9	45.9	15.3
92	30.8	41.4	50.4	54.9	52.5	40.0	31.7	22.9	15.9	12.0	21.5	27.9	43.1	20.0
93	39.0	47.3	52.3	57.2	54.3	46.2	36.9	27.1	21.6	17.4	14.4	16.4	47.6	19.4
94	33.0	43.4	52.9	54.2	53.4	47.5	29.5	20.1	13.3	17.9	20.7	18.2	44.8	18.0
95	37.0	44.2	52.7	55.7	53.7	50.3	34.4	18.7	21.2	14.6	13.4	30.8	46.9	19.9
96	32.8	45.9	53.2	54.5	52.7	42.8	29.6	25.7	9.3	14.1	27.1	21.1	44.5	19.3
97	36.3	47.7	55.0	59.3	56.0	50.2	28.8						47.6	
Means	30.4	42.3	50.7	54.9	53.7	47.0	33.7	22.6	14.4	13.9	15.4	21.1	44.7	17.5
S.D.	4.2	2.7	2.2	1.8	1.7	2.0	3.2	5.0	7.3	8.4	7.2	6.5	1.5	3.6

TABLE 2. Monthly totals of Dillingham precipitation, 1946–97.

									Year+1			Apr-	Nov-
Year	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Oct	Mar
46	1.62	1.63	1.82	2.20	2.76	1.93	3.00	2.00	1.98	1.36	1.53	1.84	14.96	8.71
47	1.17	2.24	2.08	4.82	3.74	3.63	1.97	2.06	1.82	1.60	1.34	1.81	19.65	8.63
48	.80	.91	.80	2.87	4.82	3.82	3.80	2.29	1.76	2.23	1.44	2.39	17.82	10.11
49	1.09	1.74	3.55	2.91	4.96	3.52	3.39	2.26	3.10	1.74	1.09	1.32	21.16	9.51
50	1.76	3.21	3.47	2.55	4.25	8.91	2.71	1.10	1.95	2.23	1.15	1.56	26.86	7.99
51	.68	3.55	3.79	1.04	6.58	6.06	5.35	2.44	3.01	1.27	1.99	1.45	27.05	10.16
52	1.05	.88	1.53	3.98	2.58	1.38	4.25	2.49	1.52	1.90	2.17	.05	15.65	8.13
53	.08	1.46	1.52	.07	5.93	2.04	.82	1.75	2.01	.65	1.19	1.41	11.92	7.01
54	.87	1.40	.93	3.08	4.00	3.32	2.79	2.49	.74	4.03	1.86	1.87	16.39	10.99
55	.99	3.75	2.13	3.25	2.22	4.07	2.28	1.09	.90	.63	1.59	2.11	18.69	6.32
56	2.44	3.50	1.31	1.74	2.84	3.09	1.00	1.29	1.19	2.89	2.64	1.80	15.92	9.81
57	.78	.72	.97	1.47	2.64	4.03	3.32	3.64	.69	1.59	.59	1.94	13.93	8.45
58	.79	2.19	4.96	5.13	4.74	4.07	2.46	.91	.63	2.65	1.10	.40	24.34	5.69
59	1.81	1.96	.61	2.71	3.69	2.60	1.29	2.60	1.76	3.32	1.04	.22	14.67	8.94
60	2.48	1.55	2.59	5.51	5.74	4.37	3.67	1.66	3.29	1.16	.40	1.12	25.91	7.63
61	2.02	2.34	.88	2.85	6.25	5.61	2.59	2.00	3.00	1.00	.85	1.71	22.54	8.56
62	.20	3.61	1.30	2.02	3.94	2.43	2.34	2.50	1.72	2.84	.65	4.28	15.84	11.99
63	1.18	1.67	3.52	1.93	7.64	1.88	1.02	.05	2.03	2.32	4.41	2.30	18.84	11.11
64	.68	1.47	.45	1.87	5.67	2.93	1.93	1.57	2.06	3.71	1.08	3.70	15.00	12.12
65	.39	2.49	2.54	2.74	2.53	5.09	.29	2.18	2.76	1.99	2.52	.96	16.07	10.41
66	.90	3.85	1.60	3.49	6.85	3.79	3.14	1.77	2.45	3.63	2.39	2.43	23.62	12.67
67	2.68	.49	3.97	2.01	4.38	1.56	1.14	3.05	2.23	.80	2.26	.37	16.23	8.71
68	2.04	2.02	1.53	2.35	5.15	2.88	1.57	.92	2.22	1.39	2.89	2.98	17.54	10.40
69	.94	1.28	3.66	2.93	3.09	3.88	3.84	1.24	1.93	.42	1.08	2.52	19.62	7.19
70	1.74	1.22	1.45	3.17	4.56	2.49	2.81	1.40	1.95	1.17	1.92	.77	17.44	7.21
71	1.04	1.85	1.76	3.42	4.55	3.79	3.12	1.70	4.28	1.99	.90	.65	19.53	9.52
72	1.42	1.77	1.88	1.98	3.04	3.47	3.02	1.90	1.13	1.34	.80	2.38	16.58	7.55
73	1.29	3.04	1.12	3.53	2.36	2.56	3.56	1.64	1.00	.83	.96	1.61	17.46	6.04
74	1.95	.65	1.72	2.60	3.84	2.47	3.23	1.76	1.01	2.06	.74	1.32	16.46	6.89
75	2.57	.63	1.35	2.03	2.31	6.85	3.06	.71	.96	1.97	1.15	2.49	18.80	7.28
76	.71	1.76	2.13	4.28	4.62	5.23	2.39	2.16	1.89	2.00	1.01	1.75	21.12	8.81
77	1.48	1.22	1.93	3.26	4.74	1.81	2.04	.31	.58	.88	.52	.26	16.48	2.55
78	.58	.56	.48	2.12	1.78	.81	2.97	3.68	4.85	.89	.25	.42	9.30	10.09
79	1.66	.76	.66	1.23	2.01	1.49	2.07	2.09	.46	.68	.61	.79	9.88	4.63
80	.56	.98	.96	3.53	2.46	1.55	.96	.62	.13	1.41	.79	.72	11.00	3.67
81	.39	1.11	1.61	2.50	3.45	1.57	1.46	1.79	1.09	4.58	1.09	5.16	12.09	13.71
82	1.30	1.90	3.16	3.53	1.48	8.02	2.97	1.51	2.00	.66	1.32	.40	22.36	5.89
83	2.00	.43	1.28	1.51	1.62	1.59	1.74	3.29	.74	1.76	1.15	.66	10.17	7.60
84	.74	1.64	1.85	2.13	3.34	1.99	1.73	1.15	3.28	.81	1.28	1.91	13.42	8.43
85	.92	1.69	.29	.54	1.87	1.97	5.10	2.37	.72	.18	.43	.09	12.38	3.79
86	.21	.58	1.12	6.05	9.58	7.05	6.56	5.39	.89	3.02	.22	.27	31.15	9.79
87	.21	1.72	5.27	6.36	8.64	4.14	2.75	2.26	1.60	.60	1.18	1.92	29.09	7.56
88	.74	1.87	1.25	1.27	3.25	2.75	1.84	3.13	3.67	1.63	1.99	.88	12.97	11.30
89	.72	1.57	1.92	2.66	6.12	5.31	2.11	1.43	.68	3.08	1.49	2.80	20.41	9.48
90	.38	1.25	1.36	3.18	3.09	3.32	1.69	3.66	5.87	.35	1.84	5.58	14.27	17.30
91	.64	.72	1.76	1.45	2.27	4.04	2.04	2.02	2.39	2.10	.45	2.43	12.92	9.39
92	.12	.94	3.96	2.57	6.11	1.95	1.93	2.33	3.09	3.63	2.12	.44	17.58	11.61
93	1.27	2.70	1.50	2.02	4.45	6.47	2.41	4.64	3.79	2.54	1.24	3.03	20.82	15.24
94	1.74	2.07	1.96	5.42	3.93	6.39	2.19	4.12	3.13	1.62	.92	.33	23.70	10.12
95	3.06	3.05	2.59	2.63	4.97	6.62	2.41	.31	1.47	2.47	3.13	.62	25.33	8.00
96	1.39	1.94	3.34	2.69	2.39	1.19	.70	2.03	1.51	1.42	2.14	.67	13.64	7.77
97	1.05	1.30	1.12	2.04	4.54	3.87	.00						13.92	
Means	1.18	1.76	1.98	2.81	4.11	3.60	2.53	2.05	1.98	1.82	1.39	1.63	17.97	8.87
S.D.	.72	.92	1.16	1.32	1.82	1.91	1.20	1.07	1.19	1.04	.82	1.24	5.09	2.75

TABLE 3. Five-day averages of lake levels at Lake Nerka.

	June						July						August						September				
Year	1-5	6-10	11-15	16-20	21-25	26-30	1-5	6-10	11-15	16-20	21-25	26-31	1-5	6-10	11-15	16-20	21-25	26-31	1-5	6-10	11-15	16-20	21-25
52	70	99	120	131	138	141	143	146	148	142	131	119	114	117	118	118	122	119	110	103	96	89	82
53	125	132	138	140	138	132	123	111	99	87	76	70	72	83	85	79	79	81	77	70	68	69	70
54	107	112	111	105	97	88	81	75	70	65	60	54	49	47	49	52	67	84	87	86	85	84	83
55	135	142	147	155	163	168	174	183	188	181	171	164	149	135	125	117	109	101	92	87	84	83	96
56	148	164	175	179	174	159	150	147	137	125	113	99	86	76	69	61	59	64	71	82	99	110	105
57	134	138	136	129	118	106	93	82	72	62	53	46	39	33	30	27	27	35	54	78	106	123	119
58	124	150	173	182	194	202	193	187	190	186	165	144	127	109	102	102	102	100	93	84	78	78	77
59	122	126	125	124	126	122	108	94	84	81	86	77	68	61	58	59	58	59	54	50	48	49	49
60	138	139	143	136	124	128	124	118	112	98	90	87	100	103	107	107	102	100	79	84	80	78	77
61	148	149	142	137	117	110	99	99	86	86	81	76	82	72	74	78	89	92	84	82	93	89	95
62	134	157	167	156	159	152	142	131	125	115	98	90	80	62	65	56	55	57	54	63	61	53	82
63	124	129	140	142	140	136	126	115	109	103	93	78	66	62	53	56	70	117	135	132	124	112	112
64	86	129	164	164	174	136	155	143	120	105	94	82	71	63	60	59	68	81	85	81	75	72	75
65	187	215	216	211	184	165	145	134	131	123	110	96	86	81	75	77	67	58	65	49	74	156	186
66	25	108	126	160	157	143	140	145	154	151	133	110	92	94	89	81	89	92	93	86	89	101	110
67	150	156	165	150	146	138	124	112	99	87	76	67	61	62	59	60	57	55	54	49	48	47	48
68	115	112	112	108	102	96	88	79	73	64	55	48	46	45	62	75	82	80	72	64	58	49	39
69	123	181	213	220	220	201	171	158	140	118	103	92	81	71	61	54	46	41	42	42	45	46	56
70	124	130	136	143	154	145	131	118	126	129	121	109	97	90	84	87	98	97	96	95	94	90	86
71	145	153	161	169	177	169	156	139	125	119	141	156	148	139	130	120	110	105	98	91	81	77	70
72	117	137	157	177	192	188	181	171	153	141	127	108	96	88	80	71	82	88	92	92	92	90	88
73	140	153	156	163	167	165	162	151	137	119	105	98	90	84	77	71	68	64	60	59	73	103	116
74	117	120	121	125	123	119	110	99	89	80	74	67	61	56	51	46	42	50	61	63	65	67	68
75	117	130	142	155	157	154	154	144	137	126	114	100	88	77	70	65	58	51	48	48	58	74	106
76	79	102	125	139	137	132	125	115	105	95	95	94	89	87	85	84	82	96	99	98	96	108	115
77	128	151	188	216	220	217	208	192	174	157	143	156	165	169	185	200	190	163	133	113	104	96	90
78	125	137	136	130	133	139	130	124	121	128	130	119	103	91	86	81	74	73	85	101	109	111	108
79	164	171	167	161	152	139	129	122	113	106	102	104	96	89	99	137	164	150	128	110	100	90	85
80	180	188	181	169	162	154	145	146	148	144	134	120	106	97	90	82	75	67	57	47	44	41	39
81	140	145	143	137	127	116	105	94	90	90	88	82	76	74	79	79	82	95	94	93	89	85	81
82	141	169	181	184	178	181	183	174	156	140	128	121	113	103	93	82	77	74	78	81	86	144	185
83	132	142	151	146	138	135	124	117	113	103	98	92	82	88	74	65	62	54	48	43	38		
84	76	86	96	103	103	110	113	106	98	89	79	67	60	53	46	42	41	38	31	30	26	22	
85	137	151	167	170	168	164	159	150	140	127	117	107	101	101	107	115	112	102	95	91	91		
86	99	116	138	150	149	143	133	124	119	104	103	99	96	100	103	100	92	97	102	105			
87	128	145	162	173	174	185	215	201	181	167	154	139	123	120	118	107	98	84	76	70	62		
88	160	180	189	191	184	172	162	152	140	133	121	108	98	90	79	82	85	90	96	95			
89	166	177	190	195	189	180	162	148	134	130	120	109	104	100	103	102	105	128	144	161			
90	167	164	152	139	123	108	97	90	83	77	69	74	84	82	78	80	81	81	80	83	90		
91	169	171	169	173	183	190	189	175	159	134	115	98	84	72	72	72	65	61	52	56	63		
92	111	127	144	150	147	150	157	151	134	116	105	94	89	90	91	87	103	143	147	133	118		
93	190	184	167	151	137	129	125	119	113	99	93	86	77	67	64	76	89	88	100	138	145		
94	170	169	170	173	164	151	137	118	127	126	133	132	127	122	111	100	88	81	75	67	72	108	160
95	177	167	158	149	138	127	119	112	102	98	89	83	79	78	80	78	73	69	68	75	81		
96	129	119	105	97	96	97	92	86	88	86	84	80	76	69	64	61	55	48	50				
97	112	118	113	105	97	90	83	74	66	59	52	46	41	40	57	65	63	59	52	64	94		
98	210	234	237	225	207	188																	
Mean	132	145	153	155	152	146	140	131	123	114	106	98	91	86	83	82	82	83	82	82	80	85	92
S.D.	32	27	27	28	30	30	32	32	31	29	28	27	26	26	27	29	29	29	27	28	24	29	35

TABLE 4. Five-day averages of solar radiation at Lake Aleknagik.

	June						July						August						September			Means
Year	1-5	6-10	11-15	16-20	21-25	26-30	1-5	6-10	11-15	16-20	21-25	26-31	1-5	6-10	11-15	16-20	21-25	26-31	1-5	6-10	11-15	6/5-9/5
65	208	283	508	451	496	370	408	316	376	443	380	476	224	274	401	242	314	339	132	78	131	357
66	399	499	352	598	298	474	232	345	289	596	482	377	214	357	313	257	255	210	331	295	208	360
67	335	399	416	376	395	544	447	616	567	292	415	349	310	357	192	331	236	241	276	221	161	376
68	433	489	489	447	426	619	459	295	428	399	522	286	386	280	249	266	382	395	307	216	176	396
69	420	115	476	142	442	528	259	353	247	235	461	298	271	380	398	421	358	174	232	238	154	322
70	442	654	357	249	453	531	364	367	220	442	375	309	333	339	252	245	328	211	235	298	169	348
71	293	266	438	303	473	390	516	355	447	179	174	224	348	186	309	257	239	147	259	249	197	306
72	165	378	387	190	235	423	393	627	363	326	376	477	248	384	143	203	220	216	167	223	180	320
73	326	530	387	509	544	437	420	434	432	389	225	273	302	223	400	260	214	238	271	178	71	360
74	569	662	381	578	449	689	649	510	408	323	397	324	468	264	284	392	247	197	290	182	132	417
75	356	324	466	311	281	295	348	439	370	302	348	402	461	476	221	240	350	233	264	122	154	341
76	284	528	439	366	496	610	262	514	420	384	353	272	385	266	265	286	308	242	266	215	152	370
77	619	269	487	442	499	600	576	358	334	581	374	217	290	242	157	192	245	314	254	197	164	357
78	226	420	300	381	288	439	202	331	319	322	325	483	490	316	253	308	305	209	203	210	238	327
79	*442*	426	414	294	474	540	457	503	512	548	305	375	349	224	162	239	366	305	378	274	158	382
80	*335*	249	470	353	283	480	214	300	358	582	534	326	335	223	293	274	436	258	352	216	154	351
81	*420*	317	493	559	443	359	606	407	240	250	296	310	446	272	332	262	185	269	143	216	175	344
82	*250*	*293*	445	521	263	202	240	434	269	378	251	274	409	281	366	299	186	206	226	206	104	308
83	424	715	463	474	353	408	425	305	535	338	252	377	343	236	290	410	380	327	310	318	217	386
84	*612*	*442*	*485*	414	332	385	449	511	440	354	317	262	295	301	485	257	182	358	353	181	161	368
85	*272*	*363*	416	437	523	402	442	421	264	211	300	399	299	148	239	204	235	191	227	193	126	318
86	*363*	394	352	298	226	326	481	274	362	420	292	414	177	250	298	270	151	89	180	168		292
87	*363*	549	468	290	374	132	283	272	367	208	348	560	151	189	268	402	454	406	222	252		330
88	*363*	422	383	415	503	456	234	350	342	370	324	324	188	254	369	144	218	182	208	160		316
89	239	341	334	444	307	490	546	274	217	320	290	252	269	202	342	244	186	167	162	96		299
90	430	505	392	329	480	451	349	404	355	536	244	175	350	311	346	264	169	312	180	154	*160*	342
91	209	421	571	227	313	364	450	442	331	262	442	337	440	270	185	242	254	329	233	155		340
92	336	496	349	366	382	229	313	266	400	310	347	277	220	338	240	218	166	117	192	282	*280*	290
93	328	397	402	581	428	181	239	422	407	490	355	373	250	284	222	265	324	170	121	199	*180*	328
94	440	397	509	462	292	457	272	408	340	365	286	336	221	305	443	295	238	246	256	192	*150*	340
95	484	444	461	463	422	287	494	328	329	402	360	300	200	199	363	390	280	183	239	129	*200*	341
96	596	385	524	292	266	402	433	300	284	214	298	189	337	259	288	229	246	207	233	200		299
97	*425*	386	355	402	482	532	482	514	402	216	316	357	314	251	233	317	319	226	172	111	*200*	349
Mean	376	417	429	393	392	425	392	394	363	363	344	333	313	277	291	277	272	240	239	201	169	342
S.D.	117	126	64	114	95	130	122	97	85	116	81	87	90	67	83	66	79	76	64	58	41	31

TABLE 5. Mean surface temperatures at the head of Wood River.

Year	June 1-15	June 16-30	July 1-15
50		7.3	10.0
51	4.6	5.8	9.4
52			
53			
54	5.5	10.0	12.6
55	3.4	5.7	5.7
56	4.1	6.9	9.1
57	6.3	9.4	13.2
58	4.7	6.7	7.1
59	6.3	7.9	10.7
60	4.9	7.2	10.9
61	5.3	7.6	8.5
62	4.6	8.4	11.2
63	4.3	6.3	10.6
64	3.4	5.7	8.9
65	3.0	5.0	8.0
66	4.8	7.6	6.9
67	*6.0*	9.3	14.5
68	6.4	10.8	12.9
69	3.9	5.9	11.2
70	6.4	8.1	10.2
71	3.9	5.4	11.5
72	3.5	4.4	7.2
73	4.7	7.5	9.0
74	10.9	10.7	14.2
75	3.2	4.8	5.8
76	4.0	5.4	7.8
77	4.2	6.6	9.4
78	6.0	6.9	8.0
79	5.5	7.2	10.9
80	5.2	6.4	8.2
81	7.3	12.1	12.7
82	4.1	5.1	5.5
83	6.8	8.7	10.7
84	9.0	9.7	14.2
85	3.3	4.9	6.6
86	5.0	5.2	8.3
87	5.0	5.5	7.1
88	4.6	7.1	10.2
89	*4.7*	7.5	9.7
90	5.4	6.7	10.7
91	*5.0*	*7.5*	*10.8*
92	5.2	5.8	7.2
93	6.8	9.3	10.1
94	6.2	9.1	9.9
95	6.8	8.2	11.6
96	7.2	7.7	10.5
97	7.6	12.0	16.5

italics= estimates from regressions on insect trap and mid lake temperatures

TABLE 6. Dates of ice breakup and mean water temperatures in Lake Aleknagik.

	Ice out		0-20m					0-60m				
			June	July	August	Sept.		June	July	August	Sept.	
Year	mo.	date	21-26	12-16	3-10	1-10	Mean	21-26	12-16	3-10	1-10	Mean
49	6	11										
50	5	27										
51	5	30										
52	6	7										
53	5	29										
54	5	26										
55	6	10										
56	6	2										
57	5	28										
58	5	14				11.3					9.4	
59	5	28				12.0					8.7	
60	6	3				11.3					8.4	
61	5	29				11.1					8.0	
62	6	1	6.6	10.3	*12.3*	12.4	10.4	5.3	7.0	*7.7*	8.7	7.2
63	6	2	5.5	8.6	10.9	11.5	9.1	5.1	6.4	7.4	8.2	6.8
64	6	15	*3.9*	7.1	10.5	10.6	8.0	*3.9*	5.5	7.1	8.5	6.3
65	6	5	4.2	8.4	10.6	11.2	8.6	4.1	6.5	7.8	9.4	7.0
66	6	6	5.3	7.2	9.8	10.0	8.1	4.3	6.2	7.4	8.0	6.5
67	5	28	6.6	9.6	11.6	12.0	10.0	4.9	6.4	8.0	7.8	6.8
68	5	31	7.2	11.3	12.2	12.4	10.8	5.5	7.4	7.5	7.9	7.1
69	6	2	5.0	7.9	10.3	10.5	8.4	4.7	6.2	7.3	7.8	6.5
70	5	23	6.6	7.6	10.6	10.7	8.9	5.8	7.1	8.2	8.4	7.4
71	6	16	3.7	5.7	7.7	9.3	6.6	3.6	5.0	6.3	7.2	5.5
72	6	8	3.7	6.6	8.3	9.9	7.1	3.5	5.3	6.2	7.2	5.6
73	6	2	4.1	6.9	10.0	9.8	7.7	3.9	5.7	7.8	7.2	6.2
74	5	22	7.2	9.4	13.1	13.0	10.7	6.1	7.7	9.0	9.3	8.0
75	6	8	3.7	7.7	10.3	11.6	8.3	3.6	6.0	7.6	8.5	6.4
76	6	10	5.1	*7.4*	9.7	10.0	8.1	4.9	*6.4*	7.7	8.0	6.8
77	6	1	5.0	8.2	*11.2*	12.3	9.2	4.6	6.9	*9.1*	10.5	7.8
78	5	22	7.8	8.7	12.3	12.5	10.3	6.8	7.7	9.9	10.2	8.7
79	5	16	7.3	9.8	14.0	12.2	10.8	6.4	7.6	10.6	10.4	8.8
80	5	17	6.1	8.4	10.5	10.6	8.9	5.6	7.3	8.5	8.6	7.5
81	5	23	8.2	*10.9*	12.2	12.1	10.9	7.1	*8.2*	9.5	10.0	8.7
82	6	6	4.6	7.2	8.5	9.5	7.5	4.4	6.6	7.1	7.3	6.4
83	5	18	6.2	8.0	10.3	10.6	8.8	5.1	6.1	7.3	7.6	6.5
84	5	17	9.2	12.0	11.5	11.8	11.1	7.3	9.3	8.8	8.8	8.6
85	6	8	3.8	7.1	9.2	9.5	7.4	3.8	6.2	7.4	7.8	6.3
86	5	26	5.4	7.5	9.3	10.4	8.2	5.0	6.4	8.3	8.6	7.1
87	5	23	5.3	7.4	10.2	13.1	9.0	5.2	6.7	9.3	10.0	7.8
88	5	27	7.6	9.7	11.8	11.3	10.1	6.5	7.9	8.8	8.6	8.0
89	6	9	5.2	7.4	9.0	10.6	8.1	4.6	6.0	6.9	8.3	6.5
90	5	19	5.9	9.1	10.7	10.5	9.1	5.0	6.9	7.9	8.0	7.0
91	5	26	5.5	7.8	10.3	11.7	8.8	5.1	6.2	7.7	8.5	6.9
92	6	2	4.7	7.1	10.7	10.9	8.4	4.3	6.1	8.7	9.2	7.1
93	5	1	8.8	11.1	13.1	12.3	11.3	7.2	9.4	9.8	10.5	9.2
94	5	18	8.1	9.3	11.7	11.9	10.3	6.4	7.3	9.4	9.7	8.2
95	5	20	7.1	11.3	12.8	12.7	11.0	5.7	8.3	9.0	9.0	8.0
96	5	22	7.0	9.4	12.7	12.3	10.4	5.8	7.0	9.3	9.3	7.9
97	5	21	8.6	12.1	14.5	12.9	12.0	6.3	8.2	9.4	9.1	8.3
98	5	20	6.7					6.0				
Means	5	29	6.0	8.6	11.0	11.3	9.2	5.2	6.9	8.2	8.7	7.2

Estimates of missing data are in italics.

TABLE 7. Mean water temperatures 0-20 m in the Wood River Lakes during August 20–September 5.

Year	Aleknagik	S Nerka	C Nerka	N Nerka	L Togiak	Beverley	Kulik	Lake system
58	11.3	11.5	10.2	12.1	10.9	11.4	10.0	11.2
59	11.8	11.9	10.0	12.4	11.1	10.8	10.1	11.3
60	11.4	11.1	10.1	11.7	10.2	10.8	10.2	11.0
61	11.3	11.2	11.2	11.5	10.2	11.0	9.9	11.1
62	12.1	10.1	11.0	12.9	11.2	10.8	10.2	11.3
63	11.9	11.6	11.9	11.5	11.9	12.3	11.5	11.8
64	10.6	9.7	9.3	10.5	10.6	10.5	9.1	10.1
65	11.1	10.1	10.6	11.8	11.0	10.5	9.3	10.7
66	10.1	10.2	9.5	9.8	8.5	9.7	9.4	9.8
67	12.2	11.9	12.1	12.6	11.2	11.6	10.8	11.9
68	12.6	12.3	11.3	12.1	11.0	11.4	10.5	11.8
69	10.6	10.0	10.4	11.1	9.8	10.1	9.3	10.3
70	10.7	10.3	10.8	11.2	10.0	10.5	9.8	10.6
71	9.3	8.9	8.4	9.1	8.0	8.1	7.6	8.6
72	9.9	8.7	9.5	9.1	7.5	7.1	7.6	8.6
73	9.8	9.2	8.4	10.0	9.6	10.7	9.7	9.7
74	12.8	11.8	12.1	12.1	11.3	12.9	12.3	12.4
75	11.6	10.6	9.3	11.2	10.5	10.5	9.6	10.6
76	9.9	8.9	10.0	10.2	9.8	11.3	9.3	10.1
77	12.3				10.9			
78	12.5	10.8	11.6	12.9	11.4	12.1	11.9	12.0
79	12.2	12.7	11.1	12.8	11.2	12.1	11.3	12.1
80	11.0	11.8	10.4	11.6	9.8	10.4	10.1	10.9
81	12.1	11.5	11.1	11.9	10.9	10.9	10.9	11.4
82	9.3	10.5	11.2	10.9	10.2	10.5	10.4	10.4
83	11.5	11.8	12.0	12.6	10.9	11.4	10.6	11.7
84	11.7	12.7	12.7	12.8	12.2	10.6	12.0	12.0
85	9.5	9.9	8.8	10.8	9.0	8.8	9.3	9.5
86	10.4	9.2	9.6	10.3	8.8	9.1	9.3	9.7
87	13.1	12.3	11.6	13.0	11.6	12.0	11.0	12.3
88	11.3	9.9	10.6	10.2	9.8	10.0	9.0	10.2
89	10.5	10.0	11.0	9.6	8.6	9.4	9.6	10.0
90	10.5	11.4	10.1	12.0	10.4	10.9	9.9	10.9
91	11.6							
92	10.9	9.8	10.1	10.6	9.0	9.6	9.4	10.1
93	12.3	11.3	11.1	11.6	10.6	11.5	10.8	11.5
94	11.9	10.9	10.5	11.8	11.8	12.3	12.0	11.6
95	12.7	12.0	12.0	12.8	11.6	12.3	11.3	12.3
96	12.3	11.3	11.1					
97	12.9	11.7	12.4	13.2	12.6	13.2	12.8	12.8
Means	11.3	10.8	10.7	11.5	10.4	10.8	10.2	10.9

TABLE 8. Mean water temperatures 0-60 m in the Wood River Lakes during 8/20-9/5.

Year	Aleknagik	S Nerka	C Nerka	N Nerka	L Togiak	Beverley	Kulik	Lake system
67	8.7	8.6	8.2	9.7	8.2	7.5	7.3	8.2
68	8.9	9.0	8.1	9.7	8.0	7.9	7.0	8.3
69	8.3	8.1	7.7	9.1	7.4	7.1	6.5	7.7
70	8.9	8.5	8.5	9.6	7.8	7.5	7.0	8.2
71	7.6	8.0	6.9	7.8	6.6	6.2	5.8	6.9
72	7.8	6.9	7.1	7.8	6.0	5.7	5.7	6.7
73	7.6	7.1	6.3	8.1	7.5	7.7	7.0	7.3
74	9.2	8.7	7.8	9.1	8.3	8.1	7.7	8.4
75	8.5	7.7	6.9	8.8	7.8	7.1	6.3	7.5
76	8.0	6.9	6.9	8.0	7.6	7.4	6.4	7.3
77	10.4				8.3			
78	10.1	8.7	9.1	10.7	8.8	8.7	8.2	9.2
79	10.5	10.5	8.6	10.6	9.0	9.1	8.2	9.5
80	9.0	9.9	7.6	9.5	7.7	7.8	7.2	8.3
81	10.0	9.7	8.8	10.0	8.7	8.2	7.8	8.9
82	7.3	8.5	8.5	9.3	8.2	8.1	7.7	8.1
83	8.5	9.0	8.7	10.1	8.6	8.3	7.9	8.6
84	8.9	9.4	8.9	11.0	9.1	7.8	7.7	8.7
85	7.8	8.5	6.9	9.1	7.2	6.5	6.7	7.4
86	8.6	7.9	7.8	8.7	7.2	6.7	6.6	7.6
87	10.0	9.2	8.9	10.3	9.1	6.9	6.6	8.4
88	8.6	7.5	7.5	8.3	7.6	7.1	6.2	7.5
89	8.4	7.5	7.6	7.5	6.6	6.5	6.4	7.2
90	8.0	8.6	7.5	8.8	7.6	7.4	7.1	7.8
91	8.5							
92	9.2	8.3	8.1	8.9	7.6	7.0	6.8	7.9
93	10.5	8.7	8.5	9.7	8.2	8.2	7.6	8.8
94	9.7	8.5	7.7	9.4	8.9	8.7	8.1	8.7
95	9.0	8.0	8.0	9.5	8.4	8.0	7.3	8.2
96	9.3	8.6	8.0					
97	9.1	9.4	8.2	9.8	9.1	8.3	7.7	8.6
Means	8.9	8.5	7.9	9.2	8.0	7.6	7.1	8.1

Table 9. Mean conductivity at 5 and 15 m and 2 stations on lakes Aleknagik and Little Togiak.

	Lake Aleknagik					Little Togiak						
Year	June 22-29	July 11-19	August 3-11	Sept. 2-11	Mean	June 19-30	July 3-11	July 16-26	August 1-10	August 13-25	Sept. 1-09	Sept. 12-21
68		39.0	38.5	39.0	38.8							
69	38.5	40.0	39.5	39.5	39.4							
70	41.5	38.0	40.5	41.0	40.3							
71	40.8	38.2	38.0	38.0	38.8							
72	37.3	38.8	38.3	38.0	38.1							
73	40.7	36.9	39.0	40.2	39.2	53.0	56.7	53.0	56.7	57.0	56.5	54.2
74	39.9	39.7	38.1	38.6	39.1	55.2	52.0	61.5	62.7	55.2	55.7	57.0
75	38.9	42.6		38.4	40.0	55.0	54.2	53.0	55.2	55.2	56.0	57.0
76	38.5		38.3		38.4		56.0	55.5	56.2	55.5	55.0	57.0
77	40.0	40.0	38.5	38.8	39.3	46.0	36.0	38.2	45.0	46.5	69.2	57.0
78	52.1	36.9	37.5	47.9	43.6	54.2	52.7	52.7	53.5	52.5	53.2	56.0
79	37.7	38.6	36.8	39.4	38.1	53.5	53.0	50.5	55.8	51.7	53.0	
80	37.5	37.2	37.0	37.2	37.2	53.2	52.0	49.0	50.5	51.7	50.5	
81		33.5	36.2	36.6	35.4	49.5	50.0	50.0	50.0		51.0	
82	36.5	36.2	36.2	35.5	36.1	46.2	48.7	49.5		48.2	49.0	
83	35.0	35.8	33.0	35.1	34.7	49.5						
84	37.8	36.8	35.5	36.5	36.7							
85	36.2	36.5	35.8	35.8	36.1							
86	38.2	35.8		37.2	37.1							
87	35.5	35.2	34.5	35.5	35.2							
88	35.5	35.5	32.5	36.0	34.9							
89	34.7	35.2	35.8	34.8	35.1							
90	35.0	34.5	38.0	42.5	37.5							
91	43.2	39.1	39.0	39.5	40.2							
92	37.4	38.0	38.2	38.8	38.1							
93	37.7	40.0	38.2	37.5	38.4							
94	36.5	34.5	33.5	36.5	35.3							
95	36.9	32.0	35.9	36.0	35.2	51.5	50.2	50.5	52.2	50.0	50.0	
96	31.1	35.2	34.5	35.5	34.1							
97	36.8	36.9	33.5	36.8	36.0							
98	34.8											
Means	38.1	37.1	36.8	38.0	37.5	51.5	51.0	51.2	53.8	52.4	54.5	

TABLE 10. Seasonal means of zooplankton and chlorophyll densities in Lake Aleknagik.

Volume ml/ m^2	Number (hundreds/m2) Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul depth (m)	Secchi depth (m)	Chloro. mg/m2 0-20m	Surf. Temp. (C)	Date Yr	Mo	Day	Ice out days
	1118	402	120	132	4		1776	60	9.1		6.2	63	6	25	23
	968	252	228	192	28		1668	60	10.0	20.0	12.6		7	14	42
130	1680	322	658	932	44		3636	60	9.5	12.0	11.7		8	7	66
78	1384	362	618	1296	4		3664	60	9.0	14.0	12.7		9	7	97
	936	196	120	60	6		1318	55	7.8	39.6	9.5	64	7	14	29
110	1320	410	228	398	92		2448	60	10.6	25.7	13.3		8	5	51
106	1414	536	550	1798	40		4338	59	12.1	20.8	11.9		9	9	76
	1428	428	44	140	0		2040	61	10.3	22.6	4.6	65	6	26	21
92	1230	876	180	350	94		2730	56	10.5	33.0	10.1		7	19	44
143	1168	447	198	566	73		2452	60		20.2	12.0		8	11	67
33	288	204	262	334	2		1090	58		22.3	12.2		9	11	98
28	764	150	2	70	2		988	58	10.5	19.6	8.6	66	6	25	19
64	1553	404	15	144	25		2141	60					7	17	41
89	1558	420	28	264	24		2294	57	10.9	17.7	9.4		7	23	47
61	1484	320	42	352	62		2260	62	11.0	9.0	11.9		8	10	65
42	828	578	298	1204	114		3022	51	10.3	20.6	10.6		9	5	91
49	969	174	4	85	8	3	1239	63	9.8	10.0	9.5	67	6	26	29
54	1163	203	21	88	12	33	1487	60					7	8	41
69	1420	256	16	176	4	63	1871	60	8.2	10.3	15.6		7	14	47
44	583	112	29	144	23	89	891	59	10.8	5.7	13.3		8	5	69
49	661	130	52	692	2	26	1536	55	10.7	12.0	13.5		9	4	99
53	1306	157	17	76	10		1566	53		20.1	8.6	68	6	29	29
										23.3			7	6	36
99	1666	320	117	589	40		2731	56		20.6	14.1		7	15	45
100	1662	206	417	1185	59		3529	55	9.1	18.0	16.2		8	7	68
75	1937	251	817	1337	10		4352	52	9.4	23.6	14.3		9	4	96
59	865	229	14	69	0	0	1177	56	8.5	17.7	6.8	69	6	23	21
68	1128	244	44	185	19	0	1619	55	6.4	31.8	11.2		7	14	42
142	1057	318	216	1032	129	24	2751	54	10.2	14.0	12.5		8	6	65
81	756	520	628	1379	15	60	3299	52	8.7	16.6	10.9		9	5	95
55	869	219	22	96	64	58	1270	52	9.3	28.2	8.7	70	6	22	30
66	779	290	91	187	73	344	1419	50	8.5	22.6	8.1		7	13	51
96	978	289	279	821	79	338	2445	45		16.5	11.2		8	8	77
81	846	539	418	1000	8	109	2810	48	10.4	20.3	11.5		9	4	104
36	972	186	11	91	0	2	1256	55	9.9	15.0	3.8	71	6	23	7
61	1386	300	13	109	55	6	1862	46		39.2	11.0		7	13	27
79	1289	301	60	211	93	55	1954	55	7.7	25.2	9.4		8	6	51
94	1235	407	267	819	76	214	2803	56	11.8	15.5	9.7		9	9	85
28	506	177	9	42	18	1	752	48	9.6	21.2	4.0	72	6	23	15
60	936	404	9	93	128	5	1569	55	5.0	32.2	13.1		7	13	35
164	1466	441	43	374	295	65	2619	54	9.4	20.4	12.0		8	4	57
98	1164	882	261	1444	71	418	3822	54	8.1	16.7	10.9		9	5	89

TABLE 10—cont.

Volume ml/ m^2	Number (hundreds/m^2) Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul depth (m)	Secchi depth (m)	Chloro. mg/m^2 0-20m	Surf. Temp. (C)	Date Yr	Mo	Day	Ice out days
48	1212	345	24	63	43	0	1680	53	10.0	44.7	5.0	73	6	24	22
113	1288	443	56	76	130	5	1992	54		45.0	11.2		7	13	41
238	1535	653	210	872	388	52	3657	54	10.8	31.4	10.7		8	5	64
87	870	375	313	579	45	84	2182	54	10.4	34.6	10.0		9	5	95
82	1185	1429	650	1146	23	237	4431	60					9	26	116
79	1270	288	17	148	66	16	1788	54	8.5	52.7	9.8	74	6	23	32
173	1170	543	63	741	305	103	2822	53		31.9	10.7		7	13	52
186	1361	957	151	1482	98	463	4048	55	7.0	13.8	14.9		8	6	76
47	625	477	324	992	4	23	2421	52	10.2	34.0	15.5		9	4	105
42	653	138	3	43	5	0	842	53		28.0	3.8	75	6	26	18
65	780	208	5	54	80	0	1127	53	7.0	41.6	8.7		7	15	37
145	1329	416	28	351	484	2	2608	53	10.7	28.2	12.9		8	5	58
110	1322	291	83	1428	170	14	3294	53	10.0	28.9	13.9		9	2	86
61	1524	327	31	183	153	3	2218	53	8.0	31.2	5.9	76	6	25	15
92	1199	219	13	132	76	14	1638	53	9.8	37.6			7	16	36
98	925	208	43	333	62	11	1571	48	10.3	25.2	12.6		8	6	57
49	793	328	162	1156	49	93	2488	53	10.0	29.0	11.9		9	4	86
28	448	151	4	51	11	5	665	53	7.9	32.6	7.5	77	6	23	22
49	726	138	9	50	83	36	1005	53		44.0	11.5		7	15	44
113	948	204	34	380	279	211	1844	53	8.2	26.2	12.7		8	4	64
55	682	360	60	1269	67	67	2448	53	7.5	32.8	14.0		9	3	94
63	1385	228	31	79	32	5	1922	53	8.0	25.1	8.3	78	6	25	34
52	662	210	77	310	23	90	1282	53	8.0	16.6	11.4		7	15	54
89	842	211	96	351	40	367	1540	53	10.8	26.4	18.8		8	6	76
65	980	584	391	688	35	223	2679	53		18.0	13.7		9	2	103
42	457	736	563	704	3	92	2463	53		20.6			9	21	122
41	818	153	30	46	25	14	1071	53	8.6	29.0	9.6	79	6	21	36
74	1096	185	65	73	96	41	1515	53	10.2	23.2	13.4		7	12	57
104	1160	195	407	377	177	225	2315	53		24.0	16.8		8	3	79
36	536	394	404	1062	12	98	2298	53	8.6	37.1	12.8		9	2	109
22	660	29	3	33	19	60	743	53	8.2	27.8	8.2	80	6	22	34
49	851	100	3	46	32	266	1032	53	7.7	36.8	11.1		7	16	58
91	1265	67	17	194	144	830	1687	53	6.3	36.4	12.9		8	4	77
85	1306	382	85	1250	77	65	3099	53	8.6	36.1	11.3		9	5	109
92	1673	150	51	108	60	390	2042	53	7.8	40.2	11.0	81	6	24	32
122	1679	200	307	934	102	1222	3226	53	10.3	26.5			7	10	48
71	857	146	278	733	29	273	2041	53	9.4	25.6	15.0		8	4	73
32	486	291	322	623	0	35	1722	53	8.1	21.7	13.4		9	1	101

TABLE 10—cont.

Volume ml/ m^2	Number (hundreds/m^2) Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul depth (m)	Secchi depth (m)	Chloro. mg/m^2 0-20m	Surf. Temp. (C)	Date Yr	Mo	Day	Ice out days
29	1431	127	18	96	30	186	1701	49	5.5	45.4	5.0	82	6	25	19
79	1877	175	15	79	35	519	2181	49	5.5	41.3	8.3		7	14	38
112	1699	196	58	274	100	2791	2327	49	6.8	36.4	10.2		8	3	58
92	952	344	128	1033	90	627	2548	49	8.8	24.0	12.2		9	3	89
73	1876	345	60	102	29	28	1912	53	7.3	30.8	8.9	83	6	21	44
142	1572	428	280	307	87	286	2673	53	8.9	22.3	9.7		7	13	66
125	933	320	567	775	45	140	2641	53	11.4	17.5	14.5		8	2	86
53	465	790	790	1192	0	338	3236	49	8.5	27.1	13.1		9	2	117
181	1602	405	186	348	305	61	2846	57	8.8	23.8	10.0	84	6	24	40
200	1289	178	259	491	227	166	2444	49	10.0	14.8	13.9		7	16	62
69	792	357	749	1237	16	359	3152	50	11.9	16.4	13.6		8	4	81
47	662	391	890	1212	5	116	2830	49	9.0	14.4	12.5		9	2	100
46	1047	189	10	38	3	4	1288	45	7.1	22.8	3.8	85	6	21	13
47	1148	230	10	43	15	2	1446	53	7.3	31.4	8.5		7	14	36
83	1047	320	109	287	86	26	1848	53	8.5	25.2	12.4		8	2	55
98	806	330	430	950	43	438	2558	53	11.3	19.8	10.2		9	2	86
25	752	130	23	46	35	123	984	53	7.3	19.4	6.1	86	6	22	27
75								53	9.3	21.0	8.8		7	13	48
218								53	11.5	16.5	9.8		8	3	69
69	492	490	519	727	35	104	2263	53		14.3	10.7		9	3	100
47	592	138	13	62	99	14	903	53	7.3	35.8	5.4	87	6	26	34
70	850	296	9	78	109	22	1341	53	6.7	27.1	10.1		7	14	52
227	1141	523	91	421	407	66	2583	53	9.3	26.6	11.5		8	3	72
68	585	333	216	520	57	203	1710	45	8.8	23.7	16.0		9	1	101
68	1289	275	16	54	43	0	1678	45	6.5	40.2	9.9	88	6	25	29
104	909	360	43	207	117	9	1641	53	9.2	23.6	12.6		7	14	48
173	776	423	191	555	148	1	2093	45	8.7	22.8	14.1		8	3	68
77	823	627	482	1291	13	20	3235	53	10.0	22.0	12.3		8	31	96
53	870	406	38	129	14	1	1457	53	8.0	31.3	5.9	89	6	25	16
67	859	386	76	177	32	3	1529	53	7.9	38.2	9.0		7	15	36
164	905	482	147	514	141	28	2195	53	10.7	20.4	11.3		8	5	58
91	475	537	414	637	111	139	2174	49	8.6	22.3	11.0		9	3	87
56	1000	609	37	106	33	3	1784	49	6.8	30.8	7.6	90	6	23	35
80	936	548	54	239	92	13	1868	49	9.2	23.3	11.7		7	13	55
105	772	409	149	435	165	12	1929	49	8.6	20.6	14.5		7	24	66
156	1039	637	275	987	287	31	3225	49	9.2	23.7	12.9		8	2	75
107	536	474	284	1344	80	13	2718	53	9.3		13.0		8	18	91
76	507	603	623	1498	58	54	3289	49	6.8	19.6	11.6		9	2	106

TABLE 10—cont.

Volume ml/ m^2	Number (hundreds/m^2) Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul depth (m)	Secchi depth (m)	Chloro. mg/m^2 0-20m	Surf. Temp. (C)	Date Yr	Mo	Day	Ice out days
45	811	386	13	83	35	2	1327	52	5.3	30.8	5.8	91	6	23	28
51	471	325	16	118	106	16	1036	52	7.2	29.8	15.8		7	3	38
58	498	454	27	79	58	26	1116	52	5.4	24.3	11.5		7	13	48
68	425	537	43	375	241	107	1621	52	6.7	26.0	13.8		7	23	58
122	432	467	124	717	276	234	2015	52	8.3	19.6	12.3		8	2	68
129	364	336	188	979	162	199	2028	52	7.6	26.8	13.2		8	12	78
98	340	385	296	944	127	207	2192	52	7.8	13.0	13.7		8	22	88
53	226	444	945	364	50	150	2080	53	6.7	24.7	11.8		9	2	99
27	368	541	774	247	10	132	1966	52	7.5		11.3		9	12	109
32	1051	253	10	75	15	0	1403	53	7.5	23.0	6.5	92	6	23	21
27	733	214	21	53	50	11	1071	53	6.5	37.0	8.9		7	3	31
55	1041	225	28	78	64	4	1437	53	7.3	25.6	10.7		7	13	41
35	752	157	25	116	34	1	1084	53	7.2	24.1	10.3		7	21	49
80	586	119	35	189	73	0	1002	53	7.4	9.9	13.5		8	3	62
85	672	107	73	234	87	4	1171	53	9.4	27.9	12.6		8	12	71
69	456	144	100	492	81	2	1342	53	8.0	17.4	10.3		8	21	80
32	452	218	138	389	17	20	1246	53	7.3	30.8	11.4		9	2	92
83	1441	383	71	173	38	37	2105	53	5.4	33.6	10.8	93	6	22	52
64	992	449	104	393	56	170	1995	53	7.3	24.2	9.1		7	4	64
162	1852	790	274	800	164	300	3879	53	8.5	22.4	12.0		7	13	73
94	919	292	135	465	87	238	1897	53	10.1	20.4	14.7		7	21	81
92	730	413	414	986	91	164	2634	53	7.8	17.9	15.3		8	3	94
75	776	700	692	1851	82	165	4101	53	8.4	24.1	16.1		8	12	103
45	345	629	696	1295	30	43	2996	53	5.5	27.2	12.6		8	22	113
56	283	866	800	1670	7	37	3625	53	7.0	22.4	12.3		9	2	124
31	595	142	8	22	20	19	787	53	8.2	23.0	9.9	94	6	23	36
57	1162	305	23	55	86	234	1631	53	7.6	13.8	9.3		7	3	46
88	1098	259	29	86	114	413	1586	53	7.6	26.3	12.6		7	14	57
75	768	169	87	148	239	433	1410	53	7.6	16.2	11.0		7	23	66
111	667	132	94	163	229	259	1285	53	10.9	9.7	13.3		8	3	77
91	719	162	143	287	125	32	1435	53	10.9	10.0	13.8		8	13	87
47	550	345	240	636	17	68	1787	53	8.0	11.0	13.3		8	22	96
43	565	514	328	767	5	59	2179	53	10.1	26.4	12.4		9	2	107
63	1404	243	37	36	132	95	1852	53	6.6	23.7	11.8	95	6	23	34
130	1646	373	42	60	137	154	2257	47	8.9	21.8	12.0		7	3	44
142	1012	331	124	190	377	637	2033	53	7.2	14.7	13.2		7	15	56
158	878	299	111	190	125	216	1602	53	8.5	24.2	13.7		7	23	64
144	854	304	288	511	176	326	2134	53	8.6	22.0	14.7		8	3	75
82	852	320	364	651	70	277	2257	53	8.7	23.0	12.1		8	13	85
56	746	496	409	754	4	162	2409	53		23.1	14.9		8	24	96
43	631	515	465	864	0	145	2476	53	11.4	22.1	13.6		9	3	106

TABLE 10—cont.

Volume ml/ m^2	Number (hundreds/m^2) Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul depth (m)	Secchi depth (m)	Chloro. mg/m^2 0-20m	Surf. Temp. (C)	Date Yr	Mo	Day	Ice out days
56	959	188	30	44	69	40	1289	53	8.8	24.5	10.5	96	6	22	31
76	1065	240	42	46	87	382	1481	47	9.7	11.3	11.5		7	2	41
104	978	183	96	130	199	275	1585	53	8.7	12.6	12.0		7	16	55
166	1023	250	159	201	244	442	1877	53	9.1	10.2	14.9		7	22	61
143	866	153	273	269	95	415	1655	53	9.4	*16.1*	15.7		8	3	73
139	740	217	389	753	100	438	2200	53	8.8	22.2	13.0		8	13	83
59	689	214	270	619	17	309	1808	53	9.3	3.5	13.5		8	24	94
52	525	535	438	1038	3	243	2539	53	9.5	19.2	13.8		9	1	102
61	1733	36	43	243	29	320	2083	53	7.0	32.2	12.8	97	6	22	32
77	1281	75	48	198	25	330	1626	53	8.2	21.5	16.0		7	2	42
67	1514	51	118	482	71	714	2237	53	8.3	21.0	16.2		7	13	53
85	1394	38	185	308	65	674	1989	53	9.0	24.0	17.8		7	22	62
55	890	65	297	563	68	949	1849	53	7.4	32.0	17.8		8	3	74
58	1018	99	311	756	45	604	2229	53	5.8	36.0	15.8		8	12	83
29	477	80	279	462	11	203	1309	53		33.2	15.2		8	24	95
40	1296	64	288	465	4	359	2117	53	6.0	38.6	14.0		9	3	105
46								53	4.8	14.8	7.8	98	6	22	33

TABLE 11. Annual means of zooplankton density and Secchi depths in the Wood River Lakes.

Volume	Number (hundreds/m²)							Depth (m)				
(ml/m²)	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
49	661	130	52	692	2	26	1537	55		67	34	Alek
	754	582	338	943	3	0	2620	45			30	SN
	1114	388	213	455	9	62	2179	58			16	CN
	921	443	199	849	1	269	2413	40			28	NN
	1228	508	587	1801	40	115	4164	40			29	LT
	1021	675	244	608	43	1	2591	54			24	Bev
	1294	757	268	628	90	21	3037	56			20	Kul
	934	479	215	723	21	71	2372	51			26	WRL
75	1937	251	817	1337	10		4352	52	9.3	68	35	Alek
76	1992	468	409	1090	23		3982	47			30	SN
62	1422	431	308	656	5		2822	55			29	CN
79	1836	293	593	1601	10		4333	45			28	NN
82	2107	342	912	1021	23		4405	39			27	LT
117	1779	452	547	1353	49		4180	60			25	Bev
140	1695	554	337	1129	68		3783	54			21	Kul
90	1805	390	542	1247	26		4010	52			28	WRL
81	756	520	628	1379	15	60	3298	52	9.0	69	36	Alek
92	974	443	212	1210	10	92	2849	48	11.8		31	SN
95	958	498	489	712	38	439	2695	52	10.9		30	CN
61	845	282	379	1112	8	66	2626	45	9.6		30	NN
158	3332	619	1625	3467	47	317	9090	42			18	LT
184	1122	578	449	1202	74	127	3425	60	14.5		26	Bev
142	1293	726	501	701	93	172	3314	60	13.5		22	Kul
110	1002	493	462	1139	37	142	3132	52	11.4		29	WRL
81	846	539	418	1000	8	109	2811	48	9.3	70	35	Alek
66	1215	613	307	1123	12	73	3270	45			31	SN
79	903	738	377	597	19	139	2634	53			30	CN
53	898	604	353	896	11	43	2762	41			29	NN
125	1263	1079	2140	999	31	218	5512	43			29	LT
144	872	768	413	1089	119	220	3261	60			25	Bev
137	1367	1156	776	942	85	172	4326	60			21	Kul
93	985	709	445	961	43	126	3141	50			29	WRL
94	1235	407	267	819	76	214	2804	56	11.1	71	40	Alek
112	1282	455	392	949	81	151	3159	51			38	SN
100	1352	679	374	864	38	102	3307	60			35	CN
56	1157	245	92	653	3	72	2150	46			37	NN
137	2799	671	2193	1501	20	759	7184	49			20	LT
168	1239	790	139	690	115	37	2973	60			29	Bev
123	1504	714	224	660	101	118	3203	60			23	Kul
109	1292	532	259	776	67	122	2926	55			34	WRL
98	1164	882	261	1444	71	418	3822	54		72	36	Alek
115	1757	714	340	1548	56	122	4415	52			33	SN
89	1070	548	140	771	19	134	2548	58			31	CN
80	1242	326	125	1253	2	7	2948	46			30	NN
46	2052	433	92	1108	5	139	3690	39			24	LT
208	1371	635	144	1029	147	71	3326	60			27	Bev
220	1271	619	228	714	192	68	3024	60			26	Kul
131	1324	617	200	1169	76	142	3386	54			31	WRL

Total number does not include rotifers
Date is for August (32=Sept. 1, 33=Sept. 2, etc.)
WRL means calculated from lake means weighted by surface area.

TABLE 11—cont.

Volume	Number (hundreds/m²)							Depth (m)				
(ml/m²)	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
87	870	375	313	579	45	84	2182	54	10.8	73	36	Alek
108	967	569	289	931	13	5	2769	47			32	SN
87	1379	946	448	870	11	22	3654	55			29	CN
75	1209	553	258	1265	3	99	3288	49			33	NN
133	2325	1141	1684	2126	39	15	7315	39	12.7		28	LT
131	1300	864	254	1025	51	50	3494	60			26	Bev
148	1486	883	127	956	101	121	3553	60			25	Kul
104	1192	678	302	962	35	63	3168	54			31	WRL
47	625	477	324	992	4	23	2422	52	9.7	74	35	Alek
72	868	829	341	1573	9	156	3620	50	11.4		33	SN
42	475	602	249	487	9	143	1822	41	13.8		26	CN
47	521	311	373	836	0	67	2041	43	11.3		30	NN
125	1312	890	1299	399	102	516	4002	46	8.0		32	LT
159	1138	867	539	786	93	321	3423	60	12.5		23	Bev
244	1368	725	281	452	240	16	3066	60	13.1		22	Kul
96	819	626	382	876	50	136	2752	51	11.7		29	WRL
110	1322	291	83	1428	170	14	3294	53	10.0	75	33	Alek
239	1295	634	153	2244	303	310	4629	43	14.0		26	SN
93	908	403	84	1184	68	21	2647	55	13.7		28	CN
65	803	209	35	934	51	20	2032	43	11.7		30	NN
200	2576	781	144	1804	419	245	5724	44	10.1		29	LT
82	1072	497	116	779	74	55	2538	60	12.0		24	Bev
59	1177	476	41	286	27	26	2007	60	13.7		23	Kul
108	1112	409	87	1166	121	73	2895	52	12.2		28	WRL
49	793	328	162	1156	49	93	2488	53	10.0	76	35	Alek
65	728	252	143	840	68	392	2031	43			34	SN
83	943	493	111	753	108	256	2408	57			30	CN
104	1209	249	36	539	166	148	2199	42			28	NN
164	2101	1635	2303	2285	296	390	8620	44	10.6		29	LT
112	610	283	42	1058	129	299	2122	60			25	Bev
96	1241	728	104	1026	64	173	3163	60			24	Kul
87	913	372	126	916	105	225	2433	52			29	WRL
55	682	360	60	1269	67	67	2438	53	8.3	77	34	Alek
97	1171	287	109	850	62	96	2479	52			31	SN
74	733	661	175	449	75	122	2093	53			30	CN
71	781	283	102	887	56	54	2109	45			30	NN
79	2199	882	781	1429	2	530	5292	43	8.5		27	LT
103	1120	415	334	483	61	48	2413	60			24	Bev
79	1642	883	133	647	11	112	3316	60			23	Kul
80	997	445	166	799	57	83	2463	53			29	WRL
65	980	584	391	688	35	223	2678	53	8.5	78	33	Alek
122	1053	858	1020	1493	20	103	4444	46			27	SN
110	1049	896	857	947	20	76	3769	55	11.9		27	CN
68	699	366	513	988	31	113	2597	45	9.8		25	NN
155	2228	1703	3786	983	0	752	8700	43	8.8		29	LT
178	935	679	682	514	93	43	2903	57	13.6		24	Bev
133	1267	1134	1306	690	25	111	4422	57	12.9		23	Kul
112	981	713	772	867	41	122	3374	52	11.1		27	WRL

TABLE 11—cont.

Volume	Number (hundreds/m²)							Depth (m)				
(ml/m²)	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
36	536	394	404	1062	12	98	2408	53	5.8	79	33	Alek
40	350	492	489	681	25	322	2037	40	7.0		31	SN
42	827	690	250	602	0	118	2369	57	6.5		30	CN
28	285	163	183	345	3	22	979	38			24	NN
110	2612	610	1463	610	1	660	5296	43	4.3		28	LT
65	871	478	566	315	8	255	2238	60			24	Bev
78	989	629	465	465	26	174	2574	60			23	Kul
47	641	444	409	576	11	168	2081	51			27	WRL
85	1306	382	85	1250	77	65	3100	53	8.1	80	36	Alek
133	1318	354	85	1621	124	139	3502	45			31	SN
64	1172	318	75	446	38	285	2049	57			30	CN
43	411	90	35	234	44	43	814	35			26	NN
77	1512	328	363	1051	15	243	3269	43	12.5		28	LT
60	1670	150	26	456	23	341	2325	60	8.0		25	Bev
177	1730	518	482	747	146	576	3623	60			24	Kul
85	1235	275	107	777	68	214	2462	51			29	WRL
32	486	291	322	623	0	35	1722	53	8.1	81	32	Alek
72	641	574	965	979	8	21	3167	46	11.1		31	SN
66	828	485	397	616	7	23	2333	57	11.0		26	CN
45	493	355	320	843	4	8	2015	41			30	NN
82	1599	620	778	856	14	165	3867	43	8.0		29	LT
86	826	407	748	922	2	146	2905	52			23	Bev
198	1407	872	834	1620	109	85	4842	60			22	Kul
74	737	460	577	892	15	57	2681	50			28	WRL
92	952	344	128	1033	90	627	2547	49	8.8	82	34	Alek
124	1273	154	229	886	87	160	2629	40			32	SN
115	1118	372	253	596	56	334	2395	53	10.1		28	CN
78	1084	219	234	1611	11	41	3159	37			31	NN
70	1357	429	590	2059	11	620	4446	41	6.8		30	LT
98	1343	721	659	1180	27	87	3930	55			23	Bev
147	1560	920	226	571	175	222	3452	54	11.8		21	Kul
104	1199	436	309	1071	64	246	3080	47			29	WRL
53	465	790	790	1192	0	338	3237	49	8.5	83	33	Alek
64	1008	927	506	1037	13	218	3491	43	11.3		31	SN
88	1419	715	457	776	3	83	3370	57	14.3		27	CN
60	1005	585	532	1310	3	209	3435	42	11.8		27	NN
131	1379	1136	2039	1214	5	806	5773	41	12.0		28	LT
140	1063	917	588	930	59	178	3557	55	13.3		23	Bev
199	977	937	411	741	85	46	3151	55	13.8		22	Kul
95	965	807	590	1039	24	205	3425	49	11.9		27	WRL
47	662	391	890	1212	5	116	3160	49	9.0	84	33	Alek
47	478	493	432	854	13	0	2270	42	9.8		23	SN
65	621	819	522	602	6	313	2570	53	10.3		20	CN
49	525	428	642	1409	2	180	3006	43	9.5		29	NN
105	1061	546	1782	561	24	179	3974	41	10.5		18	LT
69	631	738	524	285	53	184	2231	55	9.5		27	Bev
134	851	715	390	719	52	418	2727	55	14.4		20	Kul
64	621	576	609	866	21	183	2694	49	10.1		26	WRL

TABLE 11—cont.

Volume	Number (hundreds/m²)							Depth (m)				
(ml/m²)	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
98	806	330	430	950	43	438	2559	53	11.3	85	32	Alek
161	1714	771	671	1314	81	78	4551	40	8.4		31	SN
68	886	360	100	380	28	61	1754	57			27	CN
48	643	160	198	667	19	267	1687	38	9.0		30	NN
240	2814	429	1794	1684	156	31	6877	43	11.4		29	LT
106	961	437	150	483	60	93	2091	50			24	Bev
116	841	448	194	272	76	89	1831	50	12.4		23	Kul
99	982	401	313	717	51	188	2464	47	10.1		28	WRL
69	492	490	519	727	35	104	2263	53		86	34	Alek
115	926	1025	503	1207	66	293	3727	40	8.0		33	SN
147	771	1088	746	1304	107	149	4016	48	8.0		29	CN
41	469	220	178	425	7	121	1299	37			31	NN
147	747	788	1101	1038	149	30	3823	38	10.6		32	LT
105	748	742	485	861	41	198	2877	50	12.3		24	Bev
126	1470	910	382	630	41	149	3433	50	12.5		23	Kul
94	747	690	462	830	46	165	2775	46	10.4		29	WRL
68	585	333	216	520	57	203	1711	45	8.8	87	32	Alek
114	1130	381	294	818	32	8	2655	45	12.3		29	SN
124	1063	800	208	920	94	11	3085	50	11.5		23	CN
87	1107	350	203	678	53	15	2391	44	9.9		18	NN
176	1232	551	662	959	331	17	3735	38	11.0		26	LT
74	855	561	55	507	41	7	2019	50	12.6		22	Bev
88	1294	793	82	282	59	8	2510	50	10.7		20	Kul
90	971	501	182	623	58	48	2335	47	10.9		24	WRL
77	823	627	482	1291	13	20	3236	53	10.0	88	31	Alek
130	854	1074	587	1540	50	23	4105	41	10.5		31	SN
180	1356	1326	972	1481	144	33	5279	55	10.3		27	CN
151	560	517	463	952	72	19	2564	41	10.2		30	NN
228	820	701	729	2039	156	5	4445	38	11.4		26	LT
197	905	647	291	1177	160	7	3180	50	12.2		22	Bev
200	915	687	226	793	132	35	2753	50	11.8		21	Kul
153	867	768	490	1216	92	20	3433	48	10.8		27	WRL
91	475	537	414	637	111	139	2174	49	8.6	89	34	Alek
176	852	849	310	655	224	27	2890	40	8.8		29	SN
109	791	627	127	709	176	93	2430	53	7.9		29	CN
104	633	442	175	707	45	29	2002	41	8.0		28	NN
180	824	560	406	1785	203	54	3778	41	9.6		27	LT
223	917	817	248	1173	240	0	3395	51	9.0		23	Bev
175	781	846	318	744	85	115	2774	55	13.3		22	Kul
147	732	667	270	804	148	61	2621	47	9.0		28	WRL
76	507	603	623	1498	58	54	3289	49	6.8	90	33	Alek
96	658	1028	514	964	120	201	3283	38	8.9		30	SN
79	811	924	308	530	41	72	2613	60	9.8		28	CN
41	238	286	211	382	8	72	1125	32	7.8		29	NN
159	1045	628	884	1024	124	70	3704	41	10.1		27	LT
118	738	826	483	838	84	80	2969	55	11.8		23	Bev
103	788	952	317	400	25	1	2481	55	9.3		37	Kul
85	598	726	427	812	58	82	2620	47	9.1		29	WRL

TABLE 11—cont.

Volume (ml/m²)	Number (hundreds/m²)							Depth (m)				
	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
53	226	444	945	364	50	150	2080	53	6.7	91	33	Alek
81	466	317	257	779	38	140	1856	40	9.3		28	S N
66	555	442	203	630	17	100	1846	57	11.8		28	C N
38	369	177	73	656	11	9	1286	38	9.2		29	N N
188	773	325	313	1857	169	101	3437	43	9.7		27	L T
154	638	563	168	1326	125	62	2819	60	10.9		24	Bev
111	709	570	48	829	82	62	2238	59	12.7		25	Kul
85	477	408	307	791	57	85	2050	51	9.8		28	WRL
32	452	218	138	389	17	20	1246	53	7.3	92	32	Alek
56	932	365	417	815	4	13	2533	43	8.6		31	S N
53	898	431	286	499	15	93	2129	53	10.0		30	C N
45	595	422	369	1184	24	90	2593	37			39	N N
76	1174	312	374	1416	117	91	3393	43	3.4		28	L T
103	439	258	173	1196	62	0	2127	60	8.2		23	Bev
103	811	601	302	965	51	3	2730	60	9.0		22	Kul
64	652	357	272	873	31	37	2191	50	8.5		30	WRL
56	283	866	800	1670	7	37	3625	53	7.0	93	33	Alek
50	719	974	329	1110	1	118	3133	51	10.7		30	S N
30	425	453	319	456	1	99	1654	57	8.1		23	C N
24	404	445	241	913	0	21	2002	37	8.6		27	N N
44	226	223	547	129	37	124	1161	43	7.5		26	L T
67	503	530	332	585	26	106	1976	52	8.8		24	Bev
125	899	1126	1103	503	64	416	3695	55	8.3		24	Kul
55	500	694	488	910	14	109	2606	50	8.5		27	WRL
43	565	514	328	767	5	59	2179	53	10.1	94	33	Alek
38	550	381	162	902	2	160	1996	44	9.3		30	S N
51	455	506	328	679	4	240	1971	55	8.9		26	C N
21	437	222	52	843	2	17	1555	44	8.8		28	N N
132	1005	462	676	1975	154	233	4272	43	9.9		24	L T
110	672	453	201	878	34	42	1790	60	10.3		22	Bev
96	497	648	592	562	69	148	2367	60	11.8		36	Kul
60	545	435	254	810	19	96	1967	52	9.8		29	WRL
43	631	515	465	866	0	145	2477	53	11.4	95	33	Alek
59	720	448	296	1251	0	1	2715	40			32	S N
56	580	507	344	834	2	5	2267	55	14.4		27	C N
21	336	121	117	478	0	16	1052	38	8.8		26	N N
125	1225	197	530	1133	55	241	3140	43	9.3		27	L T
56	810	560	310	564	19	30	2263	59	10.7		26	Bev
152	1003	472	175	386	36	4	2072	60	12.6		25	Kul
58	664	425	292	730	9	42	2119	50	11.2		28	WRL
52	525	535	438	1038	3	243	2539	53	9.5	96	32	Alek
54	584	446	267	1350	6	149	2652	45	10.3		30	S N
51	636	610	288	730	19	259	2282	56	12.7		27	C N
44	473	395	284	1345	16	128	2512	40	10.0		27	N N
140	1271	583	1351	827	108	332	4141	43	9.7		22	L T
												Bev
												Kul
52	558	489	347	1137	13	193	2543	48	10.4		29	WRL

TABLE 11—cont.

Volume	Number (hundreds/m²)							Depth (m)				
(ml/m²)	Cycl	Calan	Daph	Bosm	Holop	Rotif	Total	Haul	Secchi	Year	Date	Lake
40	1296	64	288	465	4	359	2117	53	6.0	97	34	Alek
93	756	220	950	2070	25	559	4022	44	6.5		30	S N
44	562	103	588	1177	4	253	2435	54	9.3		28	C N
43	772	160	523	1480	12	88	2945	38	8.4		27	N N
97	1177	687	1757	631	34	239	4286	41	8.4		26	L T
100	813	650	823	596	16	49	2898	60	9.3		20	Bev
157	883	660	190	998	100	117	2831	60	8.8		19	Kul
75	872	307	594	1082	22	228	2877	51	8.0		27	WRL