

Second Report of the Regular Limnological Survey of Lake Biwa (1967) IV. Abiotic Environment*

By

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When the writer examines the data of the abiotic environment, following features can be found.

Regarding **water temperature** in three stations of Nb-2, Nb-5, and Na-3, it is lower in both Nb-2 and Nb-5 during January. It rises as a whole since March; remarkable rise is noticed between April and June. The highest one is shown in August and then it drops gradually between September and December. In Station Ie, the lowest figure is found between February and March. The lag, when we compare with data of Nb-2, Nb-5, and Na-3, may be owed to the difference of water depth, that is water volume. The rise of water temperature begins in April continuing to June. However, hypolimnetic water temperature below 30 m depth keeps constant figure even in August. After August, epilimnetic water temperature drops gradually accompanying complete circulation of warm monomictic type.

As for **hydrogen ion** concentration in Nb-2, Nb-5, and Na-3, it is somewhat higher in February. Generally, it rises between April and June; remarkable rise is shown in July indicating 8.4 in Nb-5. It is lower in August though water temperature is the highest but Station Na-3 still keeps higher figure till October. As a whole, it is low in December. In Station Ie, it is low between January and February showing general rise since April but the drop in bottom layer is conspicuous after May as the result of oxygen consumption. Because of the higher figure in the epilimnetic water in July, difference between surface layer and bottom layer is noticeable. The lowest figure is found in December.

Saturation value of the **dissolved oxygen** in Nb-2, Nb-5, and Na-3 is below 100 % between January and March, but is above 100 % in both April and May. In June, most of the figures are below 90 % but they increase in July, August,

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and October. In Station Ie, oversaturation of the dissolved oxygen is conspicuous in epilimnion in both May and June, but it decreases after July and maintained unsaturated except October. The dissolved oxygen in bottom layer, however, is maintained 80~90% from January to May, then decreases gradually and shows 50~60% from July to December.

| | | Depth(m) | Temp.(°C) | pH | O ₂ (cc/1) | O ₂ (%) |
|-----------------|---------------|----------|-----------|-----|-----------------------|--------------------|
| Station | Ie-1 | 0 | 8.9 | 7.1 | 6.54 | 80 |
| Date | Jan. 13, 1967 | 1 | 8.8 | 7.1 | 6.72 | 83 |
| Weather | Clear | 2 | 8.8 | 7.1 | 6.70 | 82 |
| Air temperature | 8.6°C. | 5 | 8.7 | 7.1 | 6.65 | 81 |
| Wind direction | NNW | 10 | 8.6 | 7.1 | 6.53 | 80 |
| speed | 1.8m/sec. | 15 | 8.6 | 7.1 | 6.55 | 80 |
| Cloud form | — | 20 | 8.5 | 7.1 | 6.55 | 80 |
| amount | 0 | 30 | 8.5 | 7.0 | 6.59 | 81 |
| Transparency | 6.0m | 50 | 8.3 | 7.0 | 6.31 | 77 |
| Wave | Rippled | 72(B) | 7.8 | 7.0 | 6.88 | 83 |
| Mud temperature | — | | | | | |

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|-----------------|---------------|-------|-----|-----|------|----|
| Station | Ie-1 | 0 | 7.6 | 7.3 | 7.60 | 91 |
| Date | Feb. 15, 1967 | 1 | 7.5 | 7.3 | 7.65 | 91 |
| Weather | Clear | 2 | 7.5 | 7.3 | 7.65 | 91 |
| Air temperature | 5.1°C. | 5 | 7.4 | 7.3 | 7.61 | 90 |
| Wind direction | W | 10 | 7.3 | 7.3 | 7.63 | 91 |
| speed | 3.0m/sec. | 15 | 7.3 | 7.3 | 7.59 | 90 |
| Cloud form | KC | 20 | 7.3 | 7.2 | 7.58 | 90 |
| amount | 5 | 30 | 7.2 | 7.2 | 7.66 | 90 |
| Transparency | 7.3m | 50 | 7.2 | 7.0 | 7.57 | 90 |
| Wave | Gentle | 73(B) | 7.2 | 7.0 | 7.57 | 90 |
| Mud temperature | 7.0°C. | | | | | |

| | | | | | | |
|-----------------|---------------|-------|-----|-----|------|----|
| Station | Ie-1 | 0 | 7.6 | 7.2 | 7.86 | 94 |
| Date | Mar. 13, 1967 | 1 | 7.5 | 7.2 | 7.88 | 94 |
| Weather | Cloudy | 2 | 7.5 | 7.2 | 7.85 | 93 |
| Air temperature | 9.6°C. | 5 | 7.4 | 7.2 | 7.81 | 93 |
| Wind direction | E | 10 | 7.3 | 7.2 | 7.94 | 94 |
| speed | 1.0m/sec. | 15 | 7.1 | 7.2 | 7.75 | 91 |
| Cloud form | SC | 20 | 7.1 | 7.2 | 8.01 | 94 |
| amount | 10 | 30 | 7.1 | 7.2 | 7.94 | 93 |
| Transparency | 6.3m | 50 | 7.0 | 7.2 | 7.74 | 91 |
| Wave | Rippled | 73(B) | 7.0 | 7.2 | 7.71 | 90 |
| Mud temperature | 7.2°C. | | | | | |

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|-----------------|---------------|----------|-----------|-----|-----------------------------------------|-----|
| Station | Ie-1 | Depth(m) | Temp.(°C) | pH | O ₂ (cc/1)O ₂ (%) | |
| Date | Apr. 14, 1967 | 0 | 10.4 | 7.4 | 7.98 | 102 |
| Weather | Partly cloudy | 1 | 10.7 | 7.4 | 7.58 | 97 |
| Air temperature | 15.0°C. | 2 | 10.5 | 7.3 | 7.69 | 98 |
| Wind direction | N | 5 | 10.0 | 7.3 | 7.64 | 96 |
| speed | 8.0m/sec. | 10 | 9.5 | 7.3 | 7.91 | 99 |
| Cloud form | CS | 15 | 9.5 | 7.3 | 7.80 | 98 |
| amount | 8 | 20 | 9.2 | 7.3 | 8.00 | 99 |
| Transparency | 5.0m | 30 | 9.0 | 7.3 | 7.77 | 96 |
| Wave | Moderate | 50 | 8.5 | 7.3 | 7.95 | 97 |
| Mud temperature | 7.8°C. | 73(B) | 7.6 | 7.3 | 7.69 | 92 |
| Station | Ie-1 | 0 | 15.9 | 7.4 | 7.81 | 112 |
| Date | May 11, 1967 | 1 | 15.2 | 7.4 | 7.54 | 106 |
| Weather | Clear | 2 | 14.4 | 7.4 | 7.60 | 106 |
| Air temperature | 17.4°C. | 5 | 14.0 | 7.5 | 7.57 | 104 |
| Wind direction | E | 10 | 13.8 | 7.5 | 7.62 | 105 |
| speed | 4.3m/sec. | 15 | 13.6 | 7.4 | 7.71 | 105 |
| Cloud form | C | 20 | 11.7 | 7.3 | 7.62 | 100 |
| amount | 2 | 30 | 8.9 | 7.2 | 7.81 | 96 |
| Transparency | 6.5m | 50 | 7.5 | 7.0 | 6.88 | 82 |
| Wave | — | 65(B) | 6.9 | 7.0 | 7.18 | 84 |
| Mud temperature | — | | | | | |
| Station | Ie-1 | 0 | 23.3 | 7.5 | 6.07 | 100 |
| Date | June 15, 1967 | 1 | 22.9 | 7.5 | 6.12 | 101 |
| Weather | Clear | 2 | 21.9 | 7.5 | 6.11 | 99 |
| Air temperature | 26.1°C. | 5 | 20.8 | 7.5 | 6.38 | 101 |
| Wind direction | NE | 10 | 20.2 | 7.4 | 6.07 | 95 |
| speed | 2.8m/sec. | 15 | 16.5 | 7.4 | 6.62 | 96 |
| Cloud form | KN | 20 | 12.2 | 7.1 | 7.10 | 94 |
| amount | 1 | 30 | 9.3 | 7.4 | 6.22 | 77 |
| Transparency | 6.3m | 50 | 7.4 | 7.1 | 6.89 | 82 |
| Wave | Gentle | 73(B) | 7.2 | 7.1 | 6.34 | 75 |
| Mud temperature | 8.2°C. | | | | | |
| Station | Ie-1 | 0 | 26.3 | 8.4 | 5.39 | 95 |
| Date | July 17, 1967 | 1 | 26.2 | 8.4 | 5.74 | 100 |
| Weather | Cloudy | 2 | 26.1 | 8.4 | 5.84 | 102 |
| Air temperature | 26.7°C. | 5 | 23.7 | 8.4 | 5.96 | 99 |
| Wind direction | E | 10 | 21.5 | 8.2 | 5.52 | 89 |
| speed | 2.0m/sec. | 15 | 16.7 | 7.1 | 5.11 | 75 |
| Cloud form | KN | 20 | 11.4 | 7.1 | 5.53 | 72 |
| amount | 8 | 30 | 9.4 | 7.1 | 5.86 | 73 |
| Transparency | 4.8m | 50 | 7.8 | 7.0 | 6.11 | 73 |
| Wave | Rippled | 73(B) | 7.2 | 6.8 | 5.18 | 61 |
| Mud temperature | 7.8°C. | | | | | |

| | | | | | | | |
|-----------------|----------------|----------|-----------|-----|-----------------------|--------------------|-----|
| Station | Ie-1 | Depth(m) | Temp.(°C) | pH | O ₂ (cc/l) | O ₂ (%) | |
| Date | Aug. 16, 1967 | 0 | 27.5 | 8.1 | 5.38 | | 97 |
| Weather | Partly Cloudy | 1 | 27.4 | 8.1 | 5.37 | | 96 |
| Air temperature | 27.9°C. | 2 | 27.4 | 8.1 | 5.37 | | 96 |
| Wind direction | — | 5 | 27.0 | 8.1 | 5.48 | | 98 |
| speed | — | 10 | 24.9 | 8.1 | 5.84 | | 100 |
| Cloud form | SC | 15 | 16.3 | 7.1 | 5.48 | | 79 |
| amount | 8 | 20 | 11.9 | 7.0 | 6.09 | | 80 |
| Transparency | 6.5m | 30 | 9.4 | 7.0 | 6.59 | | 82 |
| Wave | Smooth | 50 | 7.7 | 6.9 | 6.56 | | 78 |
| Mud temperature | 8.6°C. | 71.1(B) | 7.1 | 6.8 | 4.89 | | 58 |
| Station | Ie-1 | 0 | 24.5 | 7.5 | 5.09 | | 87 |
| Date | Sept. 19, 1967 | 1 | 24.5 | 7.5 | 5.19 | | 88 |
| Weather | Clear | 2 | 24.5 | 7.5 | 5.12 | | 87 |
| Air temperature | 24.0°C. | 5 | 24.5 | 7.5 | 4.99 | | 85 |
| Wind direction | NNE | 10 | 24.4 | 7.4 | 5.14 | | 87 |
| speed | 10m/sec. | 15 | 24.4 | 7.4 | 5.02 | | 85 |
| Cloud form | C | 20 | 15.5 | 6.9 | 4.94 | | 70 |
| amount | 2 | 30 | 10.4 | 6.9 | 5.89 | | 75 |
| Transparency | 5.2m | 50 | 7.9 | 6.9 | 5.98 | | 72 |
| Wave | Heavy | 73(B) | 7.2 | 6.8 | 4.53 | | 54 |
| Mud temperature | 8.0°C. | | | | | | |
| Station | Ie-1 | 0 | 20.4 | 7.5 | 6.33 | | 100 |
| Date | Oct. 20, 1967 | 1 | 20.0 | 7.5 | 6.63 | | 103 |
| Weather | Clear | 2 | 19.9 | 7.5 | 6.54 | | 102 |
| Air temperature | 18.5°C. | 5 | 19.7 | 7.5 | 6.38 | | 99 |
| Wind direction | — | 10 | 19.6 | 7.5 | 6.38 | | 99 |
| speed | 0m/sec. | 15 | 19.5 | 7.4 | 6.31 | | 97 |
| Cloud form | — | 20 | 13.3 | 7.3 | 6.15 | | 84 |
| amount | 5 | 30 | 9.1 | 7.0 | 6.44 | | 80 |
| Transparency | 6.9m | 50 | 7.7 | 7.0 | 6.42 | | 77 |
| Wave | Smooth | 72.8(B) | 7.1 | 6.9 | 5.13 | | 60 |
| Mud temperature | 7.5°C. | | | | | | |
| Station | Ie-1 | 0 | 15.5 | 7.5 | 5.96 | | 85 |
| Date | Nov. 15, 1967 | 1 | 15.4 | 7.5 | 5.93 | | 84 |
| Weather | Cloudy | 2 | 15.4 | 7.5 | 5.94 | | 84 |
| Air temperature | 16.5°C. | 5 | 15.4 | 7.5 | 5.95 | | 85 |
| Wind direction | N | 10 | 15.3 | 7.4 | 5.88 | | 84 |
| speed | 12m/sec. | 15 | 15.2 | 7.4 | 5.88 | | 83 |
| Cloud form | KC | 20 | 13.0 | 7.1 | 5.24 | | 71 |
| amount | 8 | 30 | 9.5 | 7.1 | 5.23 | | 65 |
| Transparency | 6.0m | 50 | 7.7 | 7.0 | 5.24 | | 63 |
| Wave | Rippled | 72(B) | 7.2 | 6.8 | 4.18 | | 50 |
| Mud temperature | 7.6°C. | | | | | | |

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|-----------------|---------------|-----------------|------------|-----|-----------------------|--------------------|--|
| Station | Ie-1 | Depth(m) | Temp. (°C) | pH | O ₂ (cc/1) | O ₂ (%) | |
| Date | Dec. 15, 1967 | 0 | 10.7 | 7.3 | 6.92 | 89 | |
| Weather | Clear | 1 | 10.7 | 7.3 | 6.62 | 85 | |
| Air temperature | 9.5°C. | 2 | 10.7 | 7.3 | 6.01 | 77 | |
| Wind direction | W | 5 | 10.7 | 7.3 | 6.89 | 88 | |
| speed | 10m/sec. | 10 | 10.7 | 7.2 | 7.47 | 96 | |
| Cloud form | — | 15 | 10.7 | 7.3 | 6.99 | 90 | |
| amount | 3 | 20 | 10.7 | 7.3 | 7.00 | 90 | |
| Transparency | 8.0m | 30 | 10.7 | 7.2 | 6.98 | 89 | |
| Wave | Moderate | 50 | 8.0 | 7.0 | 5.70 | 69 | |
| Mud temperature | 7.4°C. | 71(B) | 7.2 | 6.9 | 4.98 | 59 | |
| Station | Nb-2 | Transparency | 0.8m | | | | |
| Date | Jan. 14, 1967 | Wave | Gentle | | | | |
| Weather | Cloudy | Mud temperature | — | | | | |
| Air temperature | 3.1°C. | | | | | | |
| Wind direction | NNW | 0 | 4.8 | 7.1 | 8.14 | 91 | |
| speed | 6.0m/sec. | 1 | 4.8 | 7.1 | 7.96 | 89 | |
| Cloud form | N | 1.9(B) | 4.8 | 7.1 | 7.79 | 87 | |
| amount | 9 | | | | | | |
| Station | Nb-5 | Transparency | 2.2m | | | | |
| Date | Jan. 14, 1967 | Wave | Gentle | | | | |
| Weather | Cloudy | Mud temperature | 4.8°C. | | | | |
| Air temperature | 1.9°C. | | | | | | |
| Wind direction | NNW | 0 | 4.1 | 7.2 | 8.38 | 92 | |
| speed | 9.3m/sec. | 1 | 4.1 | 7.2 | 8.42 | 92 | |
| Cloud form | N | 2 | 4.1 | 7.2 | 8.24 | 90 | |
| amount | 8 | -(B) | 4.4 | 7.1 | 7.81 | 86 | |
| Station | Na-3 | Transparency | 0.6m | | | | |
| Date | Jan. 14, 1967 | Wave | Smooth | | | | |
| Weather | Clear | Mud temperature | 5.8°C. | | | | |
| Air temperature | 3.7°C. | | | | | | |
| Wind direction | W | 0 | 5.8 | 7.2 | 7.43 | 85 | |
| speed | 6m/sec. | 1 | 5.8 | 7.2 | 7.59 | 87 | |
| Cloud form | N | 2(B) | 5.6 | 7.1 | 7.61 | 80 | |
| amount | 6 | | | | | | |
| Station | Nb-2 | Transparency | 1.7m | | | | |
| Date | Feb. 17, 1967 | Wave | Gentle | | | | |
| Weather | Cloudy | Mud temperature | — | | | | |
| Air temperature | 3.5°C. | | | | | | |
| Wind direction | S | 0 | 4.4 | 7.3 | 8.44 | 93 | |
| speed | 6.0m/sec. | 1 | 4.3 | 7.3 | 8.38 | 92 | |
| Cloud form | — | 2(B) | 4.3 | 7.3 | 8.37 | 92 | |
| amount | 10 | | | | | | |

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|-----------------|---------------|---------------------|--------------------------------------------|-----|------|----|
| Station | Nb-5 | Transparency | 1.3m | | | |
| Date | Feb. 17, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 5.2°C. | | | |
| Air temperature | 3.6°C. | Depth(m) Temp. (°C) | pH O ₂ (cc/1)O ₂ (%) | | | |
| Wind direction | SW | 0 | 4.7 | 7.3 | 8.41 | 93 |
| speed | 8.0m/sec. | 1 | 4.6 | 7.3 | 8.46 | 94 |
| Cloud form | — | 2 | 4.6 | 7.3 | 8.31 | 92 |
| amount | 10 | 4.4(B) | 4.4 | 7.3 | 8.36 | 92 |
| | | | | | | |
| Station | Na-3 | Transparency | 1.3m | | | |
| Date | Feb. 17, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 5.8°C. | | | |
| Air temperature | 4.6°C. | | | | | |
| Wind direction | SW | 0 | 5.4 | 7.3 | 8.18 | 92 |
| speed | 5.3m/sec. | 1 | 5.3 | 7.3 | 8.12 | 91 |
| Cloud form | — | 2.1(B) | 5.3 | 7.3 | 8.14 | 92 |
| amount | 9 | | | | | |
| | | | | | | |
| Station | Nb-2 | Transparency | 0.8m | | | |
| Date | Mar. 14, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | — | | | |
| Air temperature | 13.0°C. | | | | | |
| Wind direction | S | 0 | 8.7 | 7.2 | 7.55 | 92 |
| speed | 0m/sec. | 1 | 8.6 | 7.2 | 7.53 | 92 |
| Cloud form | CS | 1.9(B) | 8.3 | 7.2 | 7.56 | 92 |
| amount | 1 | | | | | |
| | | | | | | |
| Station | Nb-5 | Transparency | 1.7m | | | |
| Date | Mar. 14, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 8.4°C. | | | |
| Air temperature | 12.9°C. | | | | | |
| Wind direction | E | 0 | 9.0 | 7.3 | 7.89 | 97 |
| speed | 2.7m/sec. | 1 | 8.6 | 7.3 | 7.93 | 97 |
| Cloud form | — | 2 | 8.3 | 7.3 | 7.94 | 96 |
| amount | 1 | 4.5(B) | 8.1 | 7.3 | 7.92 | 96 |
| | | | | | | |
| Station | Na-3 | Transparency | 0.7m | | | |
| Date | Mar. 14, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 8.8°C. | | | |
| Air temperature | 14.0°C. | | | | | |
| Wind direction | E | 0 | 9.1 | 7.2 | 7.75 | 96 |
| speed | 2.7m/sec. | 1 | 9.1 | 7.2 | 7.75 | 96 |
| Cloud form | C | —(B) | 8.8 | 7.2 | 7.70 | 95 |
| amount | 1 | | | | | |

| | | | | | | |
|-----------------|---------------|--------------------|--------------------------------------------|-----|------|-----|
| Station | Nb-2 | Transparency | 1.1m | | | |
| Date | Apr. 17, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 11.6°C. | | | |
| Air temperature | 17.6°C. | Depth(m) Temp.(°C) | pH O ₂ (cc/1)O ₂ (%) | | | |
| Wind direction | N | 0 | 12.4 | 7.3 | 7.72 | 103 |
| speed | 4.5m/sec. | 1 | 11.9 | 7.3 | 7.72 | 102 |
| Cloud form | SK | 2.1(B) | 11.5 | 7.3 | 7.68 | 100 |
| amount | 9 | | | | | |
| | | | | | | |
| Station | Nb-5 | Transparency | 1.5m | | | |
| Date | Apr. 17, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 10.8°C. | | | |
| Air temperature | 14.0°C. | | | | | |
| Wind direction | NE | 0 | 11.9 | 7.4 | 7.99 | 105 |
| speed | 4.5m/sec. | 1 | 11.6 | 7.4 | 7.85 | 103 |
| Cloud form | SK | 2 | 11.4 | 7.4 | 7.95 | 103 |
| amount | 9 | 4.7(B) | 10.9 | 7.3 | 7.57 | 98 |
| | | | | | | |
| Station | Na-3 | Transparency | 1.3m | | | |
| Date | Apr. 17, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 12.0°C. | | | |
| Air temperature | 12.8°C. | | | | | |
| Wind direction | NE | 0 | 12.5 | 7.1 | 7.41 | 99 |
| speed | 4.5m/sec. | 1 | 12.5 | 7.1 | 7.59 | 101 |
| Cloud form | SK | 2.3(B) | 12.3 | 7.1 | 7.52 | 100 |
| amount | 10 | | | | | |
| | | | | | | |
| Station | Nb-2 | Transparency | 1.0m | | | |
| Date | May 16, 1967 | Wave | Smooth | | | |
| Weather | Cloudy | Mud temperature | — | | | |
| Air temperature | 20.9°C. | | | | | |
| Wind direction | — | 0 | 18.1 | 7.5 | 6.81 | 103 |
| speed | 0m/sec. | 1 | 17.8 | 7.5 | 6.83 | 102 |
| Cloud form | C | 2.1(B) | 17.1 | 7.5 | 6.91 | 102 |
| amount | 5 | | | | | |
| | | | | | | |
| Station | Nb-5 | Transparency | 1.6m | | | |
| Date | May 16, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 16.3°C. | | | |
| Air temperature | 20.0°C. | | | | | |
| Wind direction | — | 0 | 19.3 | 7.6 | 7.13 | 110 |
| speed | 0 m/sec. | 1 | 18.8 | 7.6 | 7.24 | 110 |
| Cloud form | C | 2 | 18.2 | 7.6 | 7.19 | 108 |
| amount | 3 | 4.5(B) | 17.5 | 7.5 | 6.87 | 102 |

| | | | | | | |
|-----------------|---------------|--------------------------------------------------------------|---------|-----|------|-----|
| Station | Na-3 | Transparency | 1.4m | | | |
| Date | May 16, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 18.9°C. | | | |
| Air temperature | 24.0°C. | Depth(m) Temp. (°C)pHO ₂ (cc/1)O ₂ (%) | | | | |
| Wind direction | SE | 0 | 19.8 | 7.6 | 7.02 | 109 |
| speed | 1.8m/sec. | 1 | 19.6 | 7.6 | 7.14 | 111 |
| Cloud form | C | 2.2(B) | 19.7 | 7.6 | 7.03 | 109 |
| amount | 2 | | | | | |
| | | | | | | |
| Station | Nb-2 | Transparency | 1.0m | | | |
| Date | June 16, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | — | | | |
| Air temperature | 26.9°C. | | | | | |
| Wind direction | N | 0 | 25.3 | 7.4 | 5.05 | 86 |
| speed | 2.0m/sec. | 1 | 24.2 | 7.5 | 5.31 | 89 |
| Cloud form | CS | 1.6(B) | 24.1 | 7.5 | 5.26 | 89 |
| amount | 7 | | | | | |
| | | | | | | |
| Station | Nb-5 | Transparency | 2.5m | | | |
| Date | June 16, 1967 | Wave | Gentle | | | |
| Weather | Cloudy | Mud temperature | 23.2°C. | | | |
| Air temperature | 24.0°C. | | | | | |
| Wind direction | NE | 0 | 24.3 | 7.5 | 5.30 | 90 |
| speed | 3.5m/sec. | 1 | 24.3 | 7.5 | 5.41 | 91 |
| Cloud form | CS | 2 | 23.9 | 7.5 | 5.01 | 84 |
| amount | 7 | 4.1(B) | 23.5 | 7.5 | 5.14 | 86 |
| | | | | | | |
| Station | Na-3 | Transparency | 1.2m | | | |
| Date | June 16, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 24.5°C. | | | |
| Air temperature | 24.4°C. | | | | | |
| Wind direction | E | 0 | 25.3 | 7.6 | 5.54 | 95 |
| speed | 1.8m/sec. | 1 | 26.1 | 7.6 | 5.24 | 91 |
| Cloud form | CS | 1.8(B) | 25.9 | 7.6 | 4.87 | 85 |
| amount | 8 | | | | | |
| | | | | | | |
| Station | Nb-2 | Transparency | 0.8m | | | |
| Date | July 15, 1967 | Wave | Gentle | | | |
| Weather | Cloudy | Mud temperature | — | | | |
| Air temperature | 26.8°C. | | | | | |
| Wind direction | NW | 0 | 26.5 | 7.8 | 6.27 | 110 |
| speed | 2.5m/sec. | 1 | 26.2 | 7.8 | 6.39 | 111 |
| Cloud form | CS | 2.2(B) | 26.0 | 7.6 | 6.17 | 108 |
| amount | 8 | | | | | |

| | | | | | | |
|-----------------|------------------------------|--------------------|--------------------------------------------|-----|------|-----|
| Station | Nb-5 | Transparency | 1.0m | | | |
| Date | July 15, 1967 | Wave | Gentle | | | |
| Weather | Cloudy | Mud temperature | 22.3°C. | | | |
| Air temperature | 26.8°C. | Depth(m) Temp.(°C) | pH O ₂ (cc/1)O ₂ (%) | | | |
| Wind direction | NW | 0 | 25.3 | 8.4 | 5.74 | 99 |
| speed | 5.0m/sec. | 1 | 25.2 | 8.4 | 6.04 | 104 |
| Cloud form | CS | 2 | 25.1 | 8.4 | 5.89 | 101 |
| amount | 9 | 4.8(B) | 22.4 | 7.2 | 4.84 | 79 |
| <hr/> | | | | | | |
| Station | Na-3 | Transparency | 1.2m | | | |
| Date | July 15, 1967 | Wave | Rippled | | | |
| Weather | Cloudy | Mud temperature | 24.2°C. | | | |
| Air temperature | 27.4°C. | | | | | |
| Wind direction | NW | 0 | 25.7 | 7.8 | 5.45 | 94 |
| speed | 4.0m/sec. | 1 | 25.5 | 7.8 | 5.83 | 100 |
| Cloud form | CS | 2.5(B) | 24.8 | 7.2 | 5.17 | 88 |
| amount | 10 | | | | | |
| <hr/> | | | | | | |
| Station | Nb-2 | Transparency | 1.4m | | | |
| Date | Aug. 15, 1967 | Wave | Rippled | | | |
| Weather | Cloudy after thunderstorm | Mud temperature | — | | | |
| Air temperature | 26.4°C. | 0 | 28.1 | 7.3 | 5.46 | 99 |
| Wind direction | NE | 1 | 28.1 | 7.5 | 5.50 | 100 |
| speed | 1.0m/sec. | 1.8(B) | 28.0 | 7.5 | 5.50 | 99 |
| Cloud form | SK | | | | | |
| amount | 9 | | | | | |
| <hr/> | | | | | | |
| Station | Nb-5 | Transparency | 2.3m | | | |
| Date | Aug. 15, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 24.8°C. | | | |
| Air temperature | 27.8°C. | | | | | |
| Wind direction | — | 0 | 27.4 | 7.9 | 5.58 | 99 |
| speed | 0m/sec. | 1 | 27.2 | 7.8 | 5.55 | 99 |
| Cloud form | KC | 2 | 27.1 | 7.8 | 5.64 | 101 |
| amount | 6 | 4(B) | 24.6 | 7.5 | 5.35 | 91 |
| <hr/> | | | | | | |
| Station | Na-3 | Transparency | 1.5m | | | |
| Date | Aug. 15, 1967 | Wave | Smooth | | | |
| Weather | Cloudy | Mud temperature | 27.6°C. | | | |
| Air temperature | 28.6°C. | | | | | |
| Wind direction | — | 0 | 28.2 | 8.2 | 6.22 | 113 |
| speed | 0 m/sec. | 1 | 27.6 | 8.2 | 6.07 | 109 |
| Cloud form | SK | 1.9(B) | 27.2 | 8.0 | 5.89 | 105 |
| amount | 9 | | | | | |

| | | | | | | |
|-----------------|----------------|--------------------|---------|-----------------------------------------|------|-----|
| Station | Nb-2 | Transparency | 0.9m | | | |
| Date | Sept. 20, 1967 | Wave | Smooth | | | |
| Weather | Cloudy | Mud temperature | — | | | |
| Air temperature | 22.9°C. | Depth(m) Temp.(°C) | pH | O ₂ (cc/1)O ₂ (%) | | |
| Wind direction | — | 0 | 22.9 | 7.3 | 5.19 | 85 |
| speed | 0m/sec. | 1 | 22.8 | 7.3 | 5.17 | 85 |
| Cloud form | N | 1.6(B) | 22.8 | 7.3 | 5.22 | 86 |
| amount | 10 | | | | | |
| <hr/> | | | | | | |
| Station | Nb-5 | Transparency | 1.4m | | | |
| Date | Sept. 20, 1967 | Wave | Smooth | | | |
| Weather | Cloudy | Mud temperature | 24.2°C. | | | |
| Air temperature | 22.6°C. | 0 | 24.3 | 7.6 | 5.22 | 88 |
| Wind direction | — | 1 | 24.2 | 7.6 | 5.17 | 87 |
| speed | 0m/sec. | 2 | 24.2 | 7.6 | 5.20 | 88 |
| Cloud form | N | 4.1(B) | 24.2 | 7.5 | 5.18 | 87 |
| amount | 10 | | | | | |
| <hr/> | | | | | | |
| Station | Na-3 | Transparency | 1.4m | | | |
| Date | Sept. 20, 1967 | Wave | Smooth | | | |
| Weather | Cloudy | Mud temperature | 24.0°C. | | | |
| Air temperature | 22.6°C. | 0 | 23.7 | 8.0 | 5.57 | 93 |
| Wind direction | — | 1 | 23.7 | 8.0 | 5.67 | 95 |
| speed | 0m/sec. | —(B) | 23.3 | 8.0 | 5.40 | 90 |
| Cloud form | N | | | | | |
| amount | 10 | | | | | |
| <hr/> | | | | | | |
| Station | Nb-2 | Transparency | 1.3m | | | |
| Date | Oct. 21, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | — | | | |
| Air temperature | 19.8°C. | 0 | 17.3 | 7.5 | 6.75 | 100 |
| Wind direction | — | 1 | 17.2 | 7.5 | 6.62 | 98 |
| speed | 0m/sec. | 1.3(B) | 17.2 | 7.5 | 6.67 | 98 |
| Cloud form | KC | | | | | |
| amount | 2 | | | | | |
| <hr/> | | | | | | |
| Station | Nb-5 | Transparency | 1.0m | | | |
| Date | Oct. 21, 1967 | Wave | Rippled | | | |
| Weather | Clear | Mud temperature | 18.4°C. | | | |
| Air temperature | 21.1°C. | 0 | 18.2 | 7.5 | 6.34 | 96 |
| Wind direction | SW | 1 | 18.3 | 7.5 | 6.47 | 98 |
| speed | 5.8m/sec. | 2 | 18.2 | 7.5 | 6.49 | 98 |
| Cloud form | KC | 3.8(B) | 17.6 | 7.3 | 6.11 | 91 |
| amount | 2 | | | | | |

| | | | | | | |
|-----------------|---------------|--------------------|--------------------------------------------|-----|------|-----|
| Station | Na-3 | Transparency | 1.5m | | | |
| Date | Oct. 21, 1967 | Wave | Rippled | | | |
| Weather | Clear | Mud temperature | 18.6°C. | | | |
| Air temperature | 21.5°C. | Depth(m) Temp.(°C) | pH O ₂ (cc/1)O ₂ (%) | | | |
| Wind direction | S | 0 | 18.5 | 8.1 | 7.07 | 107 |
| speed | 2.3m/sec. | 1 | 18.5 | 8.0 | 7.21 | 109 |
| Cloud form | KC | 1.5(B) | 18.4 | 8.1 | 7.36 | 112 |
| amount | 3 | | | | | |
| | | | | | | |
| Station | Nb-2 | Transparency | 1.4m | | | |
| Date | Nov. 16, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | — | | | |
| Air temperature | 13.7°C. | | | | | |
| Wind direction | NNE | 0 | 12.4 | 7.5 | 6.20 | 83 |
| speed | 1.5m/sec. | 1 | 12.4 | 7.5 | 6.21 | 83 |
| Cloud form | SK | -(B) | 12.4 | 7.5 | 6.21 | 83 |
| amount | 5 | | | | | |
| | | | | | | |
| Station | Nb-5 | Transparency | 1.0m | | | |
| Date | Nov. 16, 1967 | Wave | Rippled | | | |
| Weather | Clear | Mud temperature | 13.6°C. | | | |
| Air temperature | 13.8°C. | | | | | |
| Wind direction | SW | 0 | 12.7 | 7.5 | 6.22 | 84 |
| speed | 5.0m/sec. | 1 | 12.6 | 7.5 | 6.23 | 83 |
| Cloud form | SK | 2 | 12.5 | 7.5 | 6.38 | 85 |
| amount | 6 | 4.1(B) | 12.8 | 7.5 | 6.12 | 82 |
| | | | | | | |
| Station | Na-3 | Transparency | 1.5m | | | |
| Date | Nov. 16, 1967 | Wave | Smooth | | | |
| Weather | Clear | Mud temperature | 13.4°C. | | | |
| Air temperature | 14.2°C. | | | | | |
| Wind direction | — | 0 | 13.1 | 7.5 | 5.80 | 78 |
| speed | 0m/sec. | 1 | 13.1 | 7.5 | 5.80 | 78 |
| Cloud form | SK | 1.8(B) | 13.0 | 7.5 | 5.81 | 78 |
| amount | 5 | | | | | |
| | | | | | | |
| Station | Nb. 2 | Transparency | 0.5m | | | |
| Date | Dec. 16, 1967 | Wave | Moderate | | | |
| Weather | Clear | Mud temperature | — | | | |
| Air temperature | 6.2°C. | | | | | |
| Wind direction | SW | 0 | 5.2 | 7.4 | 8.32 | 94 |
| speed | 9.5m/sec. | 1 | 5.2 | 7.4 | 8.32 | 94 |
| Cloud form | SK | 1.5(B) | 5.2 | 7.4 | 8.31 | 93 |
| amount | 3 | | | | | |

| | | | | | | |
|-----------------|---------------|---------------------|-------------------------------------------|-----|------|----|
| Station | Nb-5 | Transparency | 3.0m | | | |
| Date | Dec. 16, 1967 | Wave | Gentle | | | |
| Weather | Clear | Mud temperature | 7.6°C. | | | |
| Air temperature | 7.3°C. | Depth(m) Temp. (°C) | pHO ₂ (cc/1)O ₂ (%) | | | |
| Wind direction | SW | 0 | 6.1 | 7.4 | 8.22 | 95 |
| speed | 7.0m/sec. | 1 | 6.1 | 7.4 | 8.18 | 94 |
| Cloud form | SK | 2 | 6.1 | 7.4 | 8.25 | 95 |
| amount | 3 | 3.9(B) | 6.1 | 7.4 | 8.15 | 94 |
| | | | | | | |
| Station | Na-3 | Transparency | 1.8m | | | |
| Date | Dec. 16, 1967 | Wave | Rippled | | | |
| Weather | Clear | Mud temperature | 6.4°C. | | | |
| Air temperature | 8.4°C. | | | | | |
| Wind direction | SW | 0 | 5.9 | 7.4 | 8.12 | 93 |
| speed | 4.3m/sec. | 1 | 5.9 | 7.4 | 8.12 | 93 |
| Cloud form | SK | 1.8(B) | 5.9 | 7.4 | 8.09 | 93 |
| amount | 3 | | | | | |
| | | | | | | |

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