APPENDICES

APPENDIX A

WATER COLUMN PROFILES OF TEMPERATURE, SALINITY, DISSOLVED OXYGEN, AND TURBIDITY

LIST OF FIGURES

Figure		Page
A-1	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 9 May 2002	A-7
A-2	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 9 May 2002	A-8
A-3	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 9 May 2002	A-9
A-4	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 19 June 2002	A-10
A-5	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 19 June 2002	A-11
A-6	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 19 June 2002	A-12
A-7	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 25 June 2002	A-13
A-8	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 25 June 2002	A-14
A-9	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 25 June 2002	A-15
A-10	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 30 July 2002	A-16
A-11	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 30 July 2002	A-17
A-12	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 30 July 2002	A-18
A-13	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 30 July 2002	A-19
A-14	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 30 August 2002	A-20

LIST OF FIGURES
(Continued)

Figure		Page
A-15	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 30 August 2002	A-21
A-16	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 30 August 2002	A-22
A-17	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 30 August 2002	A-23
A-18	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 24 September 2002	A-24
A-19	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 24 September 2002	A-25
A-20	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 24 September 2002	A-26
A-21	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 24 September 2002	A-27
A-22	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 22 October 2002	A-28
A-23	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations 22 October 2002	A-29
A-24	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations 22 October 2002	A-30
A-25	Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 22 October 2002	A-31

This appendix presents brief descriptions of the water column profiles by survey. For ease of presentation, all figures are shown at the end of the appendix.

May. A thermocline and anoxic conditions occurred in the Little Bay pits. Profiles from the May survey are shown in **Figures A-1** to **A-3**. Temperature at the near surface in all profiles was about 15°C. In the upper water column of the Little Bay and Norton Basin pits and the shallows, the Norton Basin Entrance Channel, and Grass Hassock Channel, temperature was constant with depth relatively, and generally comparable among stations. However, the lower water column in the Little Bay pits showed a thermocline at a depth of 25 to 35 ft. Below the thermocline in the Little Bay pits, the temperature was less than 6°C near the bottom. While the upper water column was supersaturated with respect to oxygen in all profiles, i.e., well oxygenated, there were anoxic conditions in the Little Bay pit below the thermocline. In the Norton Basin pits, lower oxygen (4 to 5 mg/l) levels occurred near the bottom compared to the surface, but hypoxic or anoxic conditions were not evident. All other profiles showed well oxygenated conditions from the surface to the bottom. Salinity at the surface was 26 ppt and unremarkable in general in all stations, varying by only 3 ppt with depth through the water column at most. Turbidity was low, similar among all the profiles, and relatively constant with depth except in the Little Bay pits where profiles showed slightly higher values near the anoxic layer in Little Bay. Profiles from the Norton Basin pits, the shallows in Little Bay and Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel showed typical well mixed, well oxygenated estuarine conditions.

June 19. **Figures A-4** to **A-6** show profiles from the June 19 survey. A thermocline and anoxic conditions occurred in the Little Bay pits when near surface temperature increased to 20°C. With the exception of the Little Bay pits, temperature was constant generally with depth in all profiles. A sharp thermocline occurred in the Little Bay pits at 25 to 30 ft and with low temperature (i.e., <6°C) at the bottom. The thermocline and low temperatures did not occur in other profiles. While the upper water column was oxygenated (4 to 6 mg/l) in all profiles, there were anoxic conditions in the Little Bay pits below the thermocline. One Little Bay shallow profile showed anoxic conditions on the bottom. Hypoxic conditions also occurred in the Little Bay shallows and in the Norton Basin pit. Salinity was 25 ppt on the surface and was unremarkable in general with only slight increases with depth in the deeper profiles. Turbidity was low through most of the water column in all profiles except for a turbidity peak above the thermocline in the Little Bay pits. Profiles from the Norton Basin pits, the shallows in Little Bay and Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel showed typical well mixed estuarine conditions.

June 25. A thermocline and anoxic conditions occurred in the Little Bay pits. **Figures A-7** to **A-9** show profiles from the June 25 survey. Temperature at the near surface was slightly higher (23°C to 24°C) than the previous survey. A sharp thermocline occurred at 30 to 40 ft, and below the thermocline the temperature was about 6°C. While dissolved oxygen (DO) at the near surface ranged between 5 to 8 mg/l among all the profiles, below a depth of 25 ft, hypoxic and anoxic conditions were present in the pits in Little Bay. In contrast, profiles from the shallows in Little Bay, shallows in Norton Basin, the Norton Basin Entrance Channel, and the Grass Hassock Channel showed typical well mixed estuarine conditions where DO values usually were higher than 4 mg/l. DO on the bottom of Norton Basin pits, decreased to 3 mg/l, but hypoxic or anoxic conditions did not occur. As observed in previous surveys, turbidity was low through the water column in most of the profiles. A peak in turbidity associated with the thermocline in the Little Bay pit also occurred. The

June surveys showed that the bottom layer remains cold, the thermocline becomes more pronounced through the summer, and anoxia below the thermocline in the Little Bay pits is persistent. In contrast, a thermocline and anoxic conditions did not occur in Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel.

July. As indicated in **Figures A-10** to **A-13**, in July, a thermocline was present in the Little Bay pits but not in other profiles. Temperature at the near surface was slightly warmer in July at 25°C. Profiles showed that there were stratified conditions in the pits in Little Bay below a depth of 25 ft. Below the thermocline, the temperature was about 6°C. There was no thermocline evident in shallow stations and all stations in Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel. In one profile from the Little Bay Entrance Channel located near Little Bay, there also was cold water on the bottom. DO data during the July survey were considered unreliable due to equipment problems and are not presented. Salinity was 26 ppt at the near surface and was unremarkable except for a slight increase in salinity at depth in the pits of both embayments. Turbidity values also were low and showed a peak above the thermocline in Little Bay. Profiles from the shallows in Little Bay and Norton Basin, the Norton Basin pit, the Norton Basin Entrance Channel, the Little Bay Entrance Channel, and Grass Hassock Channel showed typical well mixed estuarine conditions. The July survey further documented the persistence of anoxia along with low temperature in the bottom layer and a thermocline in the Little Bay pits that becomes more pronounced throughout the summer.

August. A thermocline also was present in the Little Bay pits in August but not in other profiles as shown in **Figures A-14** to **A-17**. While there were slightly lower near surface temperatures due to recent rains, a few feet below the surface, temperature was 25°C in most profiles and remained relatively unchanged with depth except in the Little Bay pits. Profiles showed strongly stratified conditions in the Little Bay pits below a depth of 30 ft, where temperature was about 6°C near the bottom. In contrast, there was no thermocline in profiles from the Little Bay shallows, the Norton Basin pits and shallows, the Norton Basin Entrance Channel, the Little Bay Entrance Channel, and Grass Hassock Channel. The upper water column in the Little Bay and Norton Basin pits and the entire water column in the Little Bay and Norton Basin shallows, the Norton Basin Entrance Channel, and the Grass Hassock Channel was well oxygenated. DO at the near surface ranged between 5 to 7 mg/l in all the profiles. The pits in Little Bay showed anoxic conditions below a depth of 35 ft. DO also was lower at depth in the Norton Basin pits but remained greater than 2 mg/l. Salinity was lower near the surface (24 ppt to 25 ppt) due to recent rains and then increased to 28 ppt at depth in deeper profiles from the pits in both embayments. Turbidity was low also in general except for high values in the Grass Hassock Channel, which was likely due to recent rains. Profiles in the shallows in Little Bay and Norton Basin and the Norton Basin Entrance Channel, the Little Bay Entrance Channel, and Grass Hassock Channel showed typical well mixed, well oxygenated estuarine conditions. The survey further documented the presence of low bottom temperatures, a thermocline, and the persistence of anoxic conditions throughout the summer in the Little Bay pits.

September. With the onset of fall, temperatures were lower in September compared to the previous survey (**Figures A-18** to **A-21**). Surface temperature was 22°C in all profiles and remained unchanged with depth in general in all profiles except in the Little Bay pits. As shown, there was a strong thermocline in the Little Bay pits. Below a depth of 45 ft, water was about 6°C. In contrast, there was no thermocline evident in the Norton Basin pits, the shallows in both embayments, the Little Bay and Norton Basin Entrance Channels, and Grass Hassock Channel. The upper water column in the pits and much of the entire water

column in the other areas were well oxygenated with DO ranging from 4 to 6 mg/l. Below the thermocline in the Little Bay pits, DO was zero. In contrast, DO on the bottom of the Norton Basin pits remained about 4 mg/l. Salinity was 27 ppt at the surface in all profiles and remained unchanged with depth in general except for a slight increase with depth in the pits. Turbidity was slightly higher than in previous surveys and also showed an even greater peak just above the thermocline in the Little Bay pits. Profiles in the shallow stations in Little Bay and Norton Basin and the stations in the Norton Basin Entrance Channel, Little Bay Entrance Channel, and Grass Hassock Channel showed typical well mixed, well oxygenated estuarine conditions. The presence of low bottom temperatures, a thermocline, and the persistence of anoxic conditions in the Little Bay pits into fall were documented by this survey.

October. Water temperatures further decreased in October compared to September (**Figures A-22** to **A-25**). A thermocline and anoxic conditions occurred in the Little Bay pits in October when temperature at the surface in all profiles was 14°C to 16°C. There was a sharp thermocline evident in profiles from pit stations in Little Bay. Below a depth of 35 to 40 ft, temperatures were about 6°C at depth. There was no thermocline evident in the Norton Basin pits, the shallow stations in both embayments, the Little Bay and Norton Basin Entrance Channels, and Grass Hassock Channel. Except for the bottom of Little Bay below the thermocline, well oxygenated conditions (4 to 7 mg/l) occurred in all other areas surveyed. Anoxic conditions were present on the bottom of the Little Bay pits below the thermocline. DO at the surface in Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel was lower than at depth, suggesting relatively higher oxygen consumption rates at the surface. Salinity was 26 ppt at the surface and remained unchanged with depth except for an increase in the Little Bay pit stations to 30 ppt at the level of the thermocline. Turbidity was similar to the previous survey and also showed a sharp peak about the level of the thermocline in the Little Bay pits. Profiles from the shallows in Little Bay and Norton Basin, Norton Basin pit, the Little Bay and Norton Basin Entrance Channels, and Grass Hassock Channel showed typical well mixed, well oxygenated estuarine conditions. The survey further documented the presence of low bottom temperatures, a thermocline, and the persistence of anoxic conditions throughout the fall in the Little Bay pits.

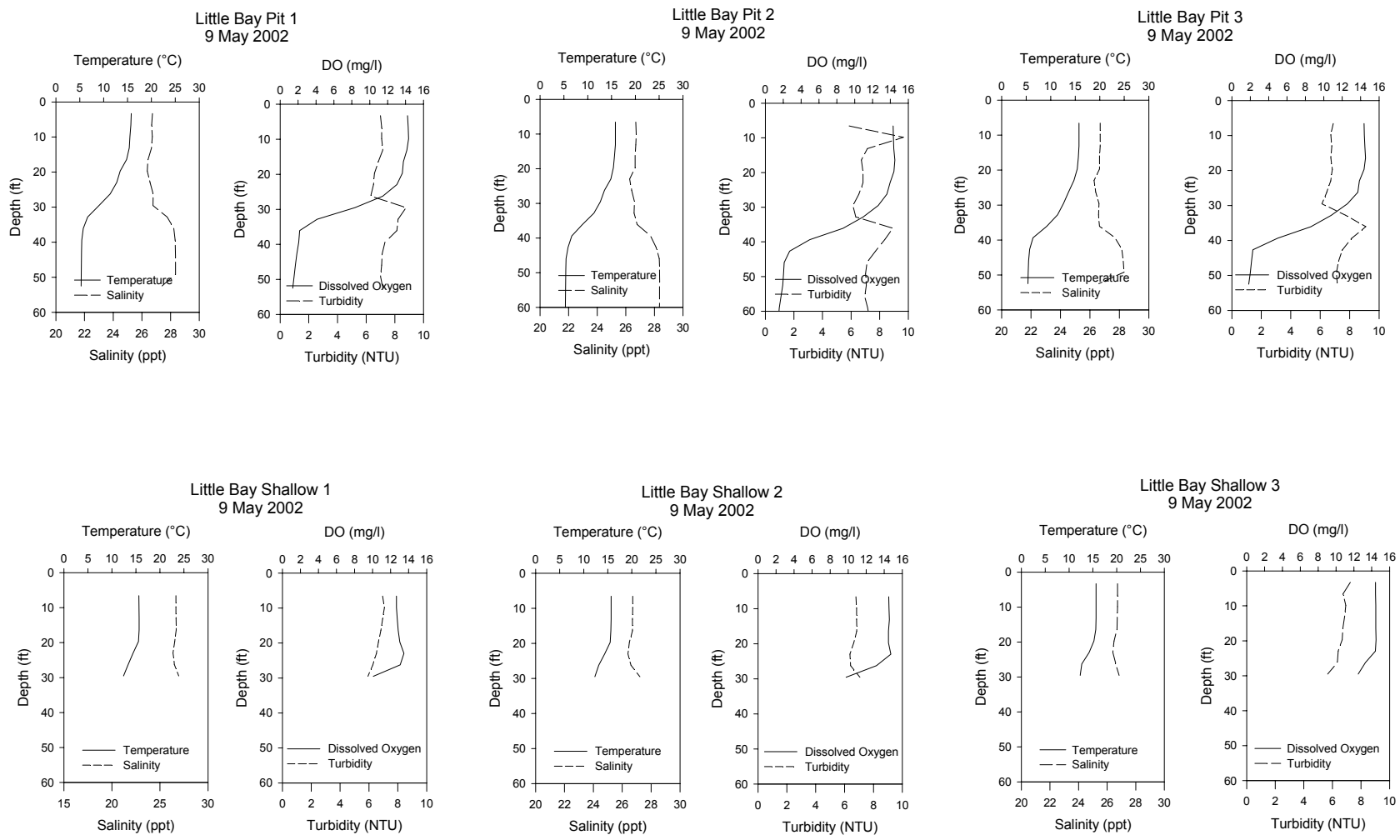


Figure A-1. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 9 May 2002.

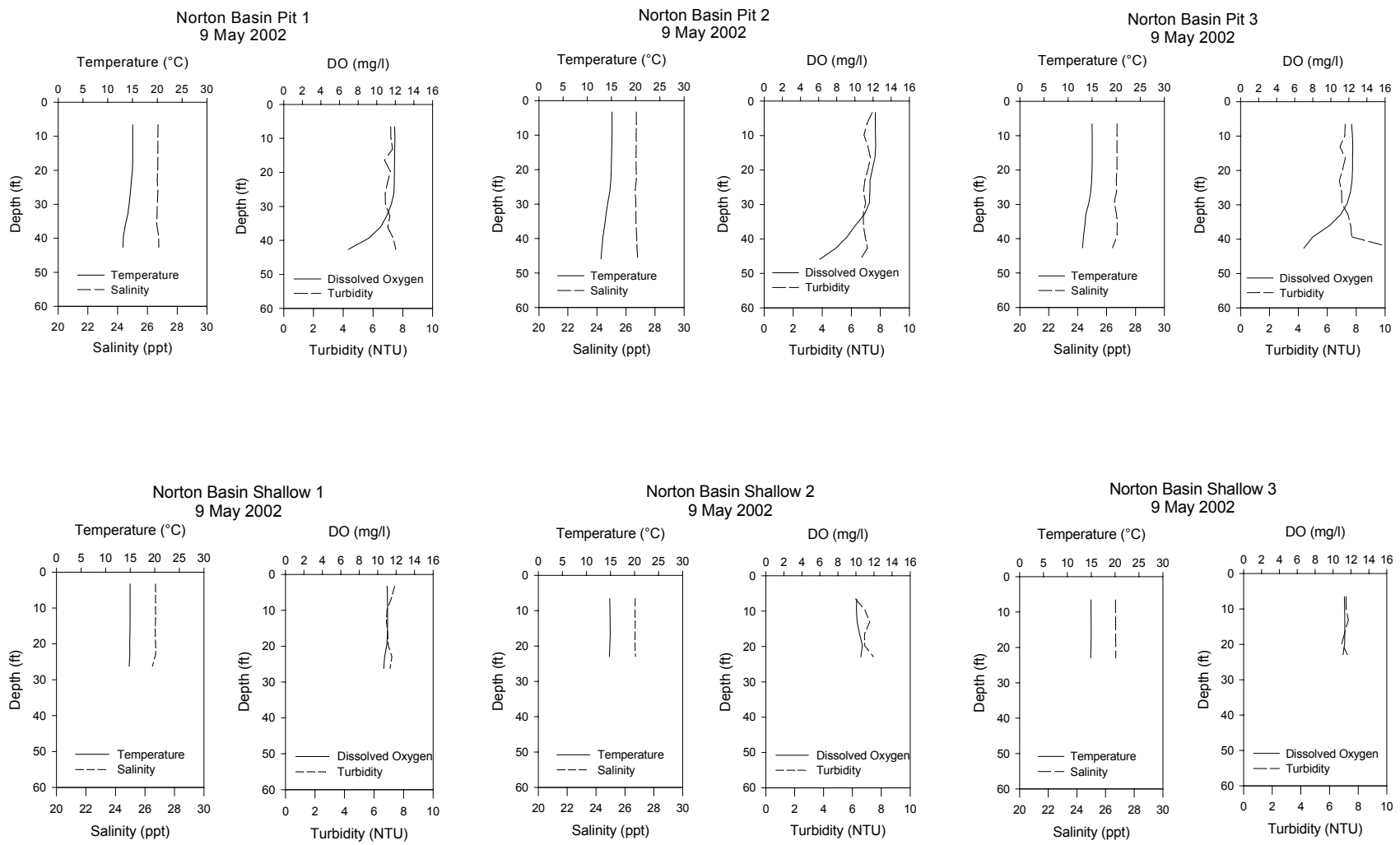


Figure A-2. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 9 May 2002.

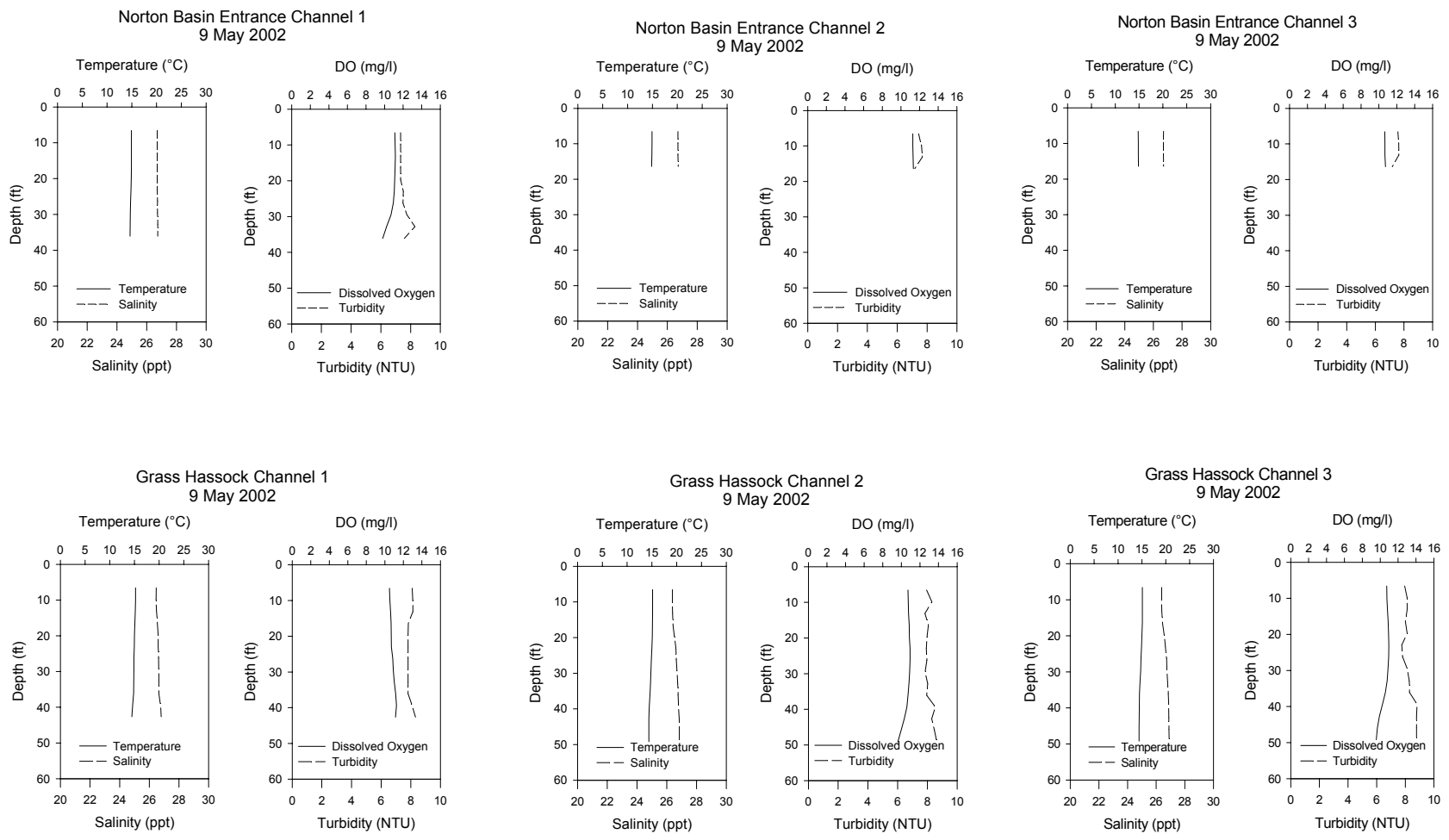


Figure A-3. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 9 May 2002.

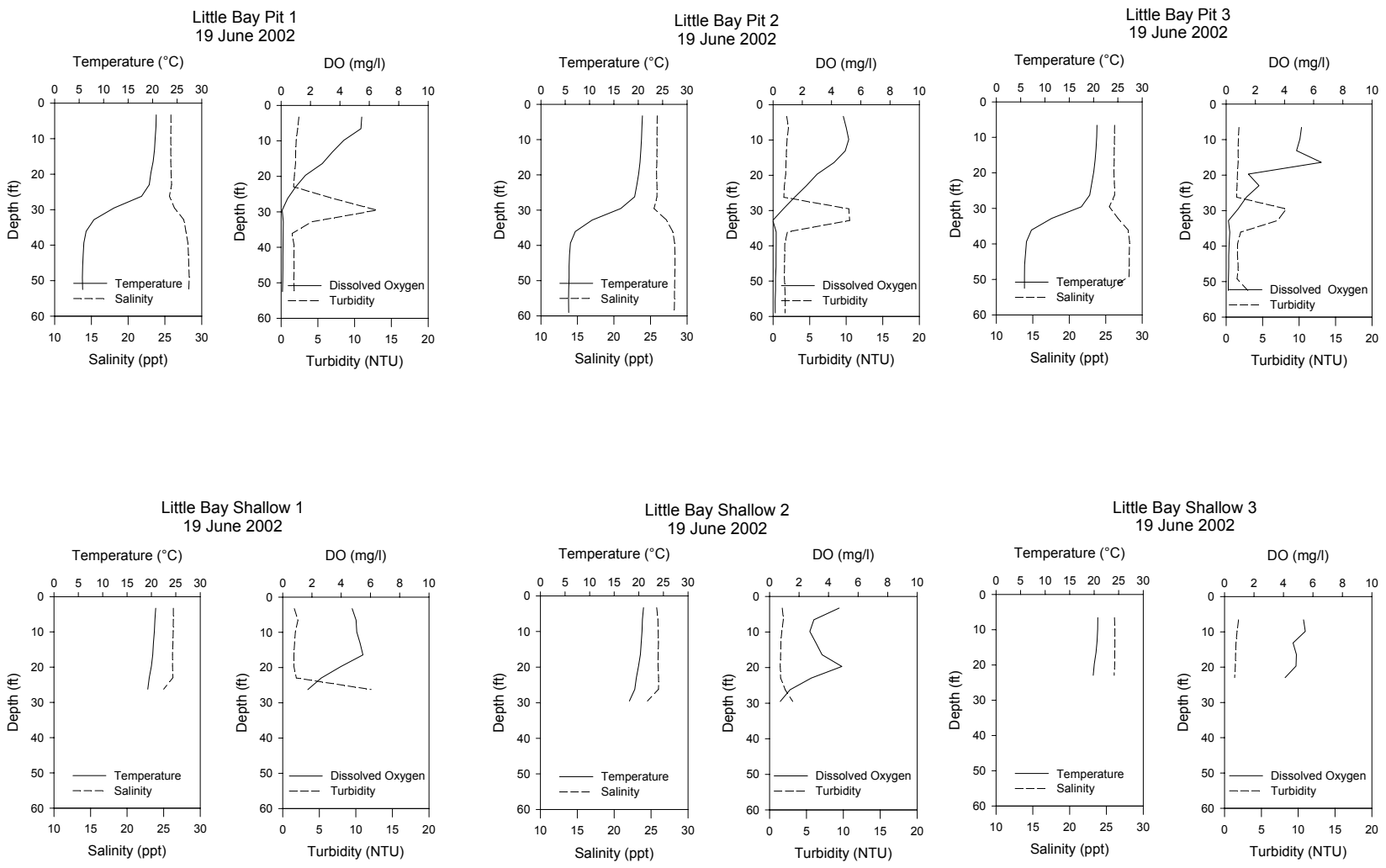


Figure A-4. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 19 June 2002.

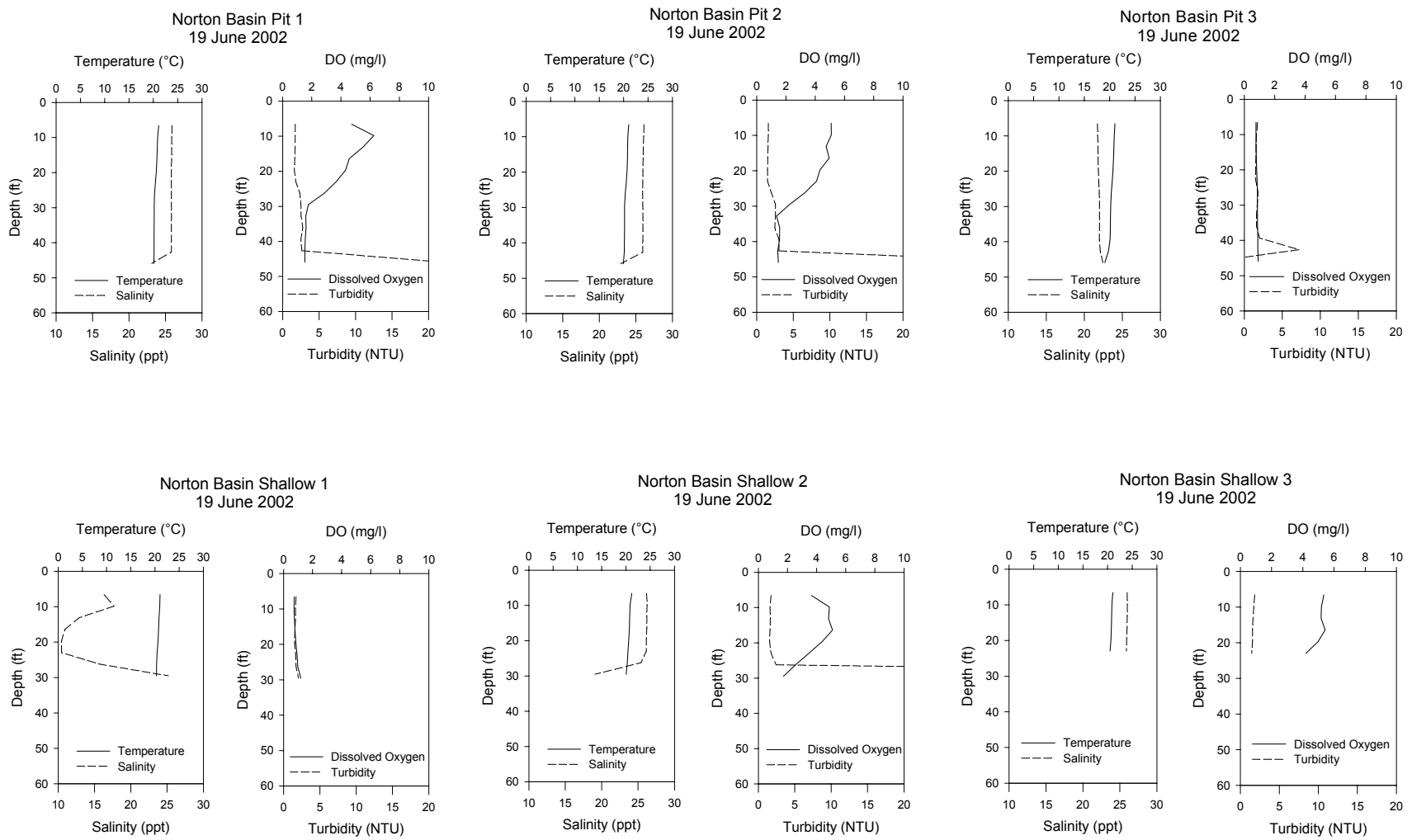


Figure A-5. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 19 June 2002.

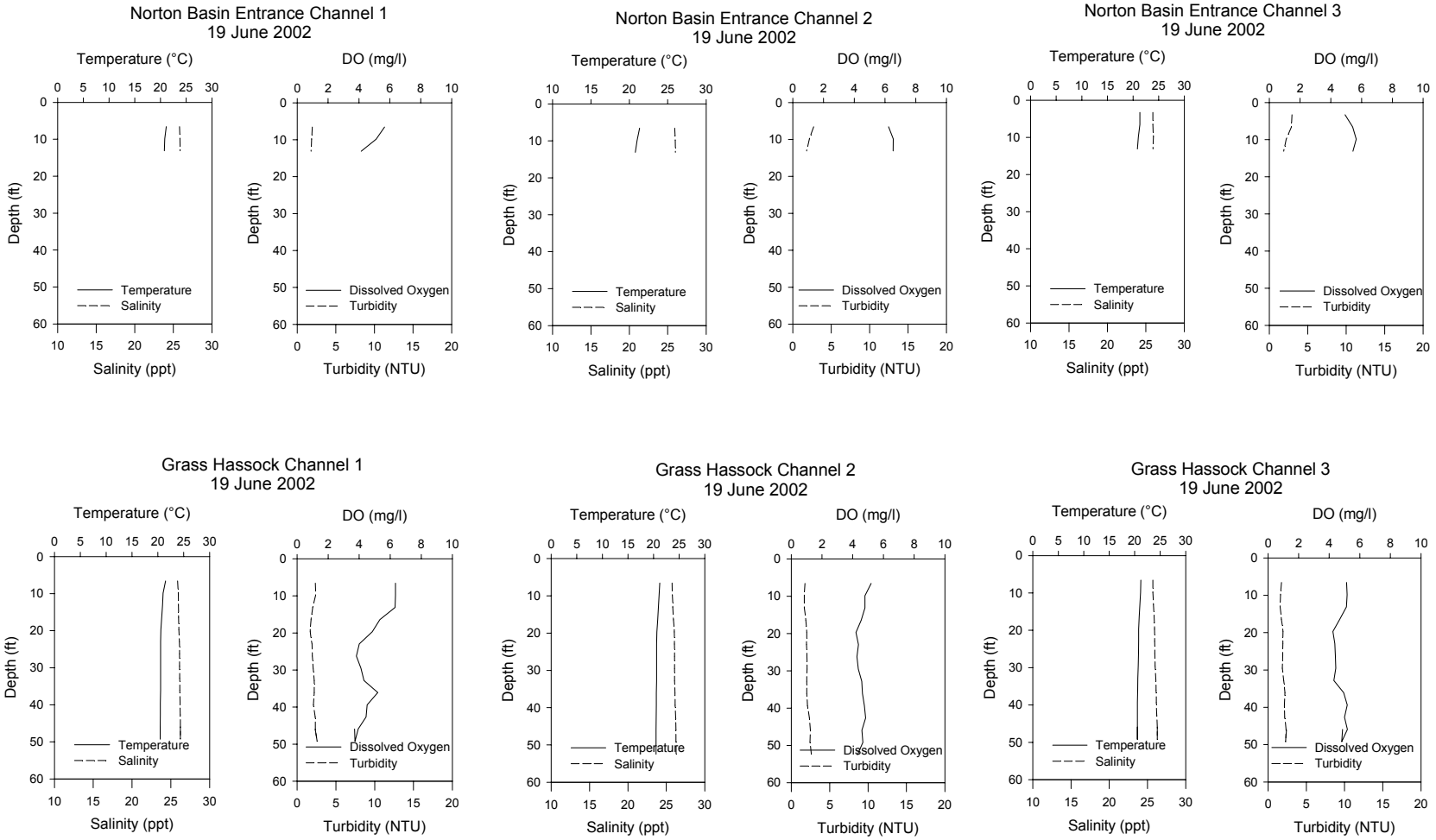


Figure A-6. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 19 June 2002.

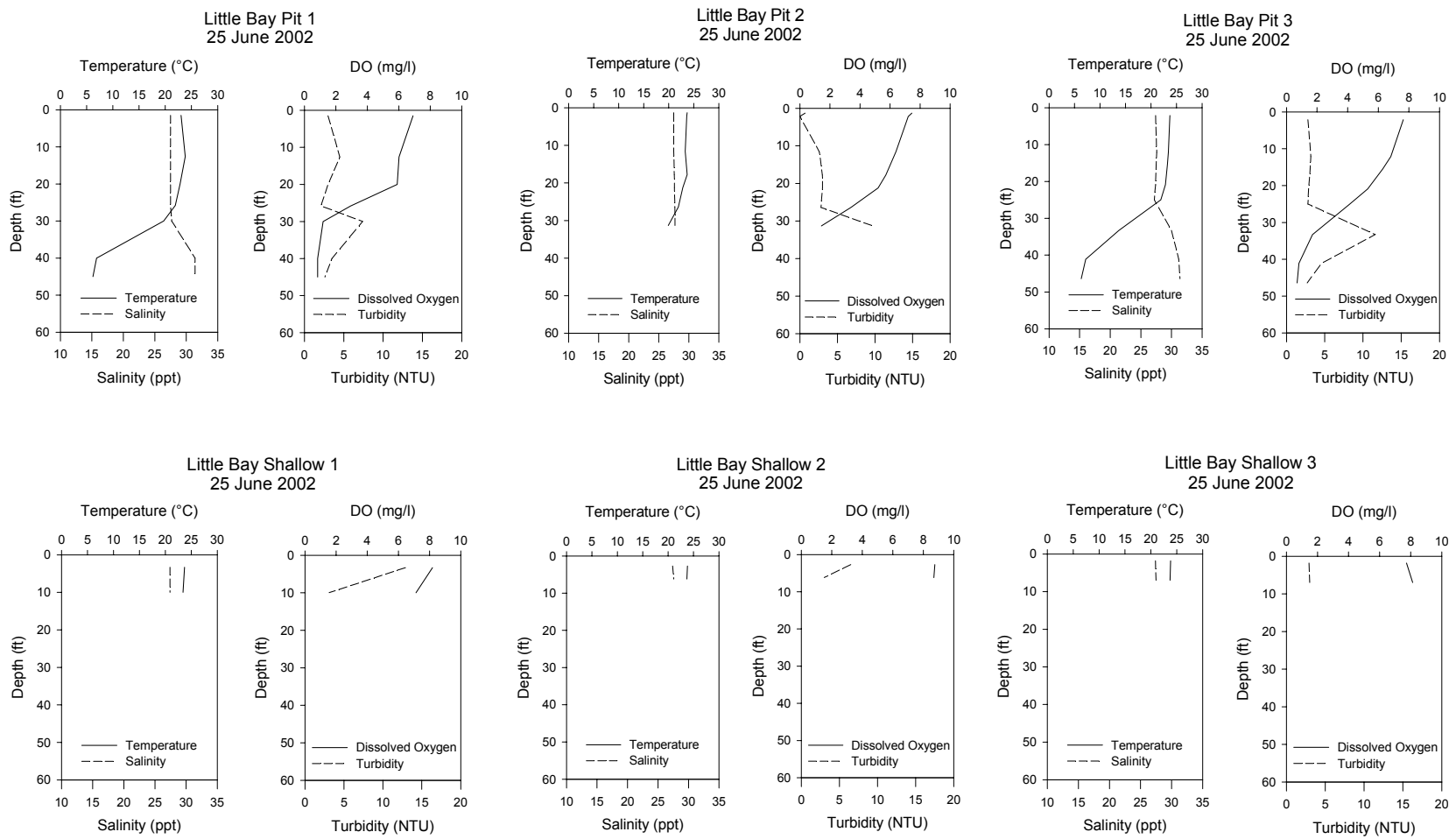


Figure A-7. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 25 June 2002.

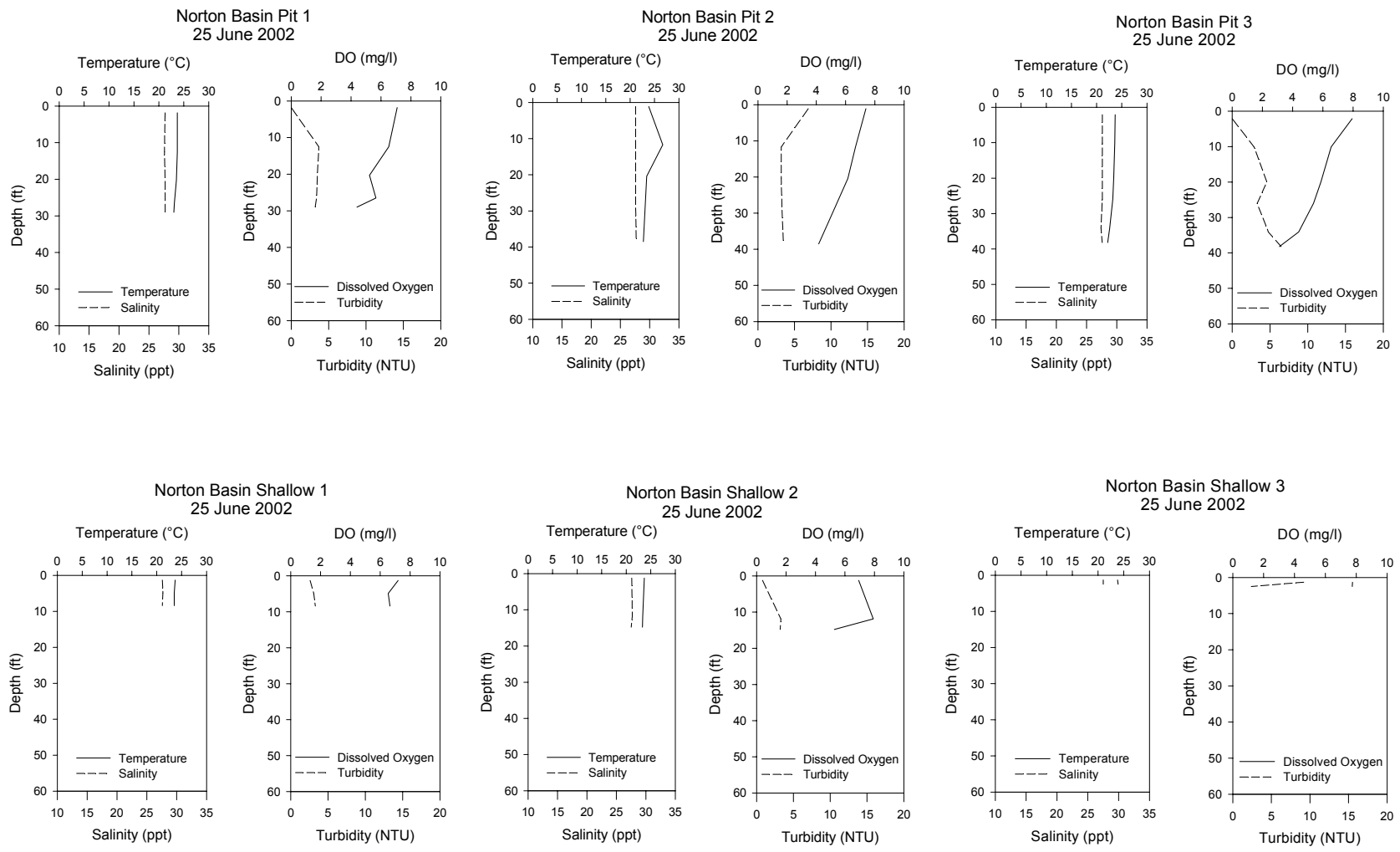


Figure A-8. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 25 June 2002.

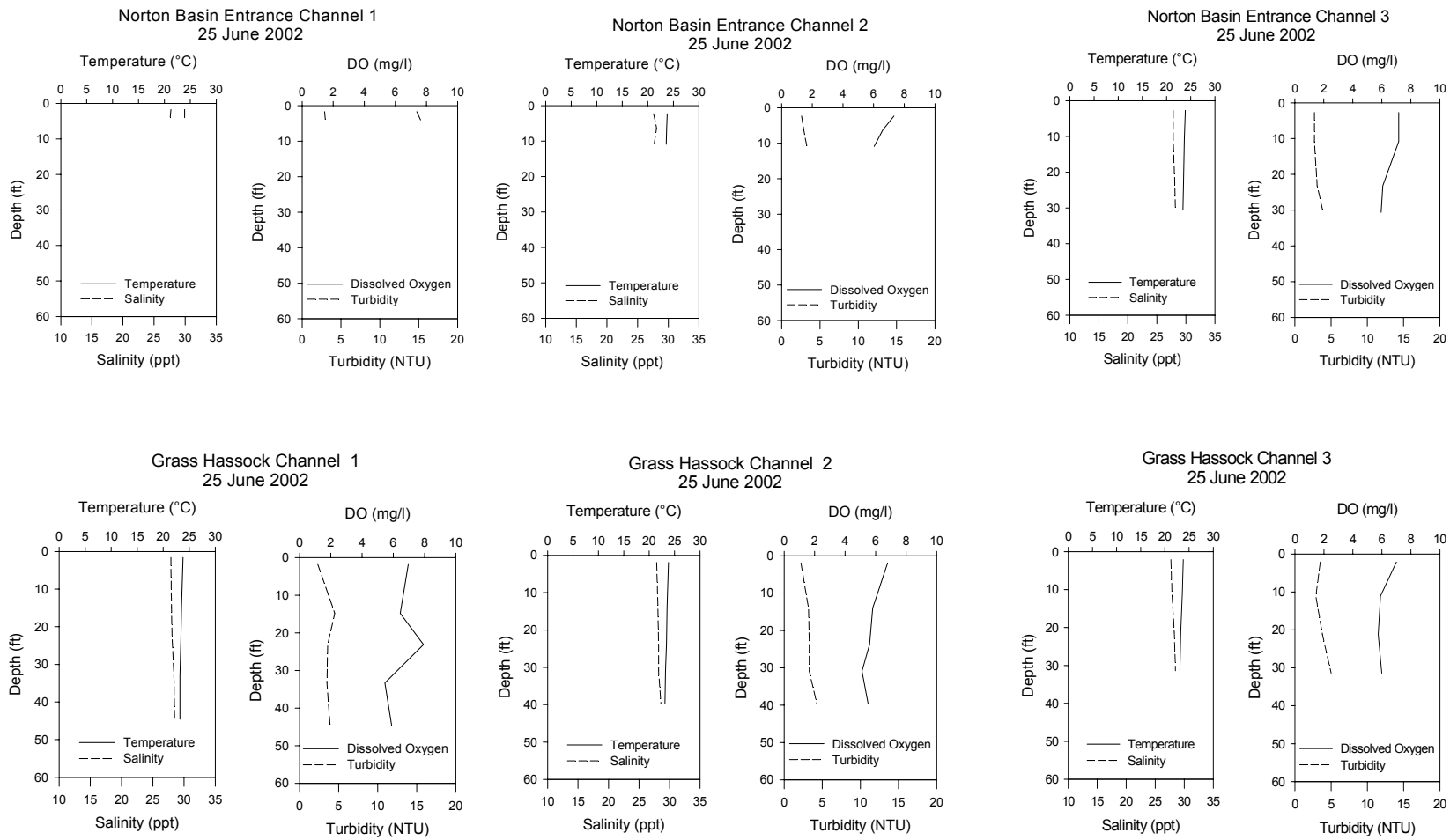


Figure A-9. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 25 June 2002.

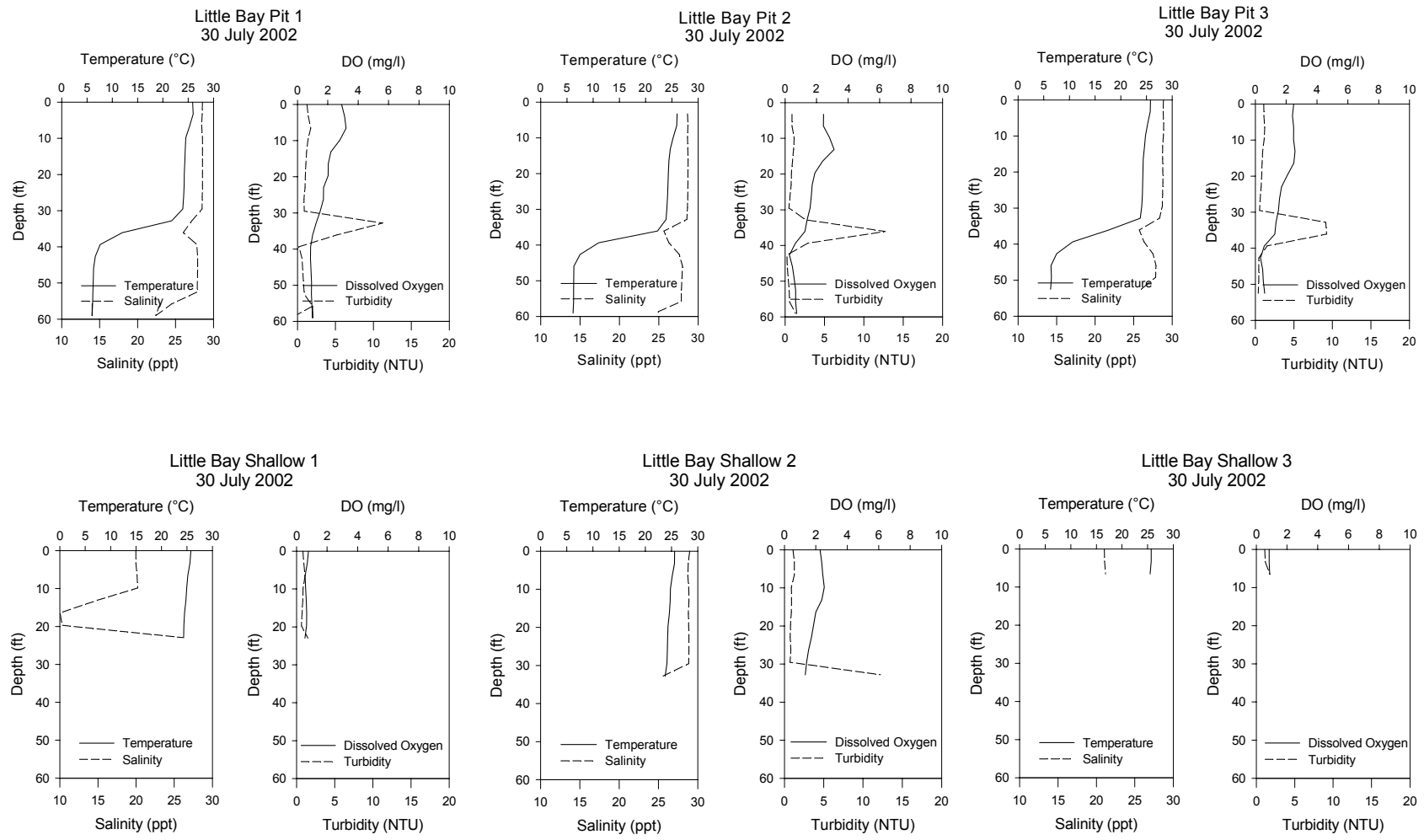


Figure A-10. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 30 July 2002.

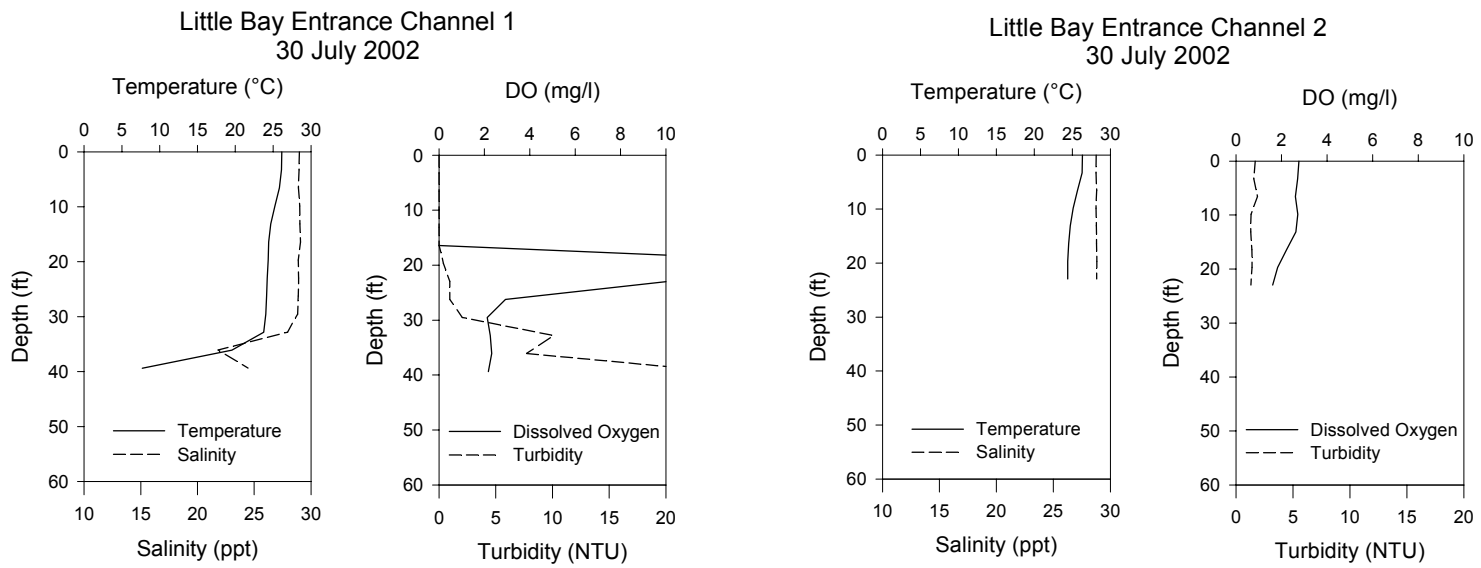


Figure A-11. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 30 July 2002.

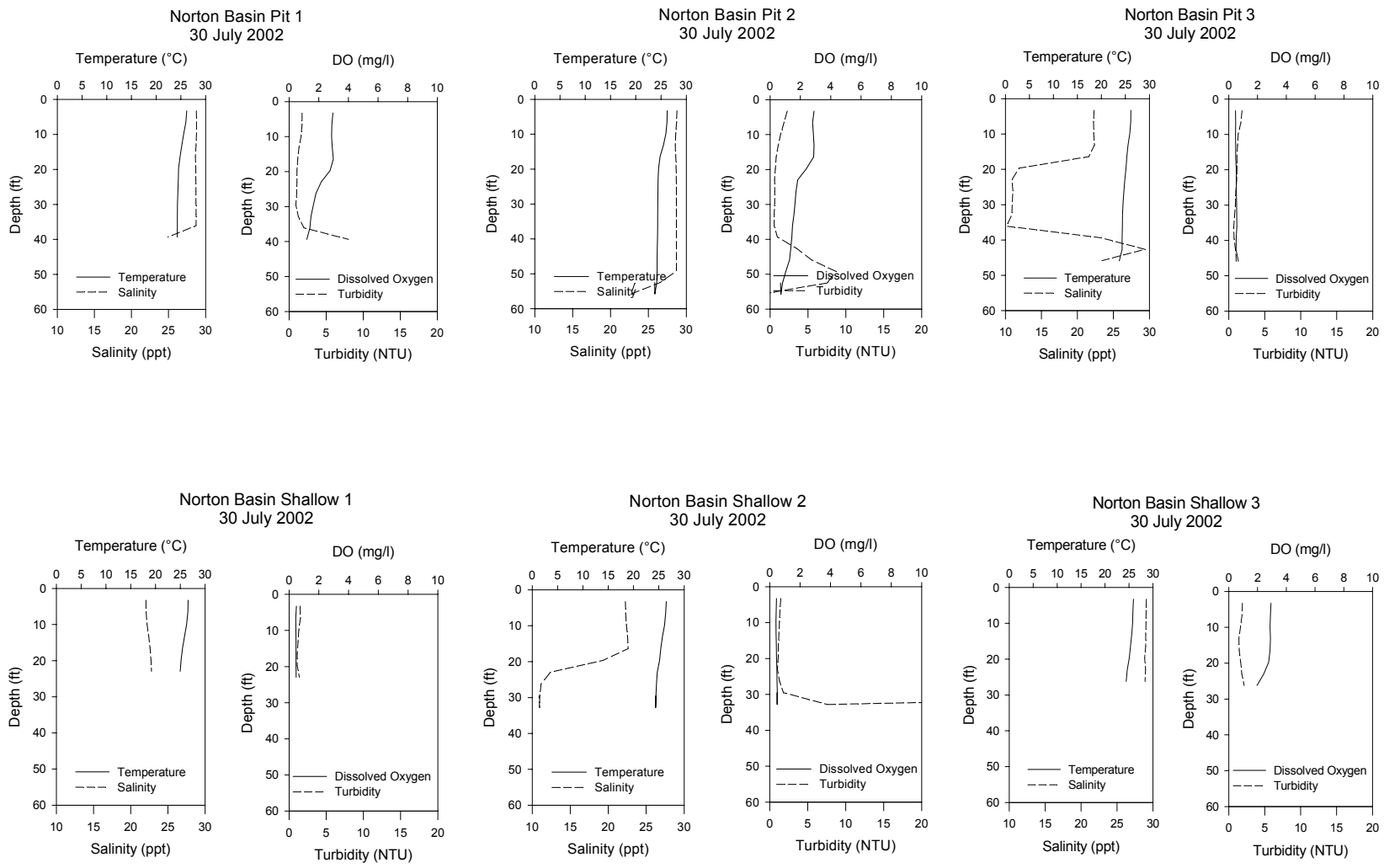


Figure A-12. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 30 July 2002.

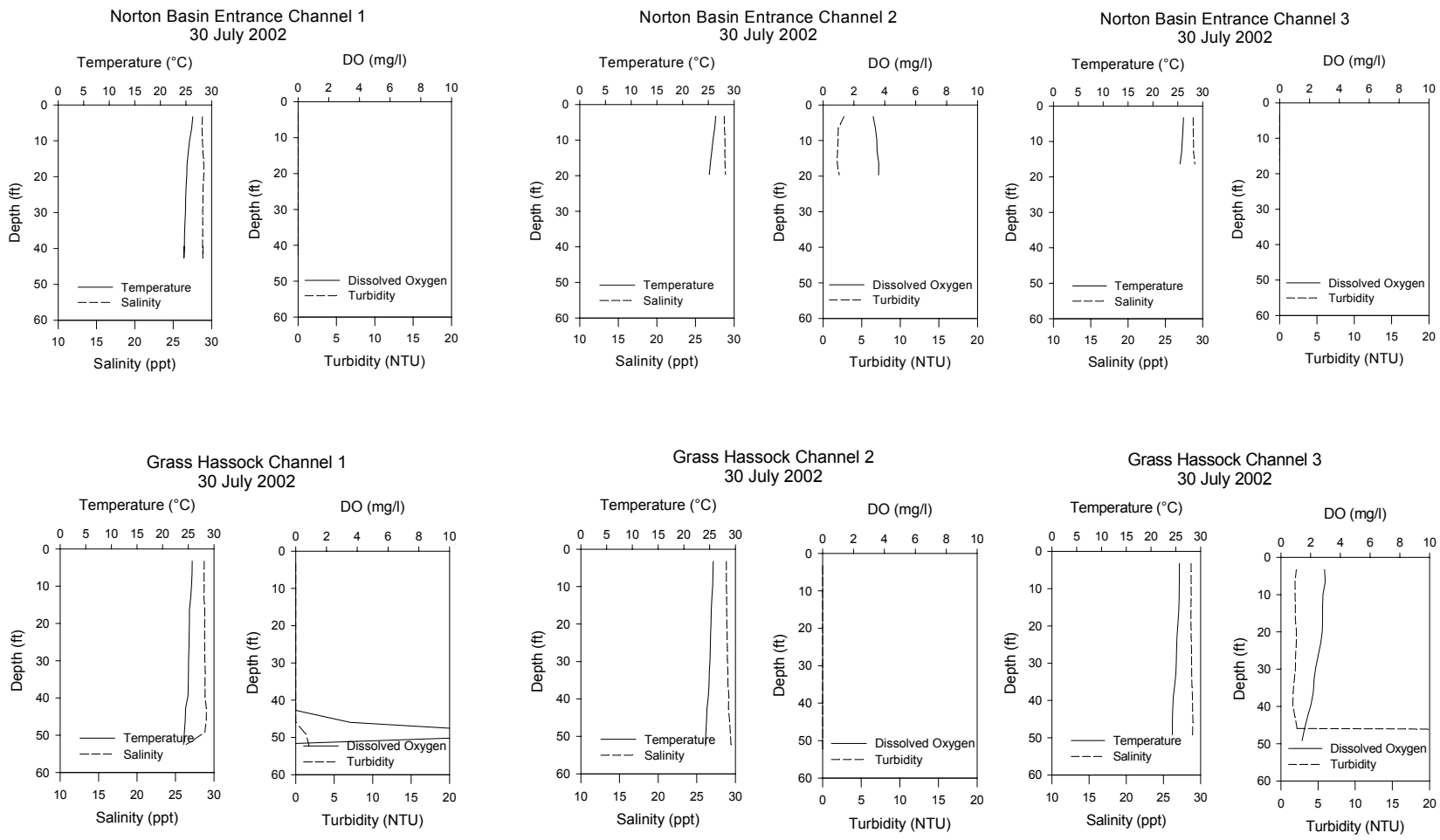


Figure A-13. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 30 July 2002.

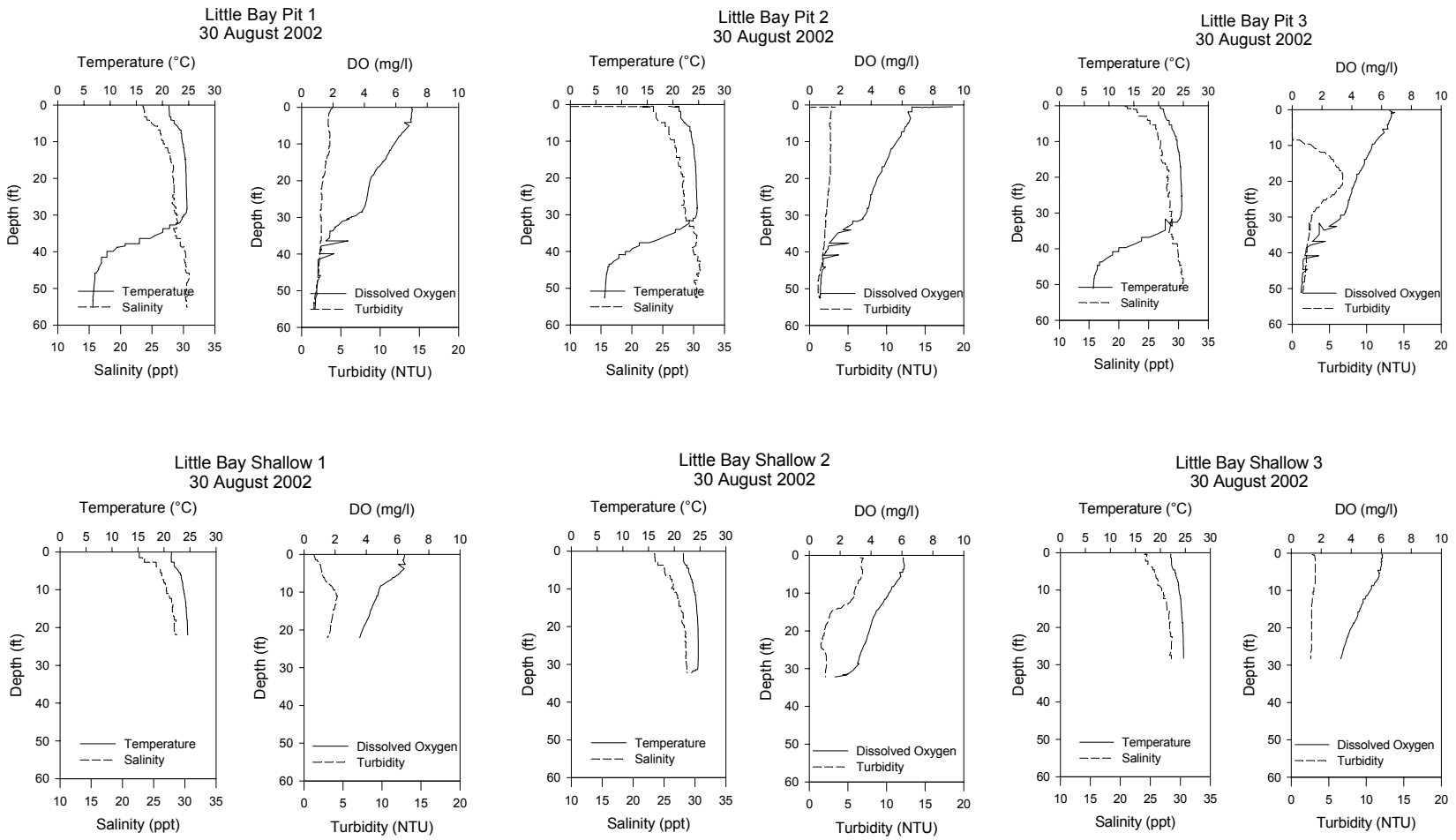


Figure A-14. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 30 August 2002.

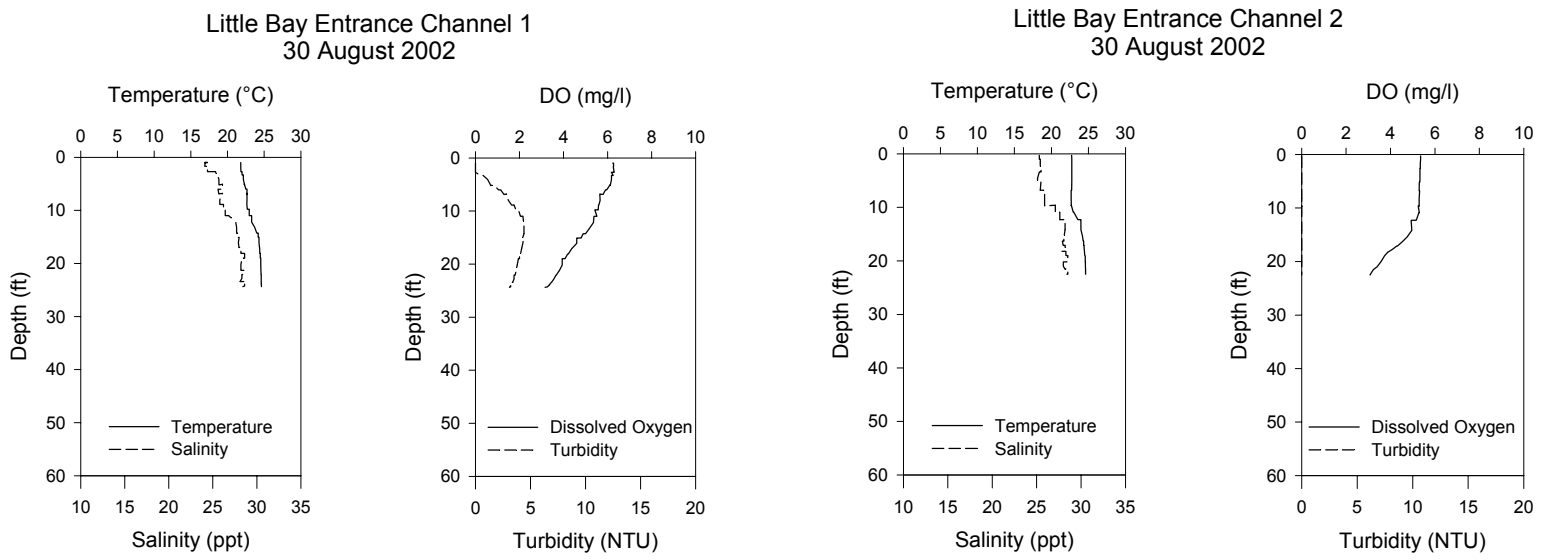


Figure A-15. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 30 August 2002.

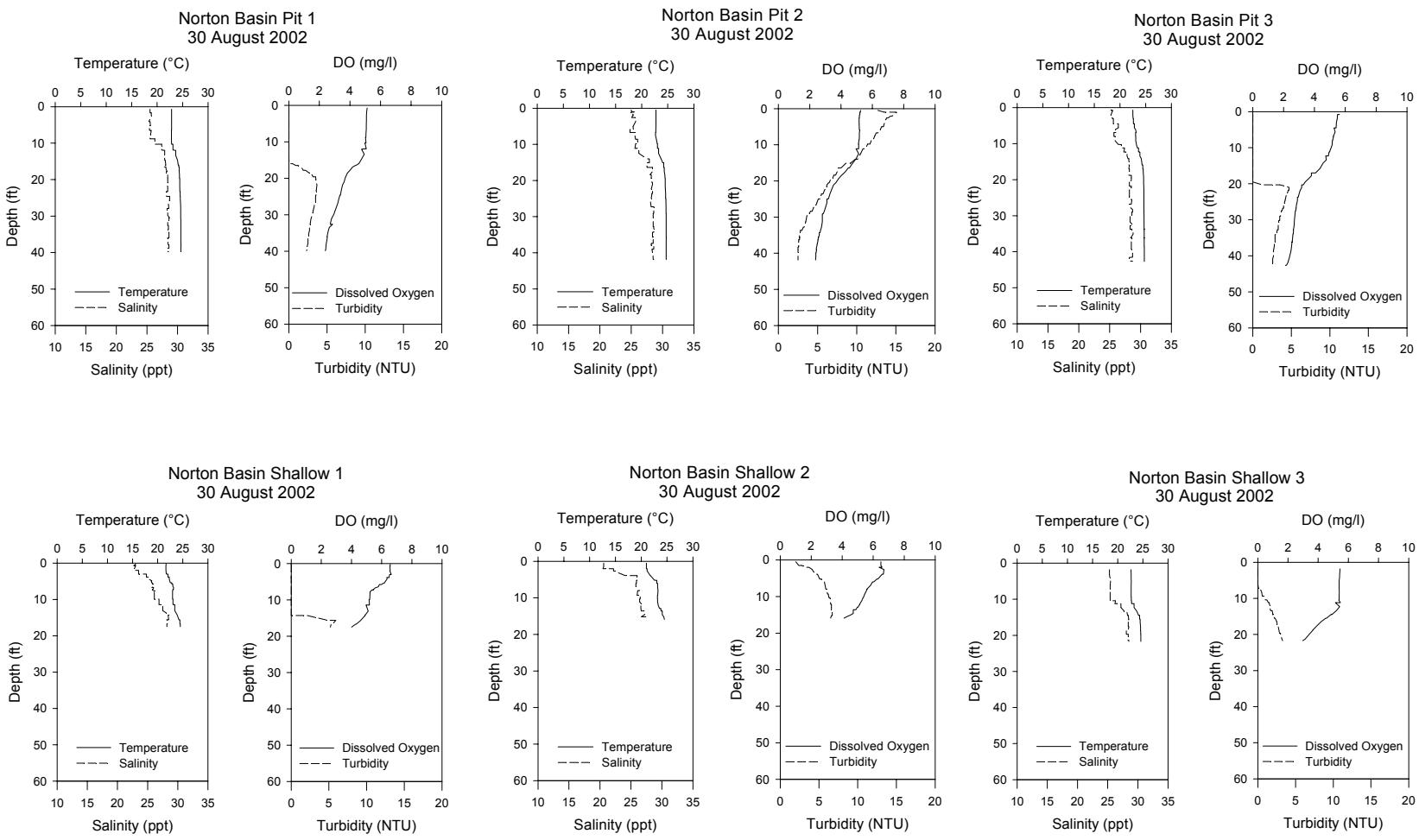


Figure A-16. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 30 August 2002.

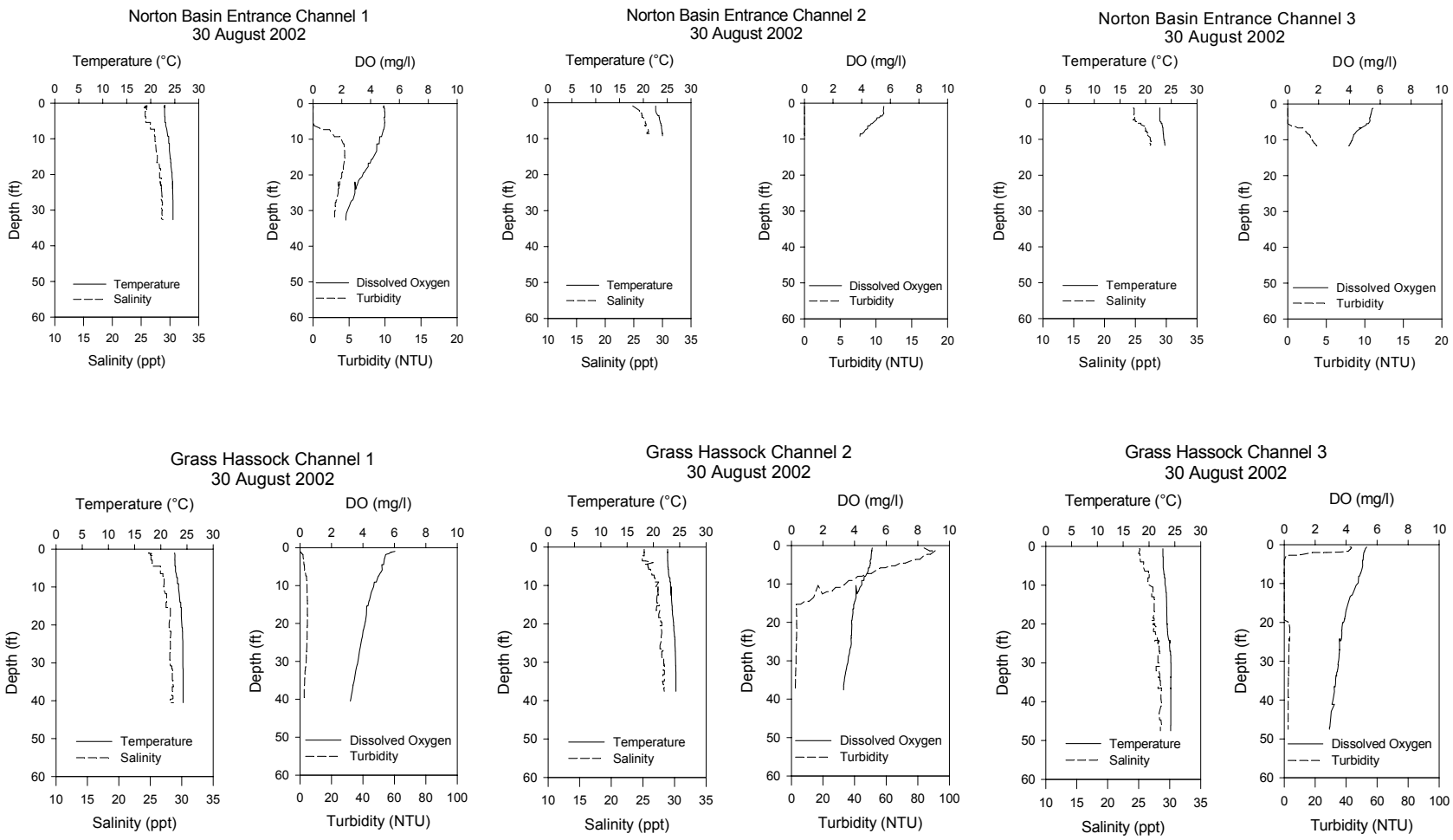


Figure A-17. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 30 August 2002.

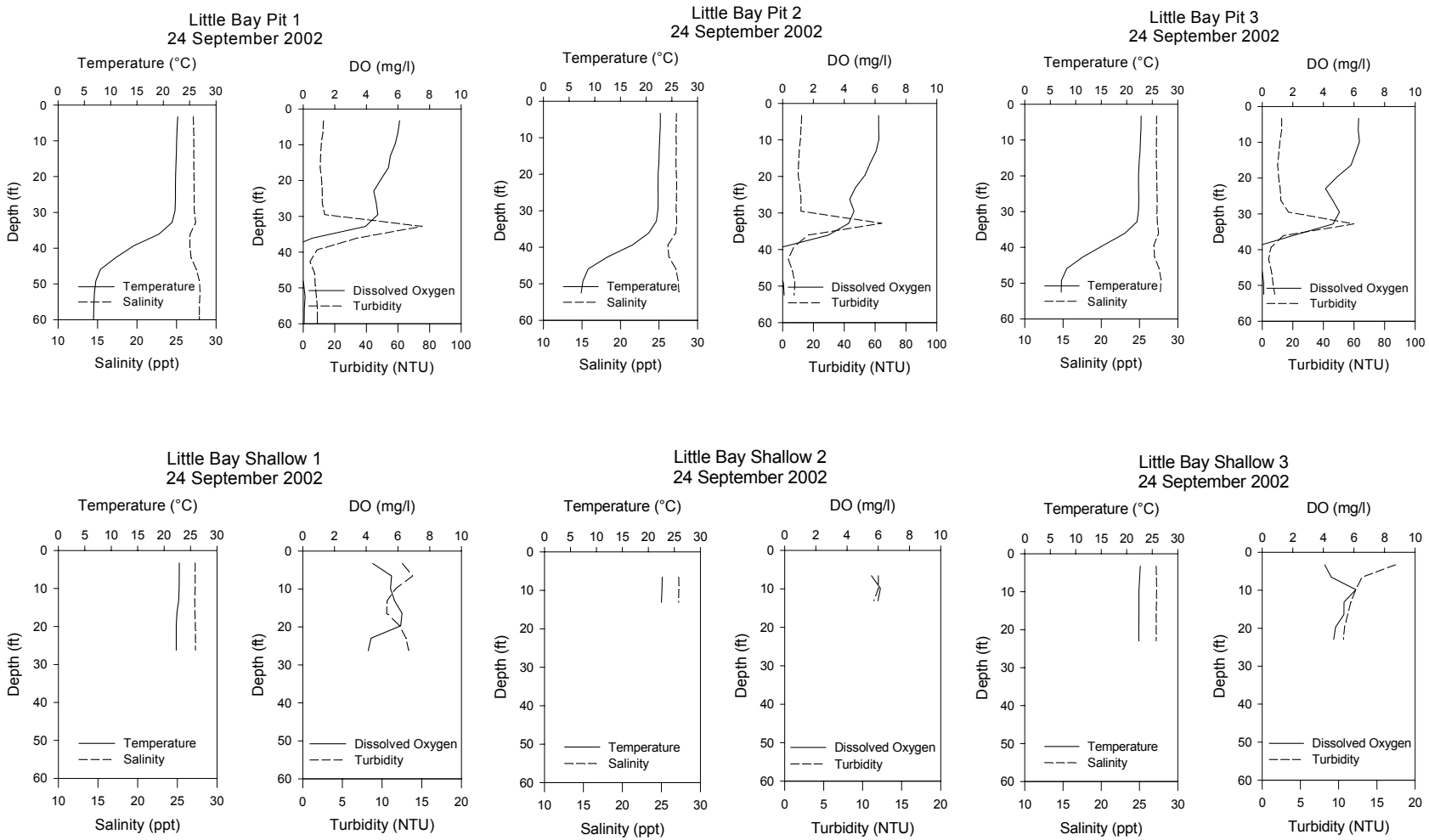


Figure A-18. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 24 September 2002.

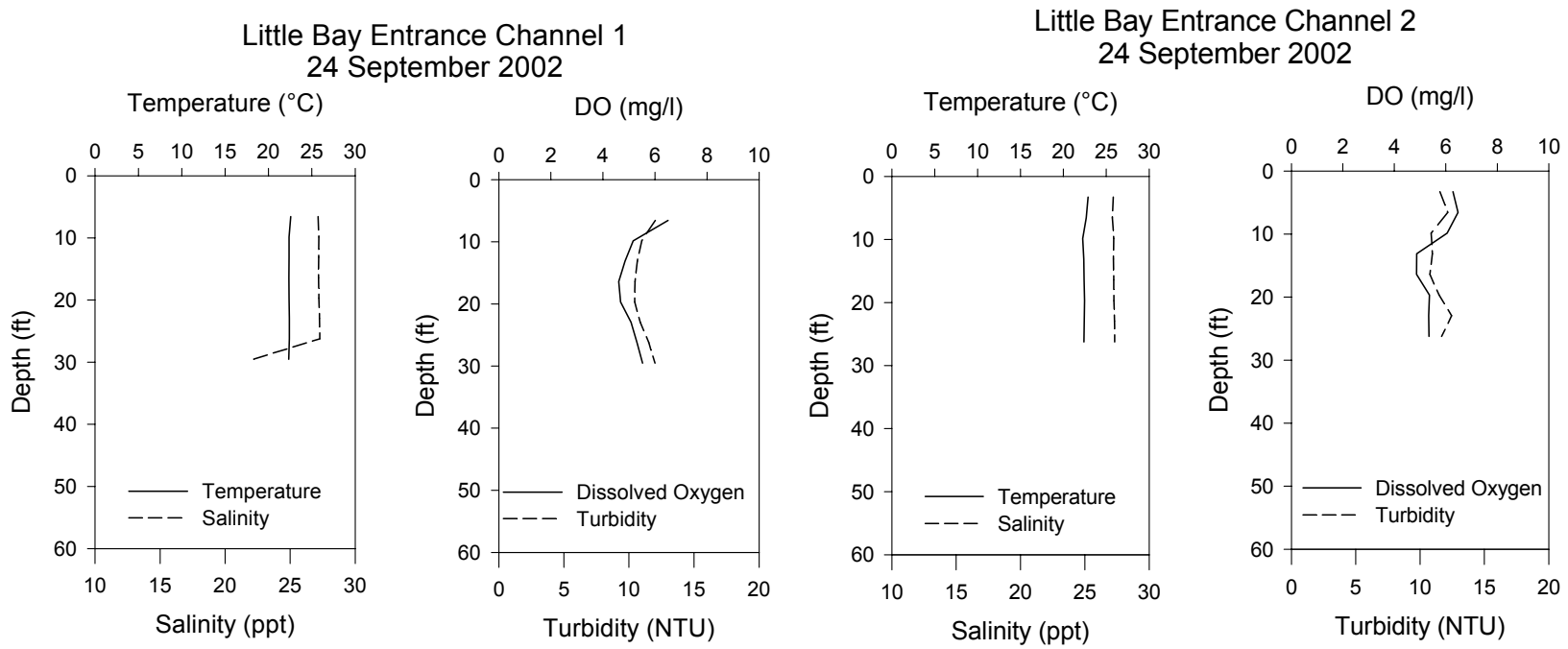


Figure A-19. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations on 24 September 2002.

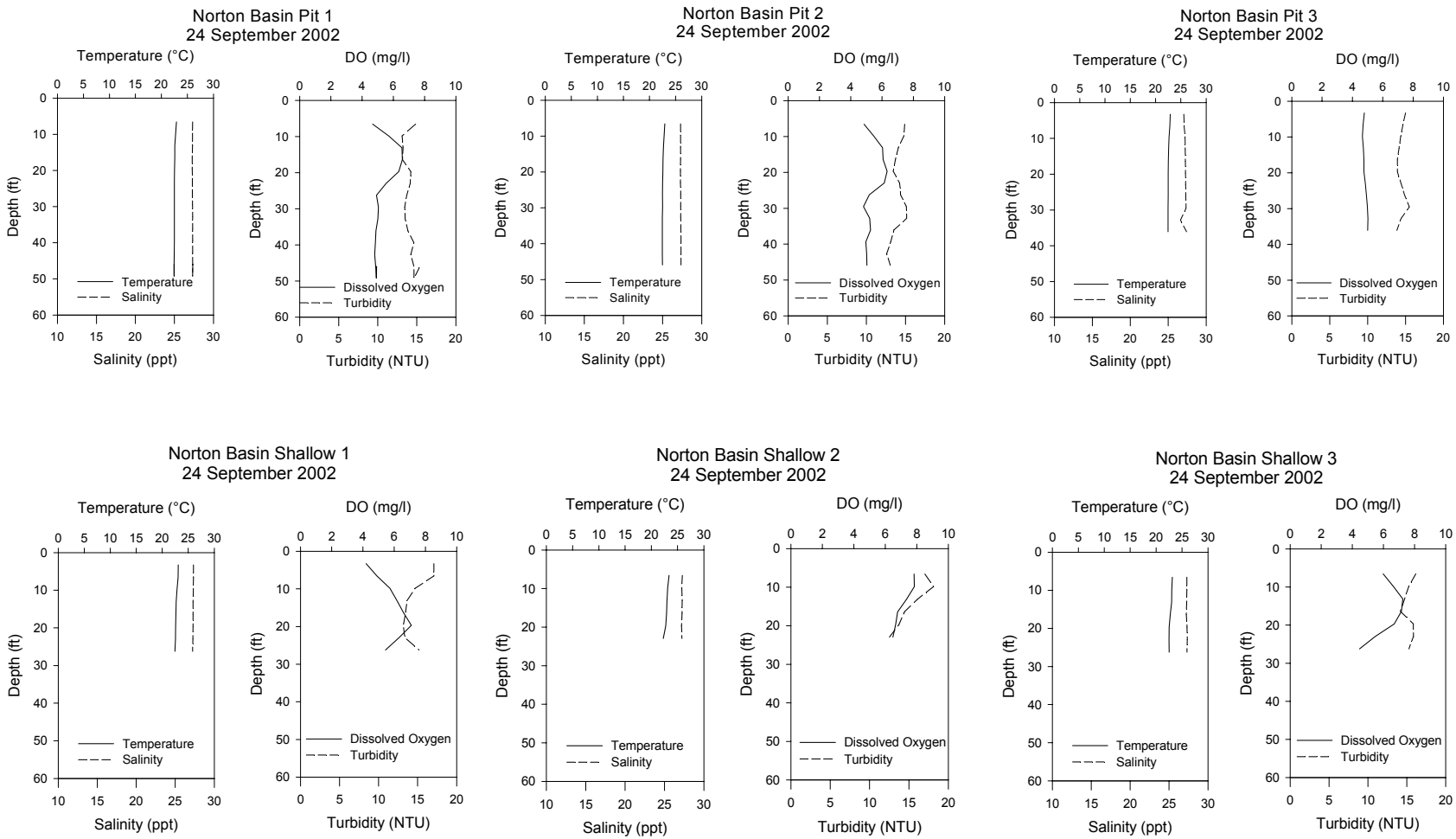


Figure A-20. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations on 24 September 2002.

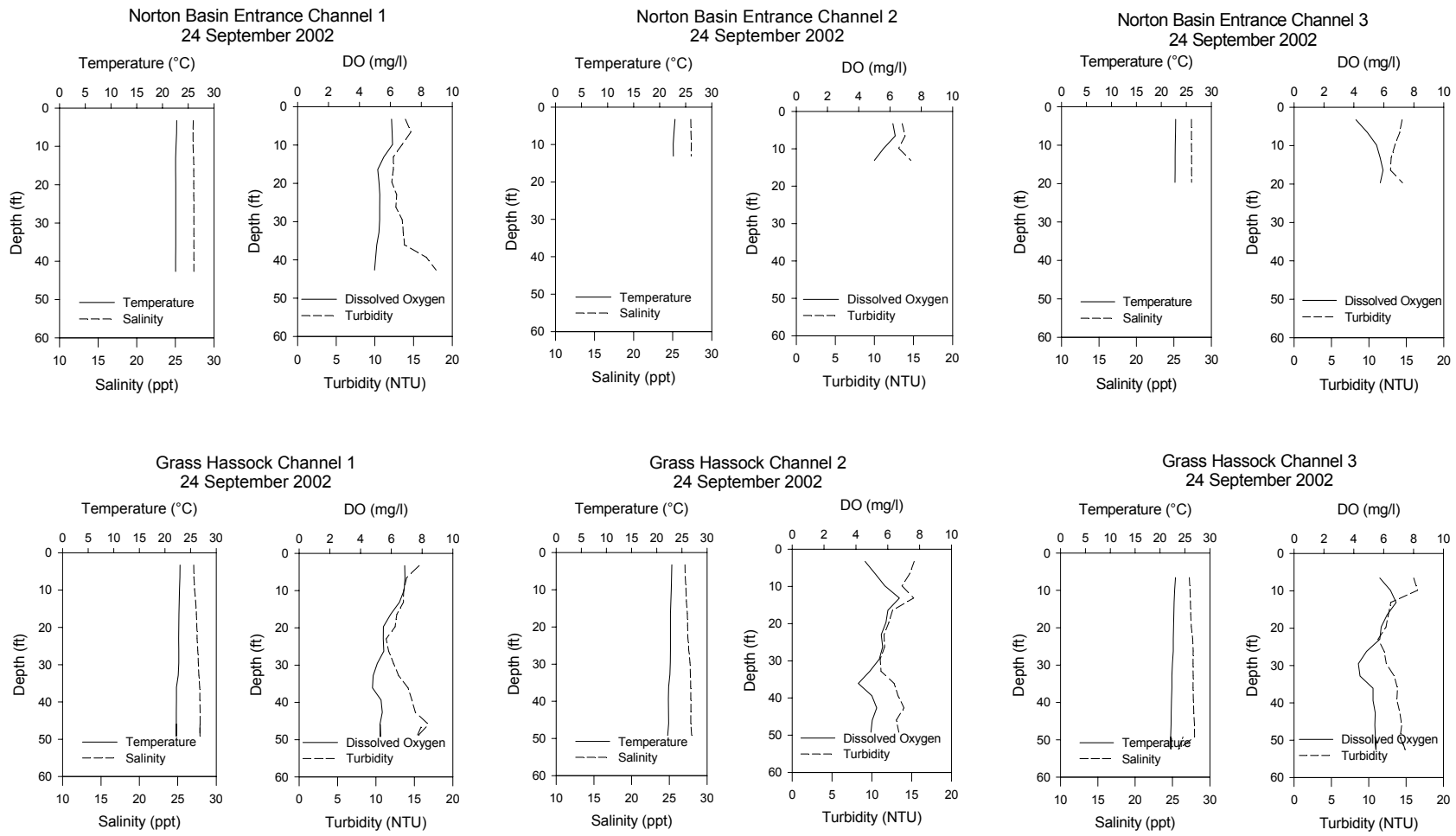


Figure A-21. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 24 September 2002.

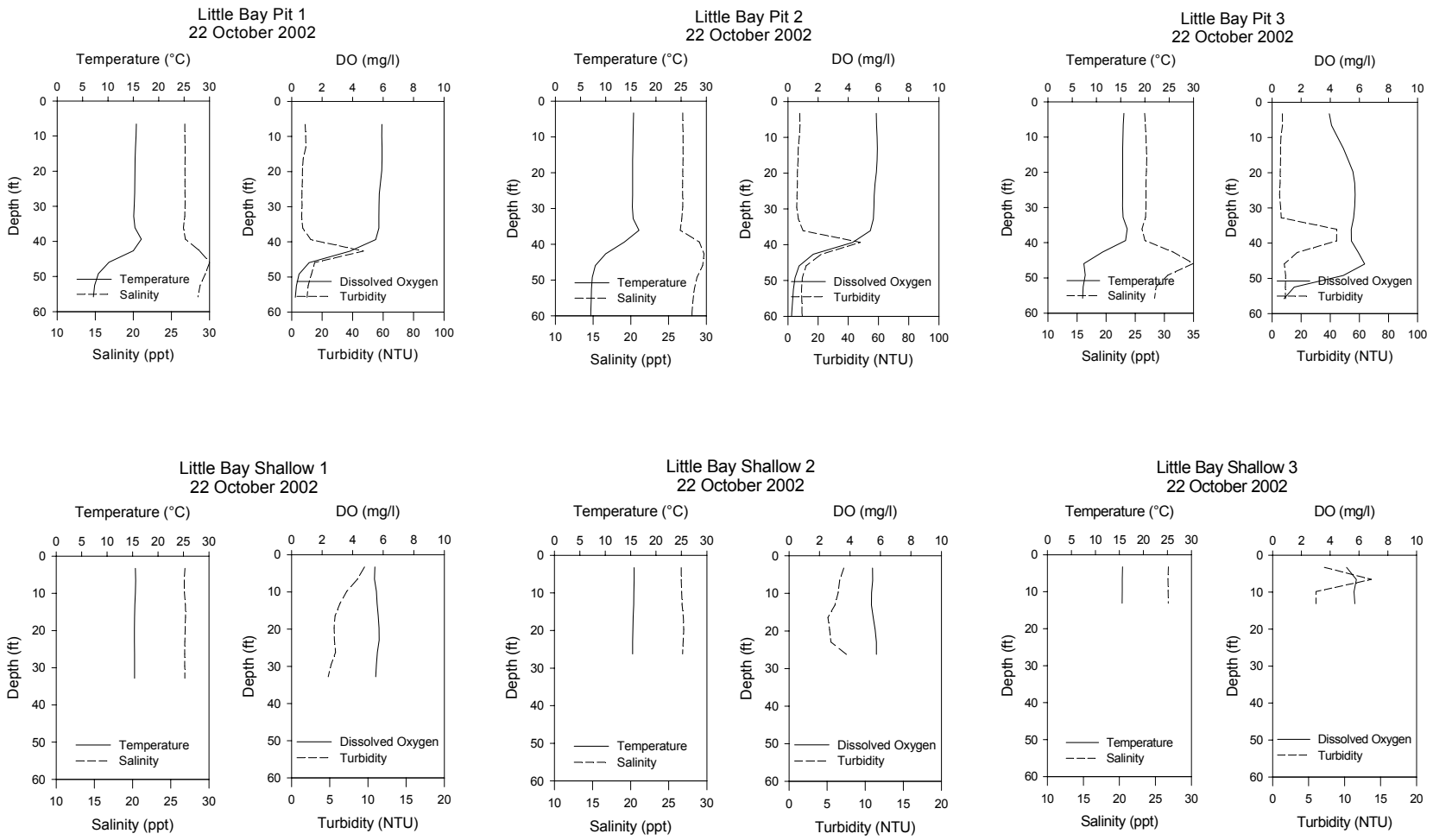


Figure A-22. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay pit and shallow stations on 22 October 2002.

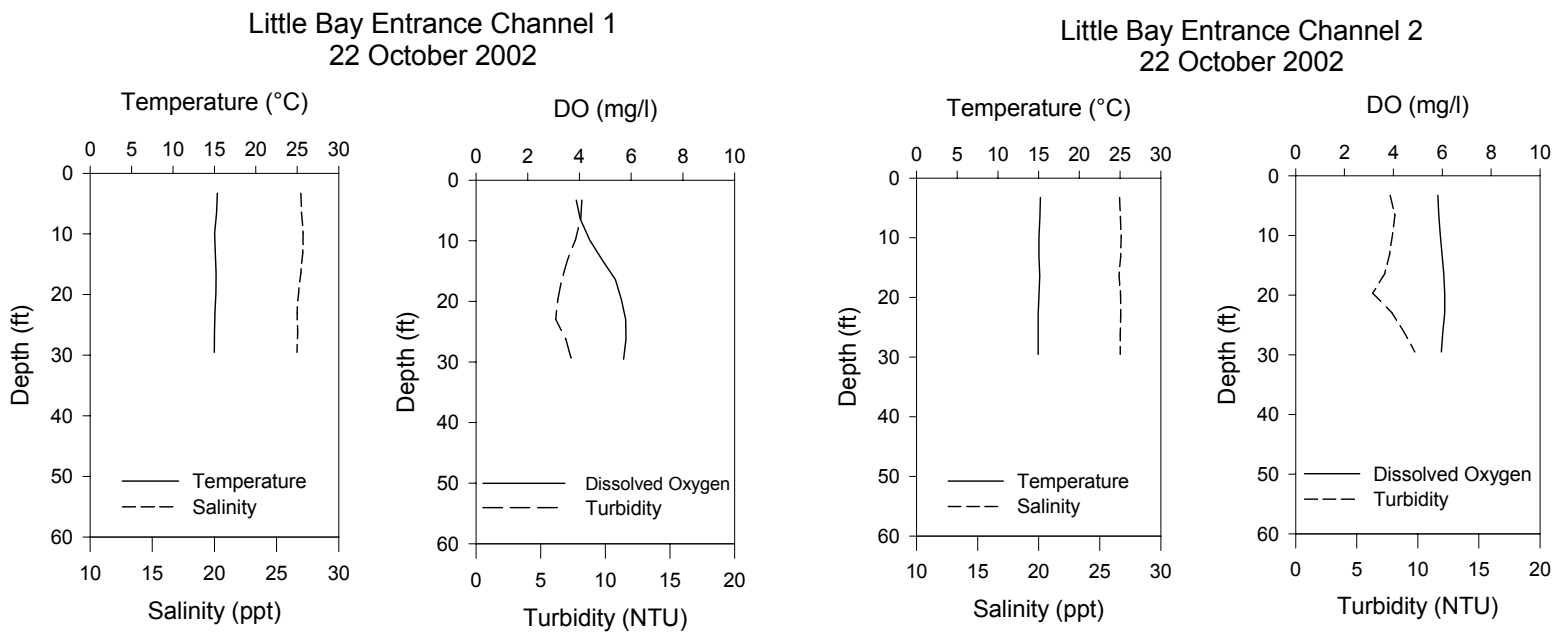


Figure A-23. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Little Bay Entrance Channel stations 22 October 2002.

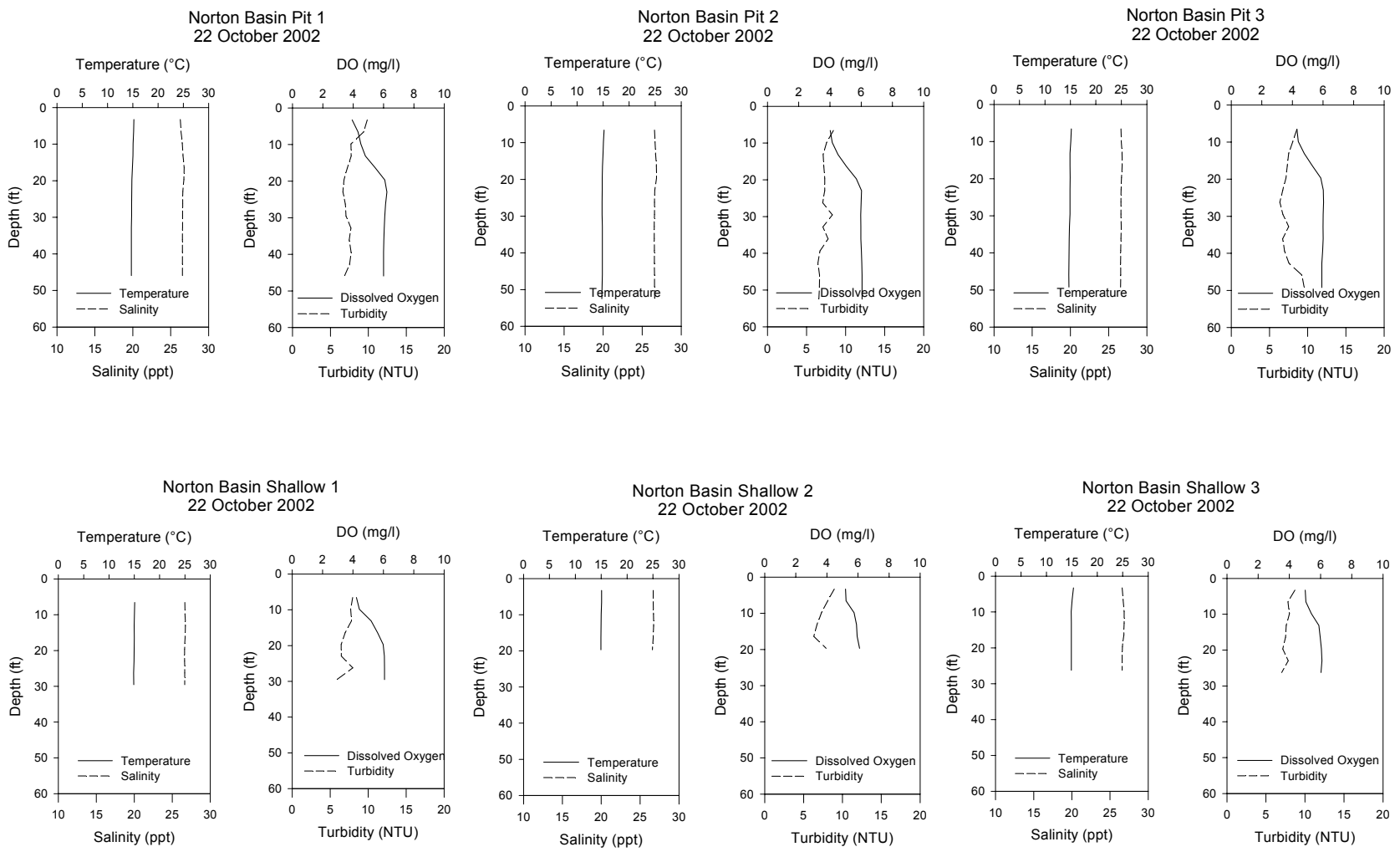


Figure A-24. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin pit and shallow stations 22 October 2002.

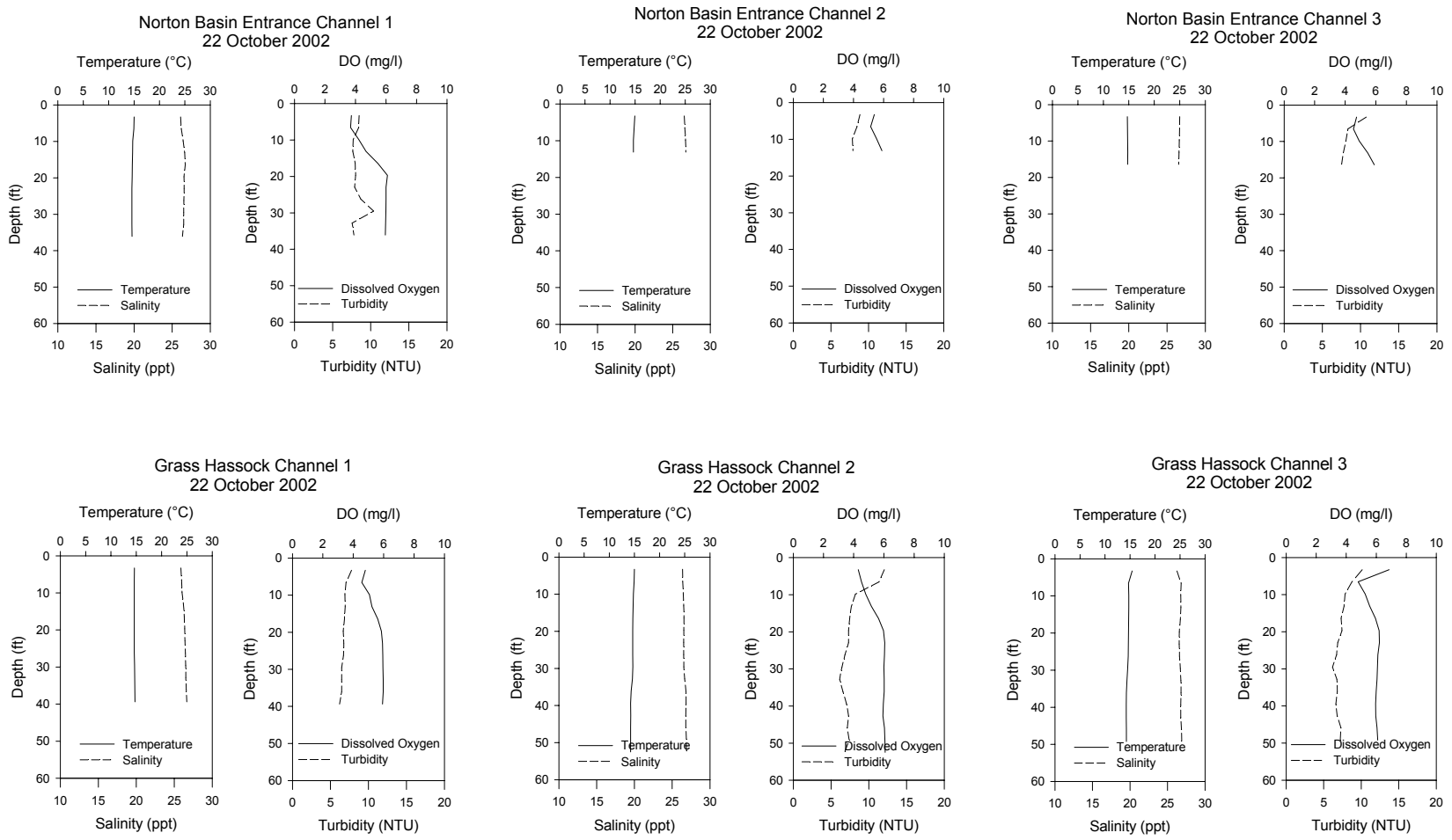


Figure A-25. Temperature, salinity, dissolved oxygen (DO), and turbidity profiles at Norton Basin Entrance Channel and Grass Hassock Channel stations on 22 October 2002.

APPENDIX B

WATER CHEMISTRY

LIST OF FIGURES

Figure		Page
B-1	Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 6 May 2002	B-11
B-2	Particulate nitrogen and phosphorus in water samples collected 6 May 2002	B-12
B-3	Silica and biogenic silica in water samples collected 6 May 2002	B-13
B-4	Total chlorophyll and active chlorophyll in water samples collected 6 May 2002	B-14
B-5	Phaeophytin and total suspended solids in water samples collected 6 May 2002	B-15
B-6	Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 6 May 2002	B-16
B-7	Sulfide in water samples collected 6 May 2002	B-17
B-8	Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 19 June 2002	B-18
B-9	Particulate nitrogen and particulate phosphorus in water samples collected 19 June 2002	B-19
B-10	Silica and biogenic silica in water samples collected 19 June 2002	B-20
B-11	Total chlorophyll and active chlorophyll in water samples collected 19 June 2002	B-21
B-12	Phaeophytin and total suspended solids in water samples collected 19 June 2002	B-22
B-13	Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 19 June 2002	B-23
B-14	Sulfide in water samples collected 19 June 2002	B-24
B-15	Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 30 July 2002	B-25
B-16	Particulate nitrogen and particulate phosphorus in water samples collected 30 July 2002	B-26
B-17	Silica and biogenic silica in water samples collected 30 July 2002	B-27

LIST OF FIGURES
(Continued)

Figure **Page**

B-18 Total chlorophyll and active chlorophyll in water samples collected 30 July 2002 . . . . . B-28

B-19 Phaeophytin and total suspended solids in water samples collected 30 July 2002 . . . . . B-29

B-20 Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 30 July 2002 . . . . . B-30

B-21 Sulfide in water samples collected 30 July 2002 . . . . . B-31

B-22 Ammonium, phosphate, nitrate+nitrite, and total dissolved nitrogen and total dissolved phosphorus in water samples collected 30 August 2002 . . . . . B-32

B-23 Particulate nitrogen and particulate phosphorus in water samples collected 30 August 2002 . . . . . B-33

B-24 Silica and biogenic silica in water samples collected 30 August 2002 . . . . . B-34

B-25 Total chlorophyll and active chlorophyll in water samples collected 30 August 2002 . . . . . B-35

B-26 Phaeophytin and total suspended solids in water samples collected 30 August 2002 . . . . . B-36

B-27 Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 30 August 2002 . . . . . B-37

B-28 Sulfide in water samples collected 30 August 2002 . . . . . B-38

B-29 Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 25 September 2002 . . . . . B-39

B-30 Particulate nitrogen and particulate phosphorus in water samples collected 25 September 2002 . . . . . B-40

B-31 Silica and biogenic silica in water samples collected 25 September 2002 . . . . . B-41

B-32 Total chlorophyll and active chlorophyll in water samples collected 25 September 2002 . . . . . B-42

LIST OF FIGURES
(Continued)

Figure		Page
B-33	Phaeophytin and total suspended solids in water samples collected 25 September 2002	B-43
B-34	Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 25 September 2002	B-44
B-35	Sulfide in water samples collected 25 September 2002	B-45
B-36	Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 23 October 2002	B-46
B-37	Particulate nitrogen and particulate phosphorus in water samples collected 23 October 2002	B-47
B-38	Silica and biogenic silica in water samples collected 23 October 2002	B-48
B-39	Total chlorophyll and active chlorophyll in water samples collected 23 October 2002	B-49
B-40	Phaeophytin and total suspended solids in water samples collected 23 October 2002	B-50
B-41	Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 23 October 2002	B-51
B-42	Sulfide in water samples collected 23 October 2002	B-52

This appendix provides descriptive summaries of water chemistry parameters by survey. For ease of presentation, all figures are shown at the end of the appendix.

May. Water chemistry results from the May survey are shown in **Figures B-1** to **B-7**, Near bottom samples from the Little Bay pits had high ammonium and phosphate compared to other samples collected in May (**Figure B-1**). Ammonium and phosphate concentrations were intermediate in the Little Bay pit midwater sample and low in the Norton Basin pit near bottom sample. Samples from the Little Bay and Norton Basin shallows, Little Bay Pit near surface, and the Norton Basin Entrance Channel also had low concentrations of ammonium and phosphate. In contrast to high ammonium and phosphate, nitrate+nitrite concentration was low in the near bottom sample from the Little Bay pit. Total dissolved nitrogen (TDN) and total dissolved phosphorus (TDP) concentrations also were high in the Little Bay pit near bottom sample compared to other samples. Intermediate TDN and TDP occurred in the midwater samples from the Norton Basin and Little Bay pits.

Particulate nitrogen was low in the Little Bay pit near bottom and midwater samples and the Norton Basin pit midwater sample compared to other samples (**Figure B-2**). Particulate phosphorus was low in the Little Bay pit near bottom and midwater samples compared to other samples.

Silica was high in the Little Bay and Norton Basin pit near bottom samples, intermediate in the Little Bay pit and Norton Basin pit midwater samples, and low in all other samples (**Figure B-3**). Silica was low also in the near surface samples in the Little Bay and Norton Basin pits and in the Little Bay and Norton Basin shallow stations and the Norton Basin Entrance Channel stations. Biogenic silica was low in the Little Bay pit near bottom sample, while biogenic silica was high in the Norton Basin pit near bottom sample (**Figure B-3**). Biogenic silica was intermediate in the Little Bay pit midwater sample. In all other samples, biogenic silica was high and at relatively similar concentrations (0.2 to 0.6 mg Si/l).

Total and active chlorophyll concentrations were high (20 to 45 µg/l) in the Norton Basin pit midwater sample and the near surface samples from the pits in both embayments, the shallow midwater samples from both embayments, and the Norton Basin Entrance Channel (**Figure B-4**). The near bottom sample from the Norton Basin pit also had high chlorophyll. Only the midwater and near bottom sample from the Little Bay pit showed low total chlorophyll (0.5 µg/l). Phaeophytin was low (~1 µg/l) in the Little Bay pit near bottom sample and high in all other samples (8 to 45 µg/l) (**Figure B-5**). Phaeophytin was higher substantially in one of the Norton Basin Entrance Channel samples than in other samples (**Figure B-5**). Total suspended solids (TSS) levels were low in the Little Bay pit near bottom and midwater samples, and intermediate in the midwater sample from the Little Bay shallows and the Norton Basin pit near surface sample (**Figure B-5**). TSS levels were high in all other samples.

There were no evident differences in dissolved organic carbon (DOC) among all samples (**Figure B-6**). Particulate carbon was low in the Little Bay pit near bottom and midwater samples and the Norton Basin pit midwater sample. Organic matter content was similar among all samples except for the Little Bay pit near bottom, which had lower organic matter content (**Figure B-6**). Sulfide was found only in the Little Bay pit near bottom sample (0.7 mg S/l) and not detected in all other samples (**Figure B-7**).

June. In general, similar patterns were observed in June water samples as in May (**Figures B-8** to **B-14**). There was high ammonium (8 mg N/l) and phosphate (1 mg P/l) in the near bottom sample from the Little Bay pit compared to other samples that had 0.2 to 1.0 mg N/l ammonium and 0.01 to 0.08 mg P/l phosphate (**Figure B-8**). Intermediate levels of ammonium were found in the Little Bay pit midwater sample. Ammonium and phosphate were low in near surface samples from Little Bay and Norton Basin, the Little Bay and Norton Basin shallow midwater samples, the Norton Basin Entrance Channel, and Grass Hassock Channel. Nitrate+nitrite was low (<0.04 mg N/l) in midwater and near bottom samples from the Little Bay and Norton Basin pit compared to other samples (0.10 to 0.20 mg N/l). Due to high ammonium and phosphate, TDN and TDP levels also were high in the Little Bay pit near bottom sample compared to all other samples. Particulate nitrogen in the Little Bay pit midwater and near bottom samples did not differ markedly from other samples, and particulate phosphorus was only slightly lower in the Little Bay pit near bottom sample compared to all other samples (**Figure B-9**).

Silica was high (1 to 3 mg Si/l) in the Little Bay pit near bottom and midwater samples and Norton Basin pit near bottom samples compared to other samples (0.5 to 0.7 mg Si/l) (**Figure B-10**). Biogenic silica was low (0.04 mg Si/l) in the Little Bay near bottom sample and at intermediate levels in the Little Bay pit midwater sample (**Figure B-10**). Biogenic silica ranged from 0.12 to 0.28 mg Si/l in other samples.

The midwater and near bottom samples from the Little Bay and Norton Basin pits had low total chlorophyll levels (0.7 µg/l) (**Figure B-11**). Total and active chlorophyll levels were high in the Little Bay shallow midwater sample, the near surface samples from the pits in both embayments, the Norton Basin Entrance Channel samples, and Grass Hassock Channel samples (4 to 20 µg/l). Phaeophytin was low (1 µg/l) in the Little Bay pit near bottom sample compared to all other samples (2 to 9 µg/l) (**Figure B-12**). TSS levels were similar also among all samples (**Figure B-12**).

There were no evident differences in DOC between the Little Bay pit near bottom sample and other samples. Particulate carbon in the Little Bay pit near bottom and midwater samples was as low as other samples (**Figure B-13**). There was a narrow range in organic matter content among all samples (**Figure B-13**).

Sulfide was high (3.4 mg S/l) in the Little Bay pit near bottom sample and not detected in all other samples (**Figure B-14**). Sulfide in the Little Bay pit near bottom sample collected in June was much higher than in the May samples.

July. Although specific concentrations of certain parameters may have changed, general patterns observed in May and June were repeated in July (**Figures B-15** to **B-21**). Ammonium (6 mg N/l) and phosphate (1.7 mg P/l) was high in the near bottom samples from the Little Bay pit compared to other samples (0.1 to 0.3 mg N/l ammonium and 0.2 to 0.3 mg P/l phosphate) (**Figure B-15**). The midwater sample from the Little Bay pit was intermediate in ammonium and phosphate. Ammonium and phosphate was low in the Little Bay pit near surface sample, and the near bottom, midwater, and near surface samples from the Norton Basin pit, the shallow midwater samples from Little Bay and Norton Basin, the Norton Basin Entrance Channel samples, and Grass Hassock Channel samples. Nitrate+nitrite was low (0.02 mg N/l) in the near bottom samples from the Little Bay pit relative to all other samples (0.05 to 0.13 mg N/l) (**Figure B-15**). Compared to all other samples, TDN and TDP levels were high in the Little Bay pit near bottom samples, reflecting the high ammonium and phosphate (**Figure B-15**).

Particulate nitrogen was high in the Grass Hassock Channel, the Norton Basin Entrance Channel, the Norton Basin pit and the Little Bay pit near surface samples (**Figure B-16**). Low particulate nitrogen occurred in the Little Bay pit and Norton Basin pit midwater samples and Norton Basin pit near bottom samples. Little Bay pit near bottom samples had intermediate particulate nitrogen. Particulate phosphorus did not show definitive patterns except that the Grass Hassock Channel and Norton Basin Entrance Channel samples had higher particulate phosphorus than the Norton Basin pit and Little Bay pit midwater and near bottom samples in general (**Figure B-16**).

While silica was markedly high (4 mg Si/l) in the Little Bay pit near bottom samples, silica in all other samples was low (0.5 to 0.9 mg Si/l) (**Figure B-17**). Biogenic silica was low (0.04 mg Si/l) in the Little Bay near bottom sample compared to other samples (0.1 to 0.92 mg Si/l) (**Figure B-17**). Biogenic silica was at intermediate levels in the Little Bay pit midwater and near surface samples. Biogenic silica in the supplemental near bottom samples suggest that biogenic silica concentrations are highly variable in the Little Bay pit. One near bottom sample from the Little Bay pit had biogenic silica as high as in the Little Bay shallow midwater sample. A very high concentration of silica (i.e., 3 times the concentration of the next highest concentration) was measured in one of the Norton Basin near bottom samples. This may be an anomalous value because the concentration is very different from the other samples in the July survey and samples in other surveys.

Total chlorophyll was high (19 to 25 µg/l) in the Norton Basin Entrance Channel and Norton Basin pit near surface samples compared to other samples (**Figure B-18**). Total chlorophyll was low (1 to 4 µg/l) in the Little Bay and Norton Basin pit midwater and near bottom samples. The samples from Grass Hassock Channel, the shallow midwater samples from Little Bay and Norton Basin, and the near surface sample from the Little Bay pit were intermediate in total chlorophyll. Phaeophytin was high in all samples (5 to 12 µg/l) except for the Little Bay pit near bottom sample (1.5 µg/l), which was low in phaeophytin (**Figure B-19**). TSS levels were similar among all samples (**Figure B-19**).

In all samples, DOC was higher than particulate carbon (**Figure B-20**). Near bottom samples had similar DOC as midwater and near surface samples in the Little Bay pit. Near bottom and midwater samples in the Norton Basin pit had lower particulate carbon than the Norton Basin pit near surface sample but were similar to the Norton Basin shallow midwater sample. Particulate carbon in the Grass Hassock Channel and Norton Basin Entrance Channel samples and the near surface samples from the Norton Basin and Little Bay pits were higher than in the Norton Basin pit and Little Bay pit midwater and near bottom samples and the shallow midwater samples from both embayments. Organic matter was similar among all samples (**Figure B-20**).

In July, sulfide was substantially higher than in previous months (**Figure B-21**). Sulfide was high (~35 mg S/l) in the Little Bay pit near bottom samples and absent in all other samples except for trace concentrations in the Norton Basin pit near bottom sample. The absence of sulfide in samples other than the Little Bay pit near bottom samples corroborates the observation of exclusive occurrence of anoxic conditions in the Little Bay pit below the thermocline. Given the high concentration of sulfide in the Little Bay pit near bottom samples, it would be reasonable to conclude that the water below the thermocline was anoxic even without direct DO readings.

August. **Figures B-22** to **B-28** provide a summary of the water sample analyses in August. High ammonium (8.6 mg N/l) and phosphate (2.6 mg P/l) occurred in the near bottom samples from the Little Bay pit compared to other samples (0.4 to 0.7 mg N/l ammonium and 0.1 to 0.3 mg P/l phosphate) (**Figure B-22**). The midwater sample from the Little Bay pit was intermediate in ammonium and phosphate. Ammonium and phosphate were low in near surface samples from Little Bay and Norton Basin and the midwater sample from Norton Basin. Likewise, shallow midwater samples from Little Bay and Norton Basin, the Norton Basin Entrance Channel, and Grass Hassock Channel had low ammonium and phosphate concentrations. Nitrate+nitrite was low in the near bottom (0.02 mg N/l) and midwater (0.10 mg N/l) samples from the Little Bay pit compared to all other samples (0.13 to 0.26 mg N/l) (**Figure B-22**). TDN and TDP levels were high in the Little Bay near bottom sample and intermediate in the Little Bay pit midwater sample compared to all other samples (**Figure B-22**).

Particulate nitrogen did not differ markedly among samples or show definitive patterns, but some trends can be noted (**Figure B-23**). Particulate nitrogen in the near bottom and midwater samples from the Little Bay pit was lower compared to the Little Bay pit near surface and the Little Bay shallow midwater samples. Likewise, particulate nitrogen in the near bottom and midwater samples from the Norton Basin pit was lower compared to the Norton Basin pit near surface and the Norton Basin shallow midwater samples. The Grass Hassock Channel sample had similar particulate nitrogen as the midwater and near bottom samples from the Norton Basin pit. Particulate phosphorus was lower in midwater and near bottom samples from the Little Bay pit, and to a lesser extent, the midwater and near bottom samples from the Norton Basin pit compared to the near surface samples from pits in both embayments, the shallow midwater samples from both embayments, the Norton Basin Entrance Channel samples, and the Grass Hassock Channel sample.

Silica was high (4.7 to 5.6 mg Si/l) in the near bottom samples from the Little Bay pit compared to all other samples that had low silica (0.7 to 1.6 mg Si/l) (**Figure B-24**). In contrast, biogenic silica was low (0.04 mg Si/l) in the Little Bay pit near bottom samples, while higher biogenic silica was found in all other samples particularly in the Norton Basin Entrance Channel and Grass Hassock Channel (0.14 to 0.17 mg Si/l) samples. Midwater and near bottom samples from the Norton Basin pit, the near surface and midwater samples from the Little Bay pit, and the midwater sample from the Little Bay shallows had intermediate biogenic silica (**Figure B-24**).

Total chlorophyll was low (<1 µg/l) in the Little Bay pit near bottom samples (**Figure B-25**). Total chlorophyll was high in the Little Bay pit near surface and shallow midwater samples and the Norton Basin shallow midwater sample (14 to 24 µg/l). The Little Bay pit midwater sample had intermediate total chlorophyll. Except for one of the Norton Basin Entrance Channel samples, total chlorophyll in the Norton Basin Entrance Channel and Grass Hassock Channel samples was intermediate along with the Norton Basin pit midwater and near bottom samples. Phaeophytin was low (~1 µg/l) in the Little Bay pit near bottom samples, while phaeophytin was high in all other samples (8.6 to 11.2 µg/l) except for the Little Bay pit midwater sample, which had intermediate phaeophytin (**Figure B-26**). TSS levels from all stations were similar (**Figure B-26**).

In all samples, DOC was higher than particulate carbon (**Figure B-27**). There were no marked differences in DOC among all samples except that the near surface samples from the pits in both embayments and the shallow midwater sample from Little Bay had

lower DOC than other samples. Particulate carbon in the midwater and near bottom samples from pits in both embayments was lower compared to the near surface sample from the pits and the shallow midwater samples in both embayments. There also were no evident differences in the organic matter content.

Little Bay pit near bottom samples had high sulfide (57.5 mg S/l), while sulfide was not detected in other samples except for intermediate sulfide (1.5 mg/l) in the Little Bay pit midwater sample (**Figure B-28**).

September. Water chemistry results for September are shown in **Figures B-29** to **B-35**; ammonium (9.9 mg N/l) and phosphate (2.55 mg P/l) in near bottom samples from the Little Bay pit were high compared to other samples (0.2 to 0.5 mg N/l ammonium and 0.1 to 0.3 mg P/l phosphate) (**Figure B-29**). Ammonium and phosphate were low in the near bottom sample from the Norton Basin pit and the near surface and midwater samples from the Little Bay and Norton Basin pits. Shallow midwater samples from the Little Bay and Norton Basin pits, the Norton Basin Entrance Channel samples, and the Grass Hassock Channel sample also had low ammonium and phosphate. Nitrate+nitrite was low (0.01 mg N/l) in near bottom samples from the Little Bay pit compared to other samples (0.15 to 0.38 mg N/l). One of the Norton Basin Entrance Channel samples had intermediate nitrate+nitrite (**Figure B-29**). TDN and TDP levels were high in the Little Bay near bottom sample and intermediate in the Little Bay pit midwater sample compared to all other samples (**Figure B-29**).

Particulate nitrogen was low in near bottom samples from the Little Bay pit compared to all other samples (**Figure B-30**). Particulate phosphorus was lower to a more marked extent in near bottom samples from the Little Bay pit compared to all other samples (**Figure B-30**).

Silica was high (6.31 mg Si/l) in the Little Bay pit near bottom samples compared to all other samples (0.5 to 1.3 mg Si/l) (**Figure B-31**). Biogenic silica was low (0.02 to 0.07 mg Si/l) in the Little Bay pit near bottom samples compared to other samples (**Figure B-31**).

Total chlorophyll was low (3.4 µg/l) in the Little Bay near bottom samples and high in all other samples (14 to 29 µg/l) (**Figure B-32**). Phaeophytin was low (4 µg/l) in the Little Bay near bottom samples and high in all other samples (7.5 to 15.5 µg/l) (**Figure B-33**). TSS was similar among all samples except for a high value in the Little Bay pit near surface sample (**Figure B-33**).

In all samples, DOC was higher than particulate carbon (**Figure B-34**). DOC generally was comparable among the samples except for a lower DOC in the Norton Basin Entrance Channel 1 midwater sample and the supplementary Norton Basin pit near bottom samples. Particulate carbon in the Little Bay pit near bottom sample was lower than other samples. Organic matter content in the samples was similar. Sulfide was high (>34 mg S/l) in the Little Bay pit nearbottom samples and absent in all other samples except for trace concentrations in the Norton Basin pit midwater and near bottom samples (**Figure B-35**).

October. **Figures B-36** to **B-42** show results of the October water chemistry survey. There were high ammonium (9.5 to 10.2 mg N/l) and phosphate (2.7 mg/l) concentrations in the near bottom samples from the Little Bay pit compared to other samples, which had 0.4 to 0.7 mg/l ammonium and 0.1 to 0.2 mg P/l phosphate (**Figure B-36**). Ammonium and

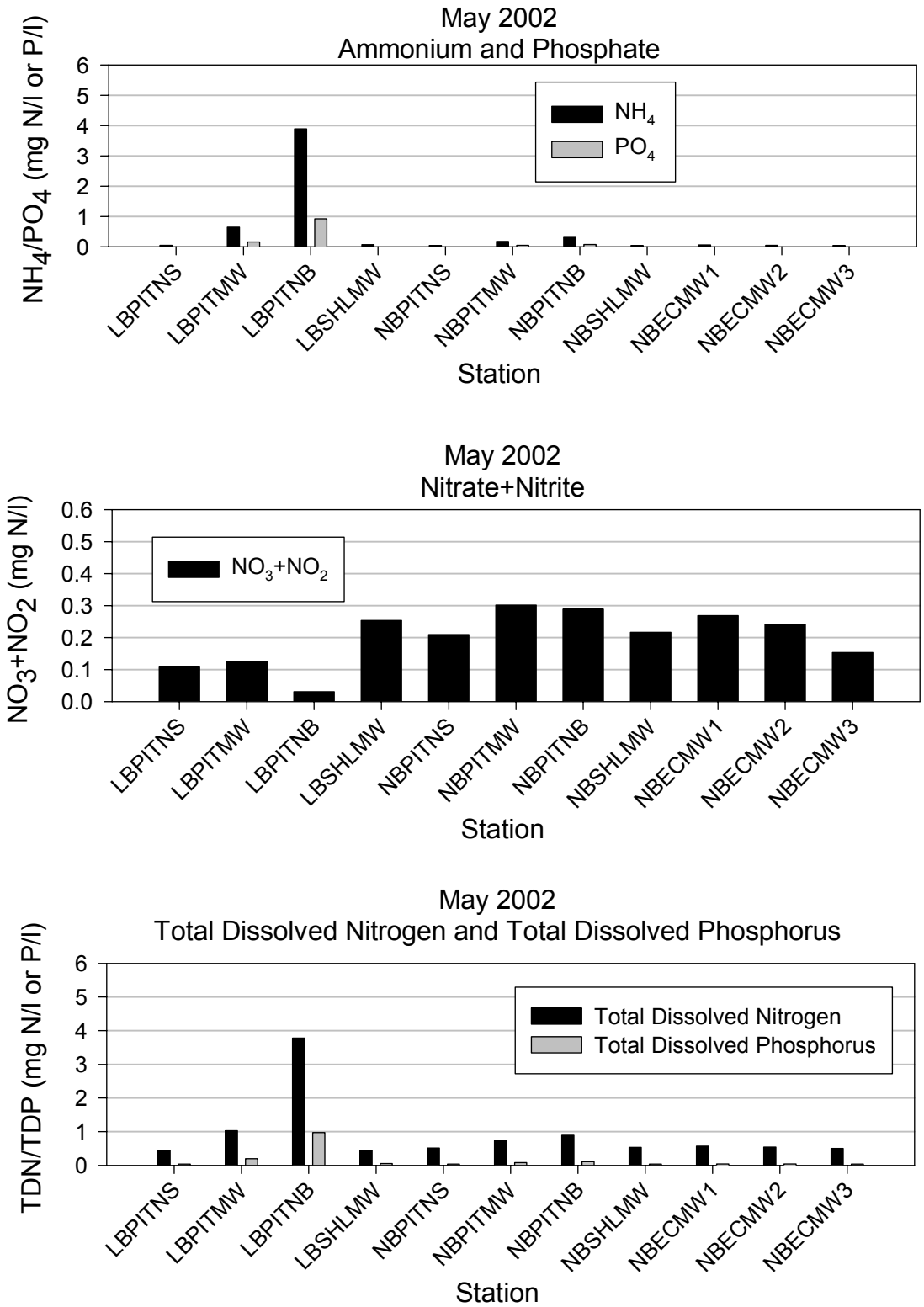
phosphate were low in near surface and midwater samples from the Little Bay and Norton Basin pits. Shallow midwater samples from Little Bay and Norton Basin, near bottom sample from the Norton Basin pit, the Norton Basin Entrance Channel samples, and Grass Hassock Channel samples also had low concentrations of ammonium and phosphate. Nitrate+nitrite was low (0.001 mg N/l) in near bottom samples from the Little Bay pit, while other samples had high nitrate+nitrite (0.3 to 0.55 mg N/l) (**Figure B-36**). TDN and TDP reflected differences in the Little Bay pit near bottom sample were high compared to other samples (**Figure B-36**).

Dissolved nitrogen and phosphorus concentrations were higher than particulate nitrogen and phosphorus values (**Figure B-37**). Particulate nitrogen was higher in the near bottom sample from the Little Bay pit compared to all other samples. No differences in particulate phosphorus among the samples were evident.

Silica was higher substantially (5.75 mg Si/l) in the Little Bay pit near bottom sample compared to all other samples (0.7 to 1.2 mg Si/l), where there was very similar silica (**Figure B-38**). In contrast, biogenic silica was low (0.03 mg Si/l) in the Little Bay near bottom sample compared to other samples (0.07 to 0.12 mg Si/l) (**Figure B-38**).

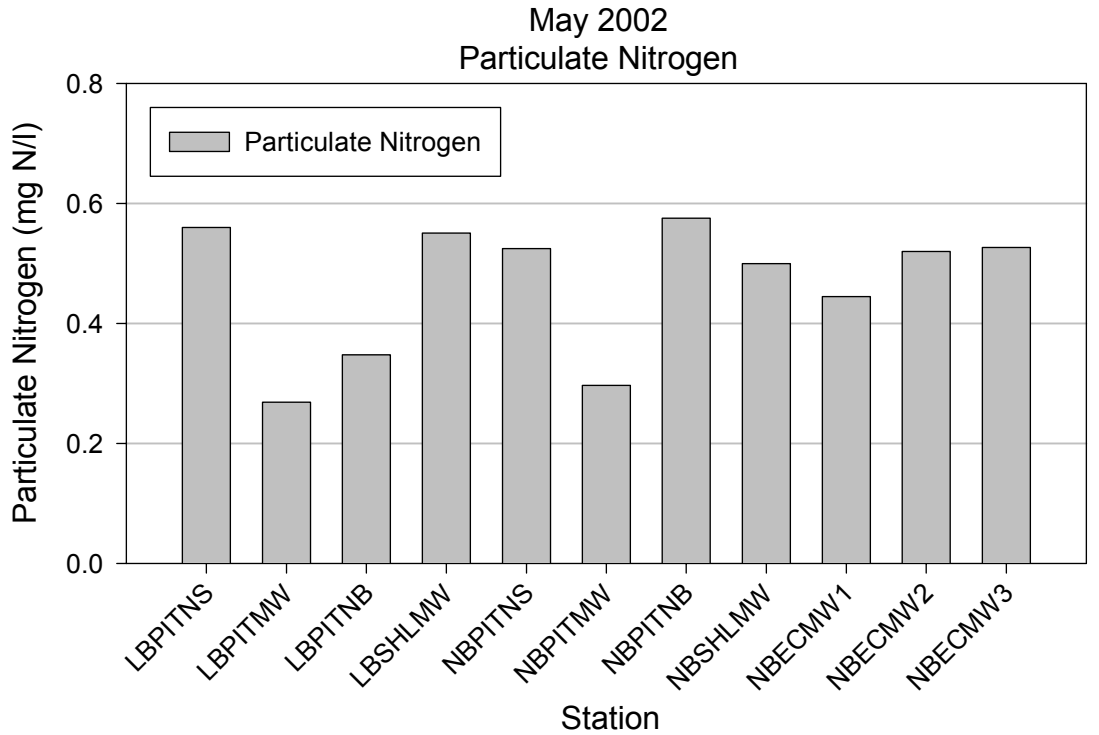
Total chlorophyll was low (0.9 µg/l) in the Little Bay pit near bottom sample relative to all other samples (5 to 8 µg/l), which had very similar total chlorophyll (**Figure B-39**). Phaeophytin was low (0.9 µg/l) in the Little Bay pit near bottom sample and high in all other samples (3 to 5 µg/l) (**Figure B-40**). Except for a higher TSS in the Little Bay pit midwater sample, TSS were similar among all samples (**Figure B-40**).

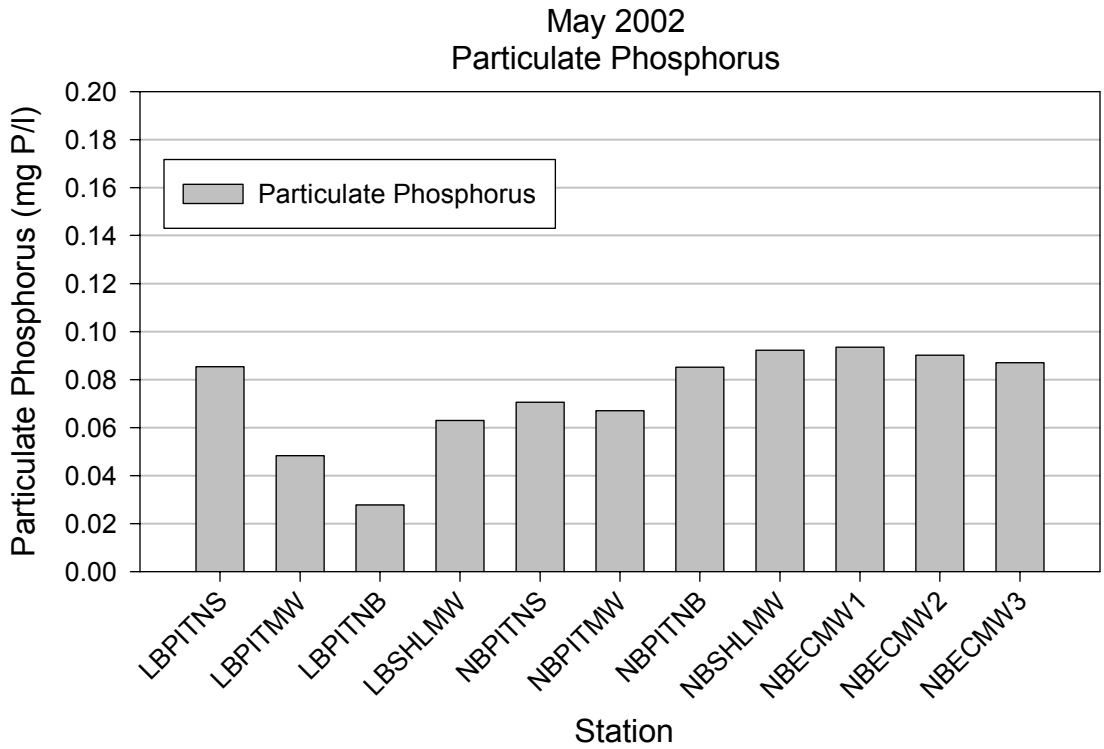
In all samples, DOC was higher than particulate carbon (**Figure B-41**). There was an increasing trend in DOC with depth in the Norton Basin pit samples while in the Little Bay pit, the midwater sample had higher DOC than the midwater sample. DOC in the Norton Basin Entrance Channel samples and the shallow midwater samples were similar to the Norton Basin pit midwater sample. There were no evident differences in particulate carbon among all samples except for higher particulate carbon in the Little Bay pit near bottom sample. Organic matter content was similar among all samples except for lower organic matter content in the Little Bay pit near surface sample. Sulfide was high (66 to 76 mg S/l) in Little Bay pit near bottom samples and not detected in all other samples except for trace concentrations in the Little Bay pit midwater sample (**Figure B-42**).



Sample names are spelled out in Figure B-7.

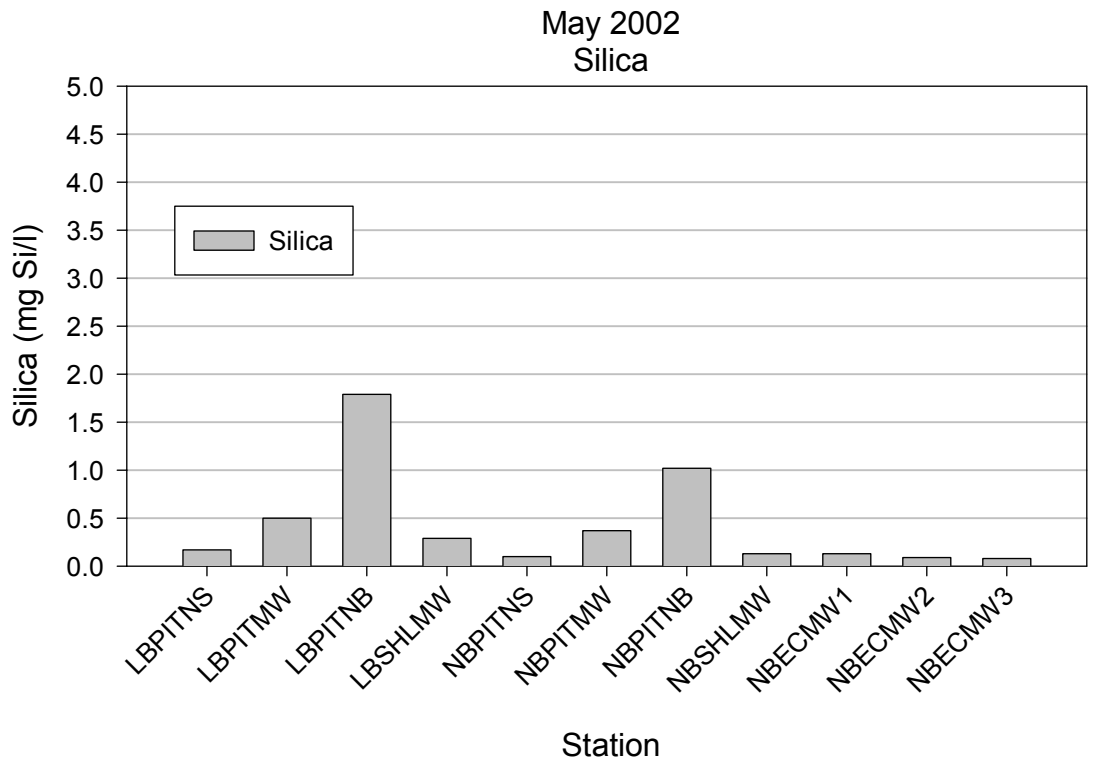
Figure B-1. Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 6 May 2002.

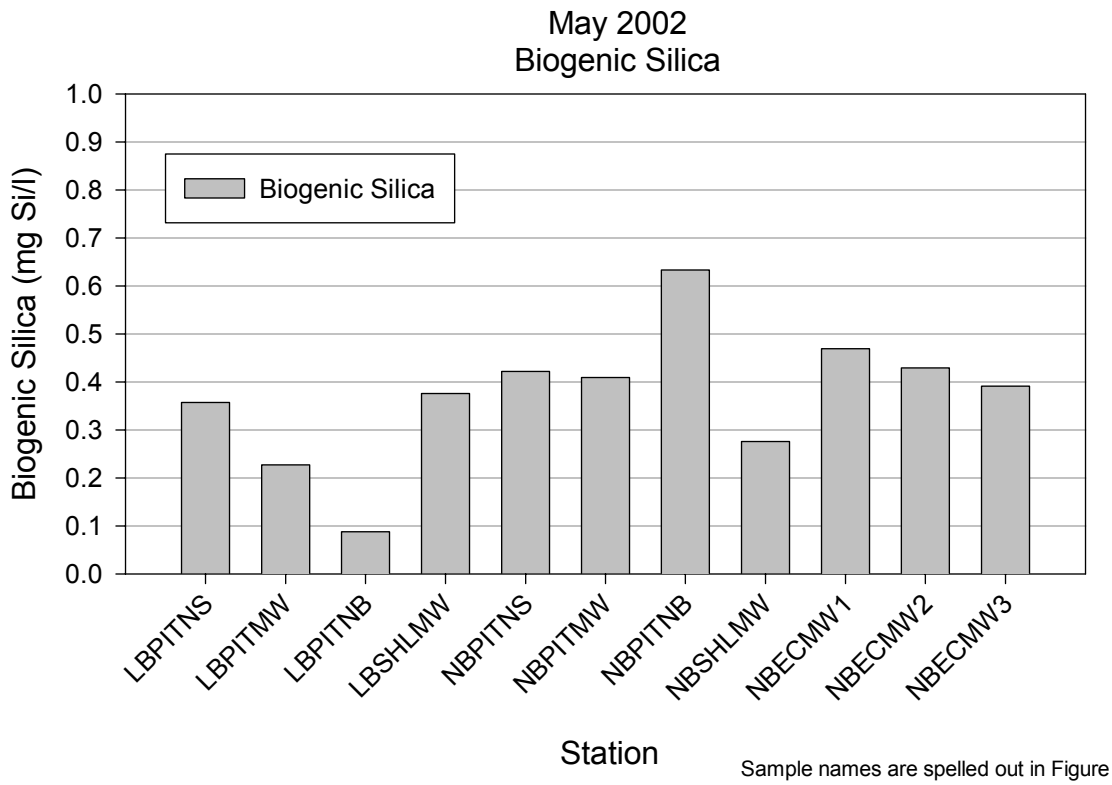




Sample names are spelled out in Figure B-7.

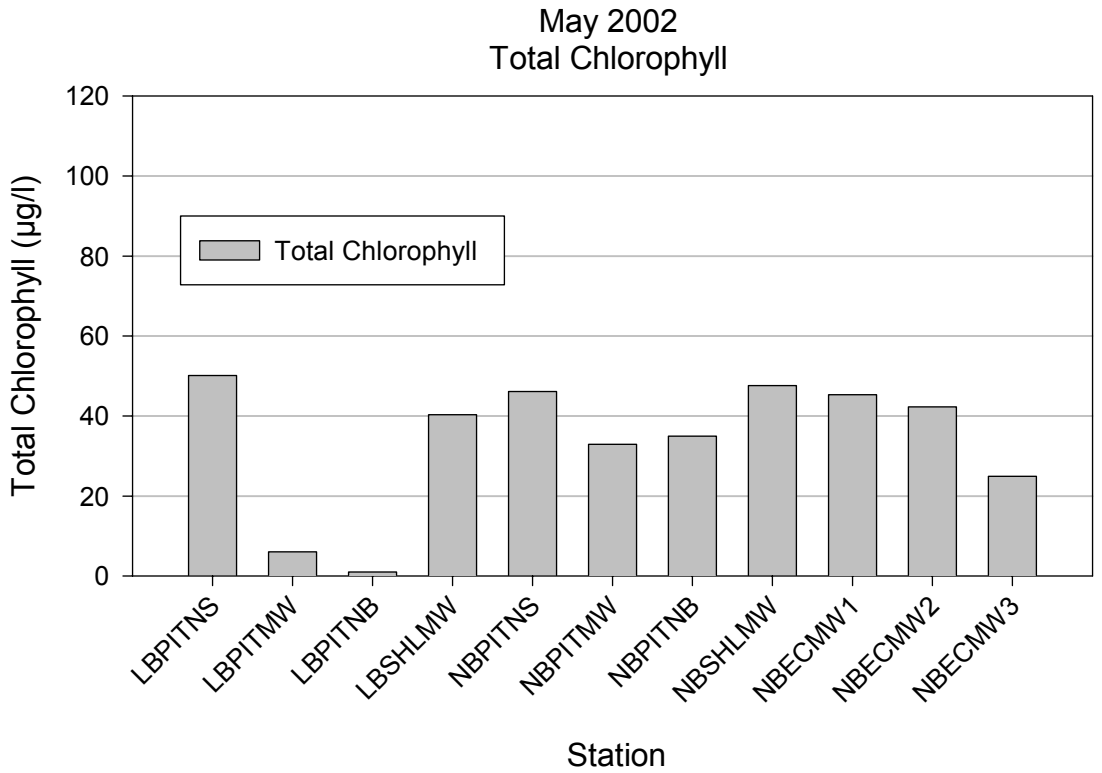
Figure B-2. Particulate nitrogen and phosphorus in water samples collected 6 May 2002.

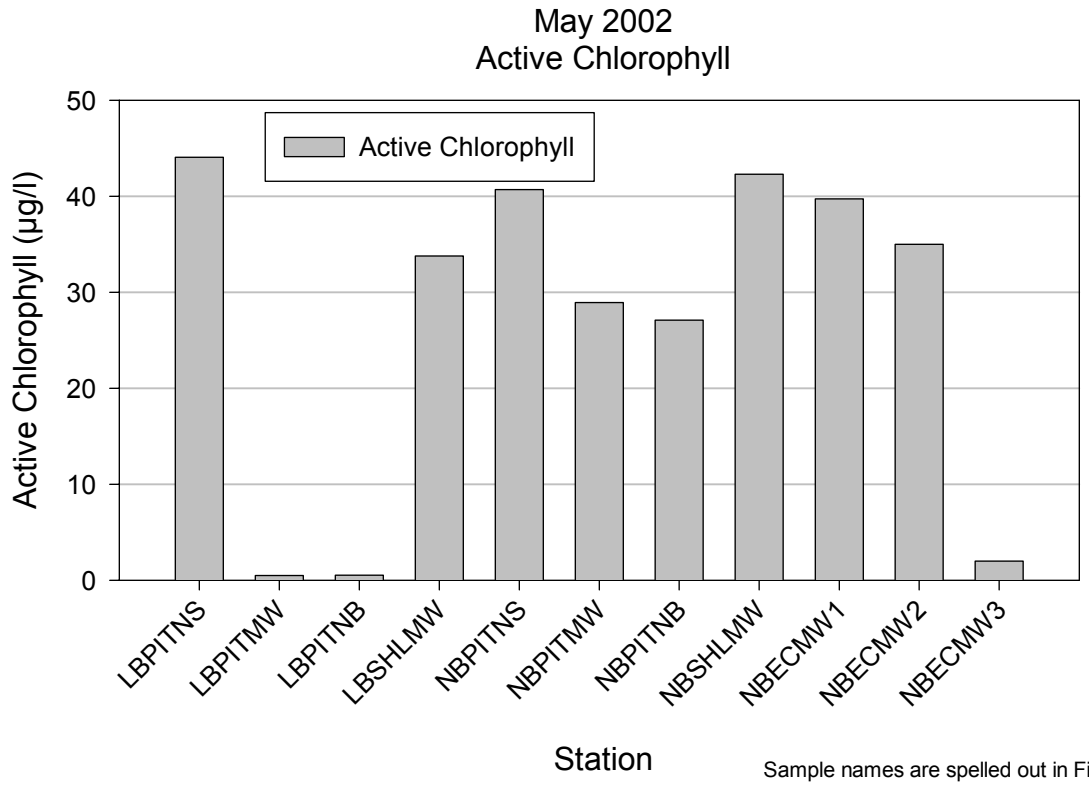




Sample names are spelled out in Figure B-7.

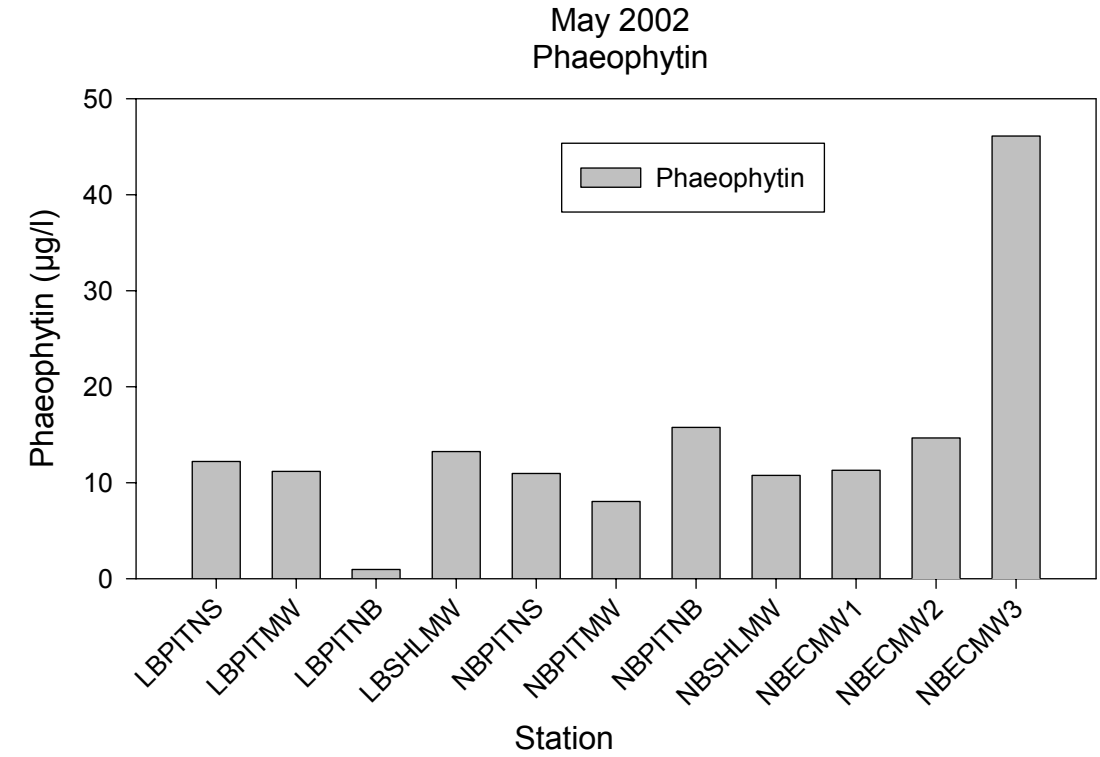
Figure B-3. Silica and biogenic silica in water samples collected 6 May 2002.

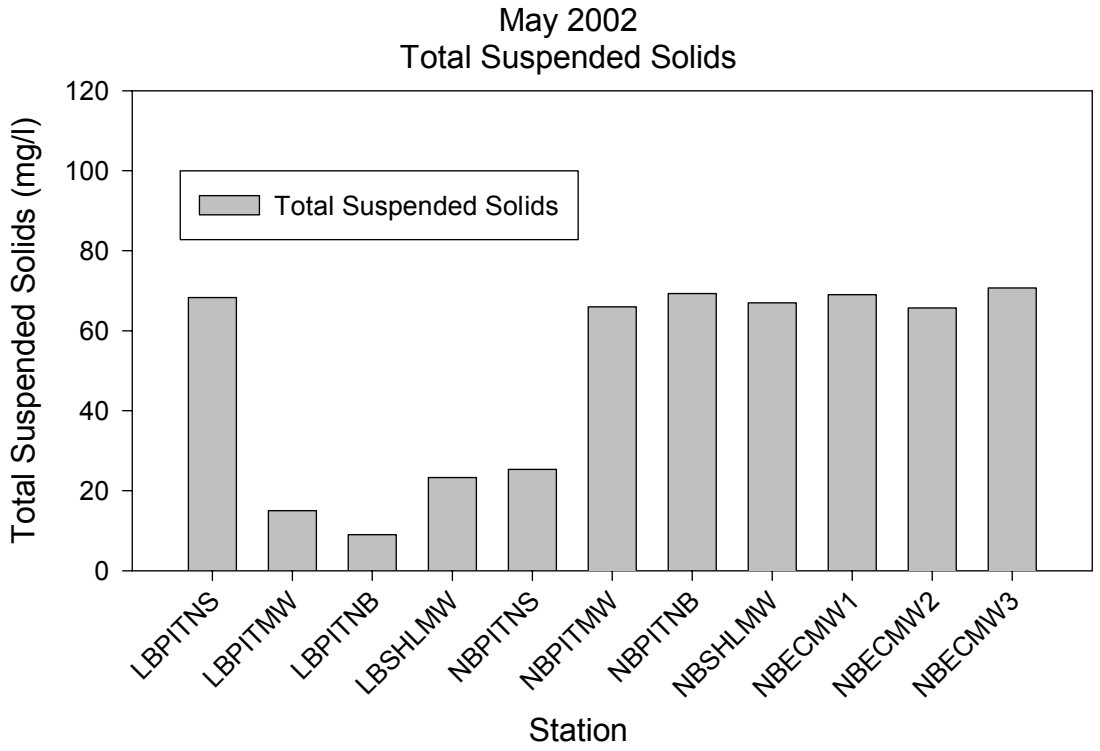




Sample names are spelled out in Figure B-7.

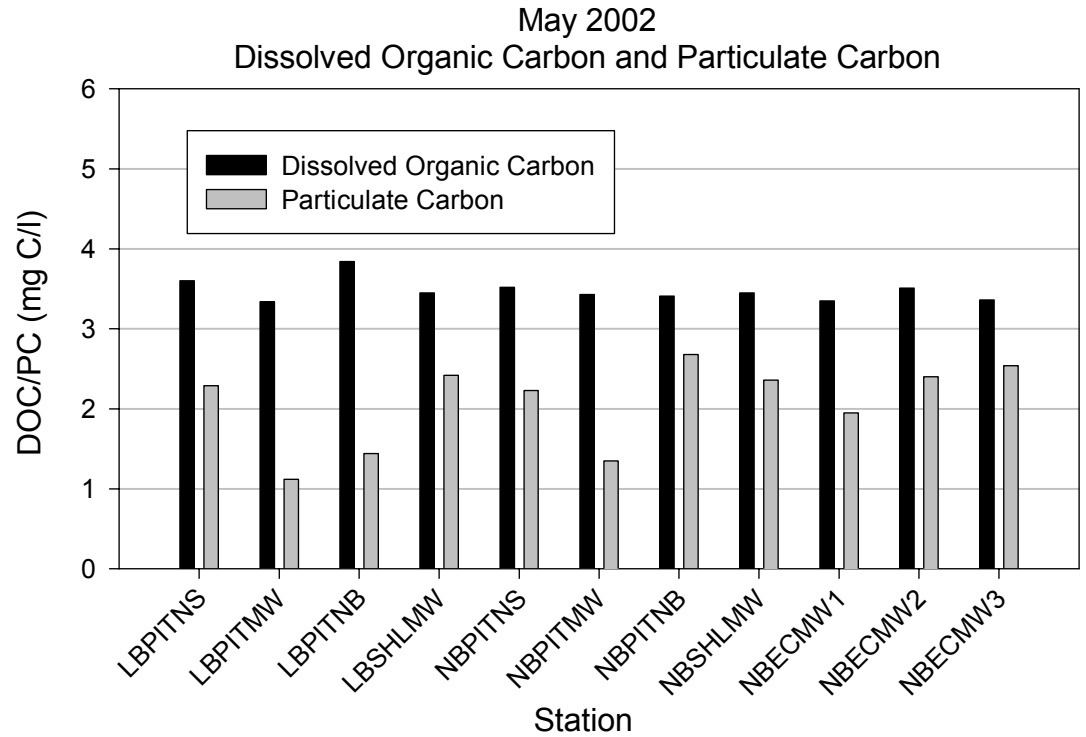
Figure B-4. Total chlorophyll and active chlorophyll in water samples collected 6 May 2002.

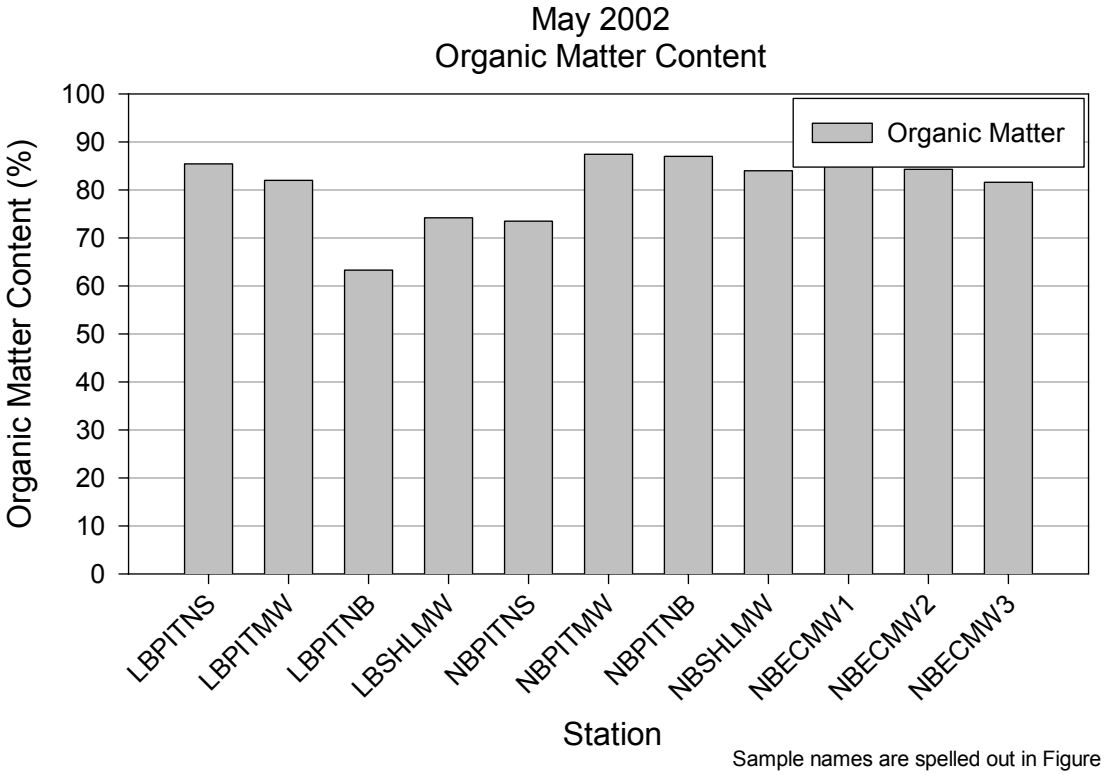




Sample names are spelled out in Figure B-7.

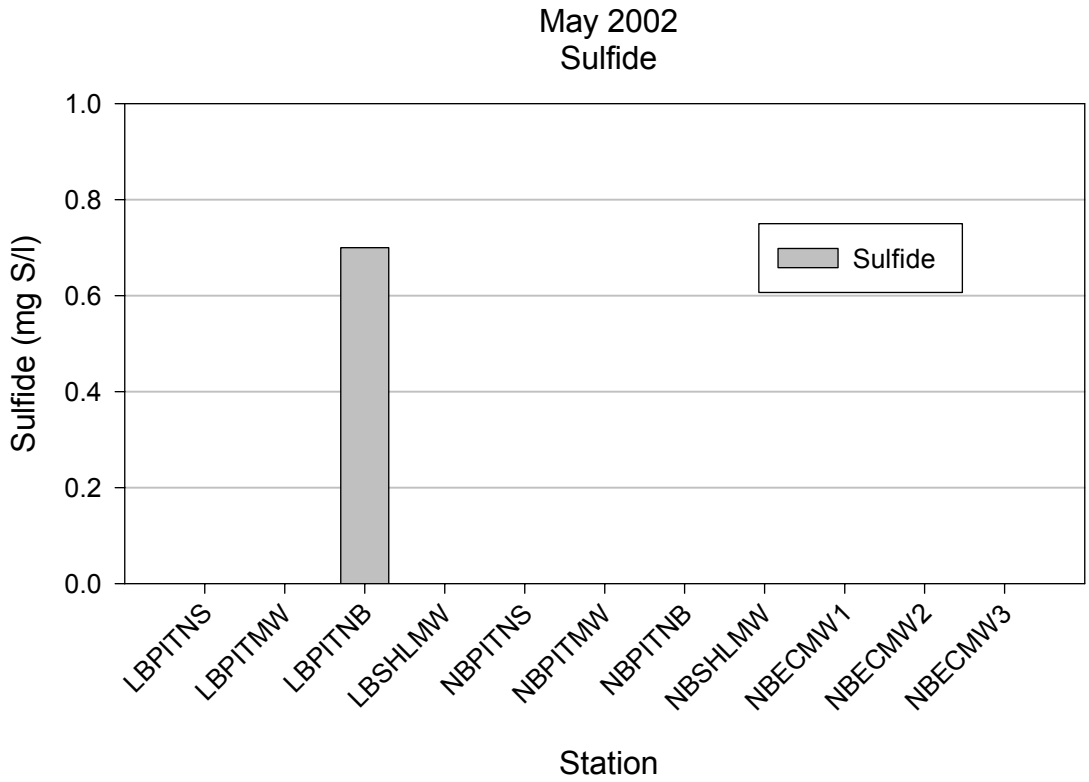
Figure B-5. Phaeophytin and total suspended solids in water samples collected 6 May 2002.





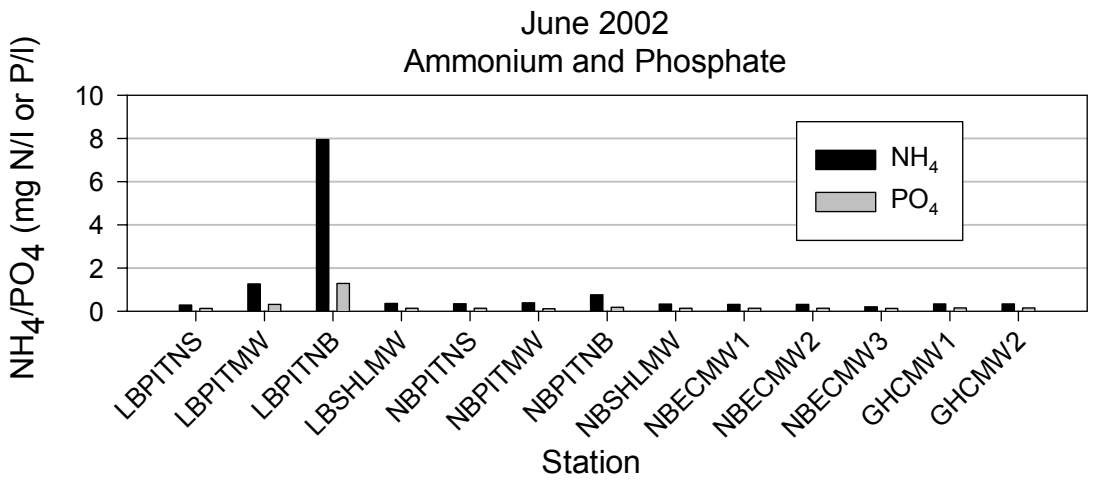
Sample names are spelled out in Figure B-7.

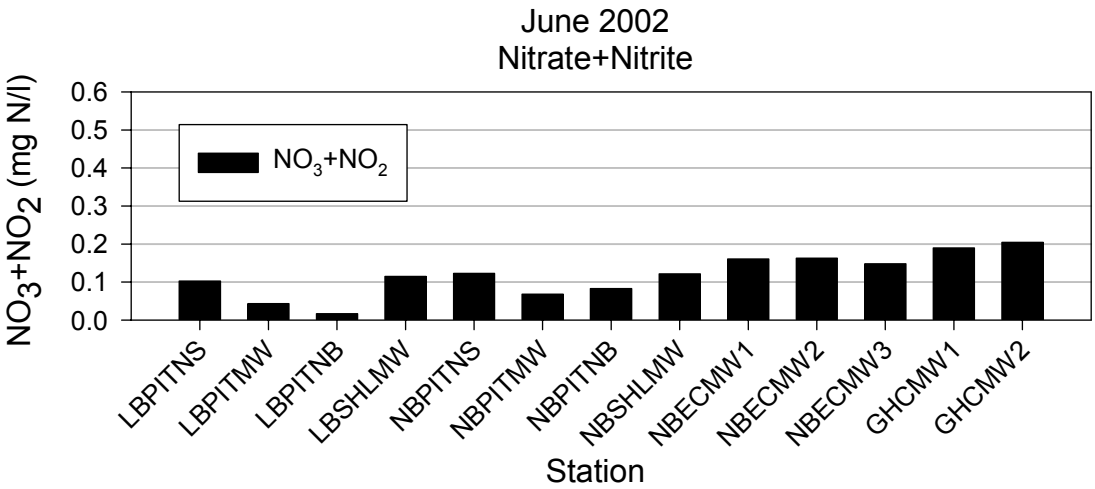
Figure B-6. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 6 May 2002.

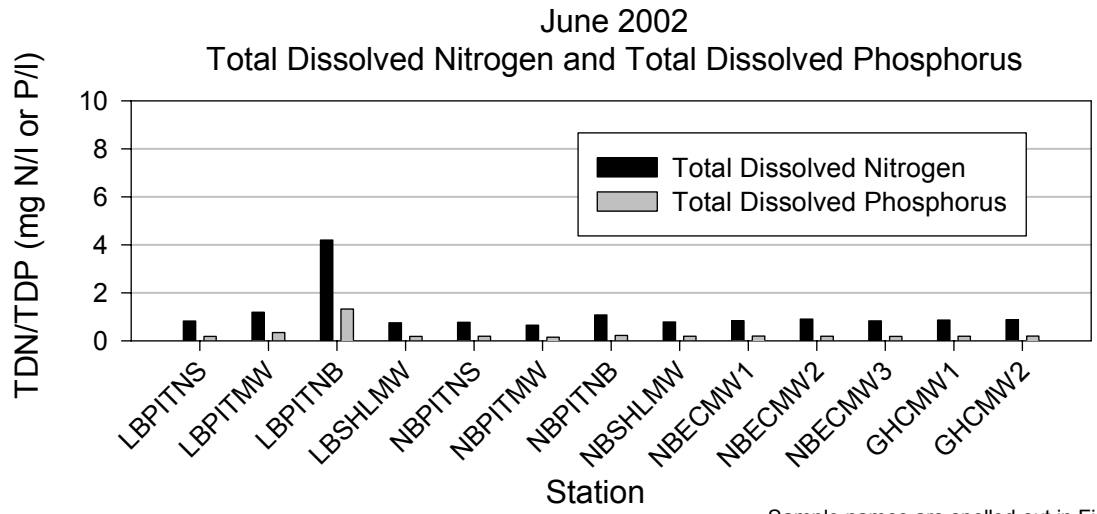


LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3

Figure B-7. Sulfide in water samples collected 6 May 2002.







Sample names are spelled out in Figure B-14.

Figure B-8. Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 19 June 2002.

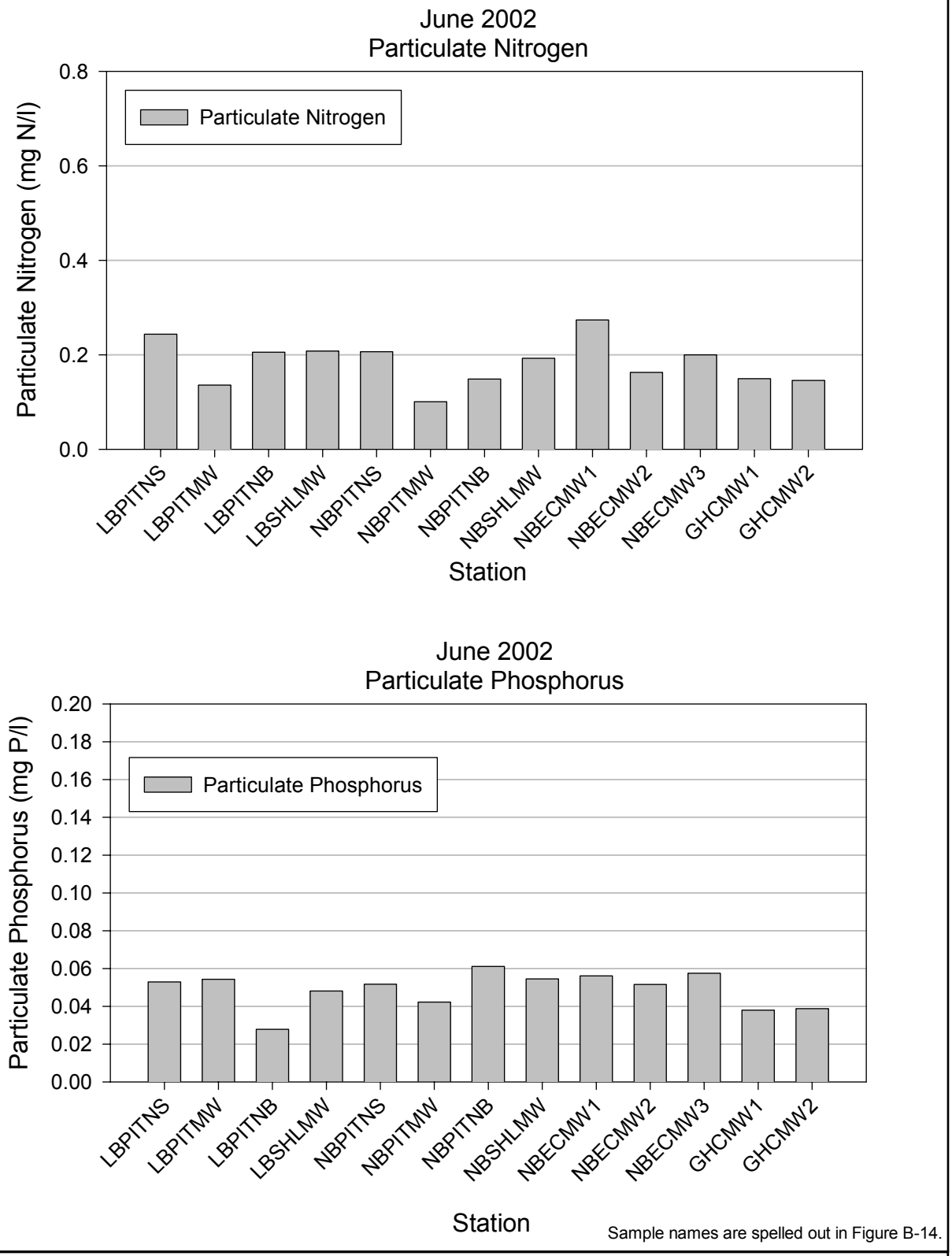


Figure B-9. Particulate nitrogen and particulate phosphorus in water samples collected 19 June 2002.

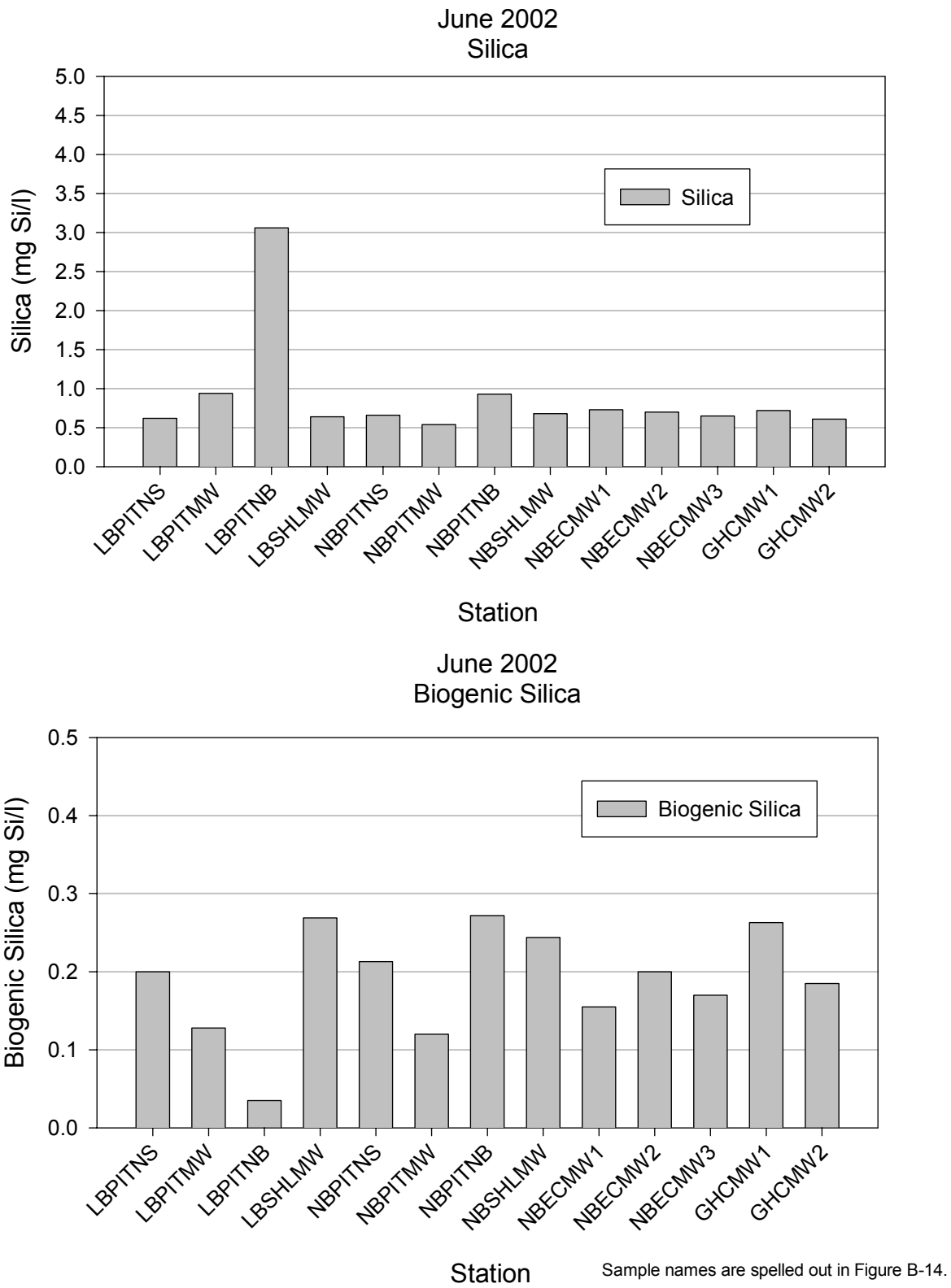


Figure B-10. Silica and biogenic silica in water samples collected 19 June 2002.

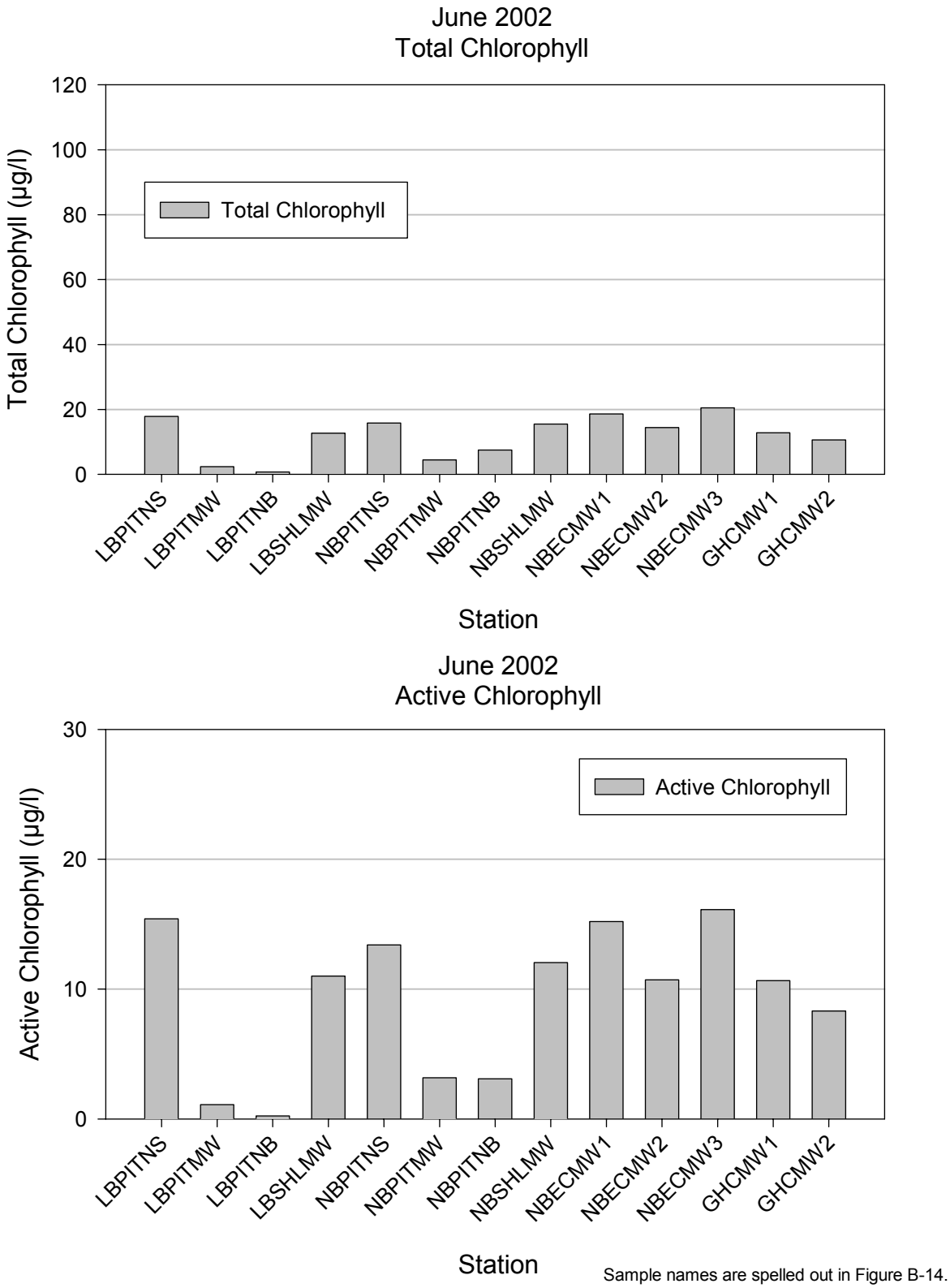
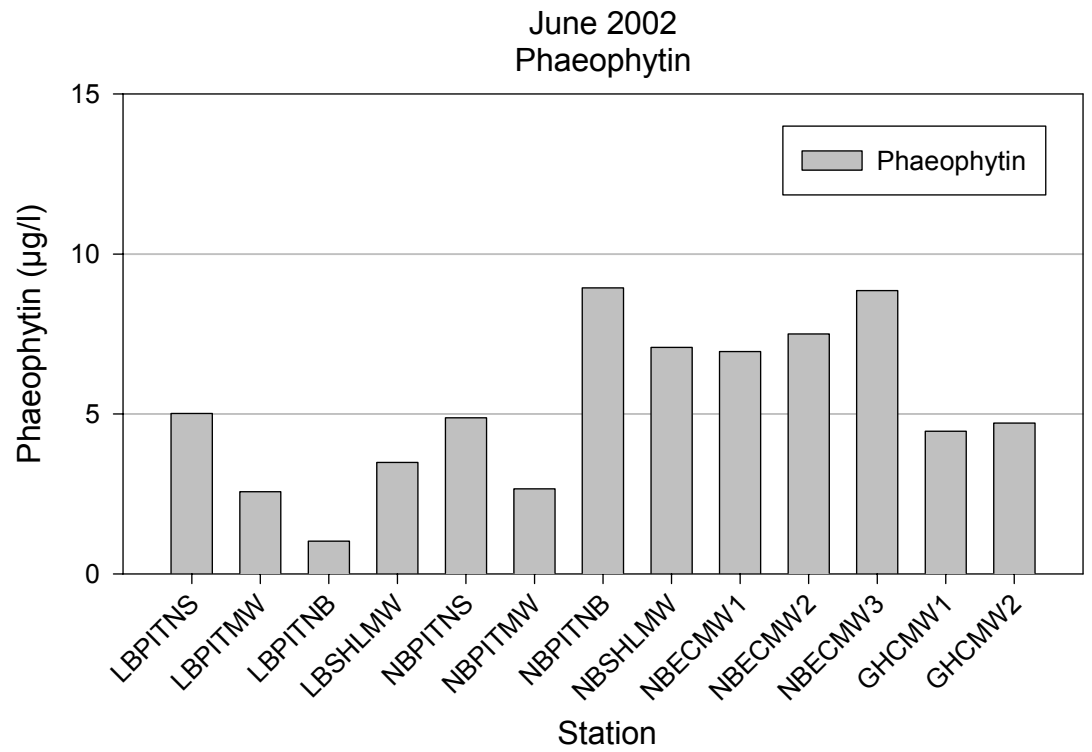
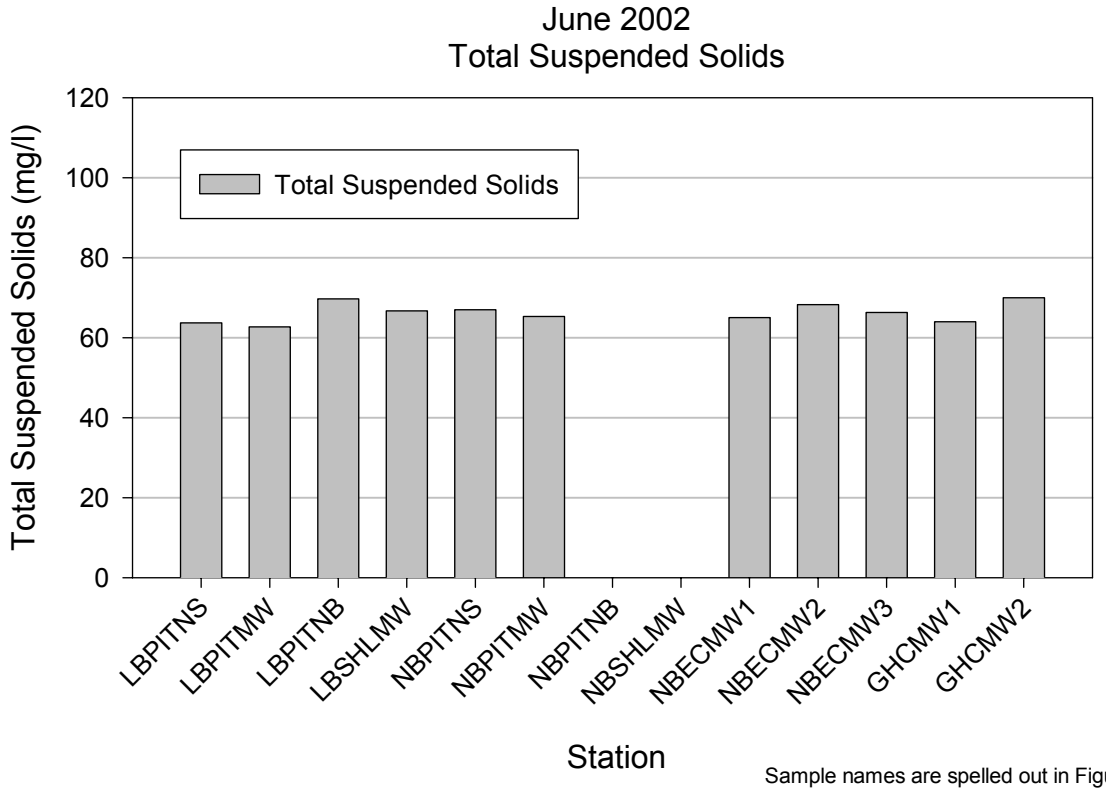


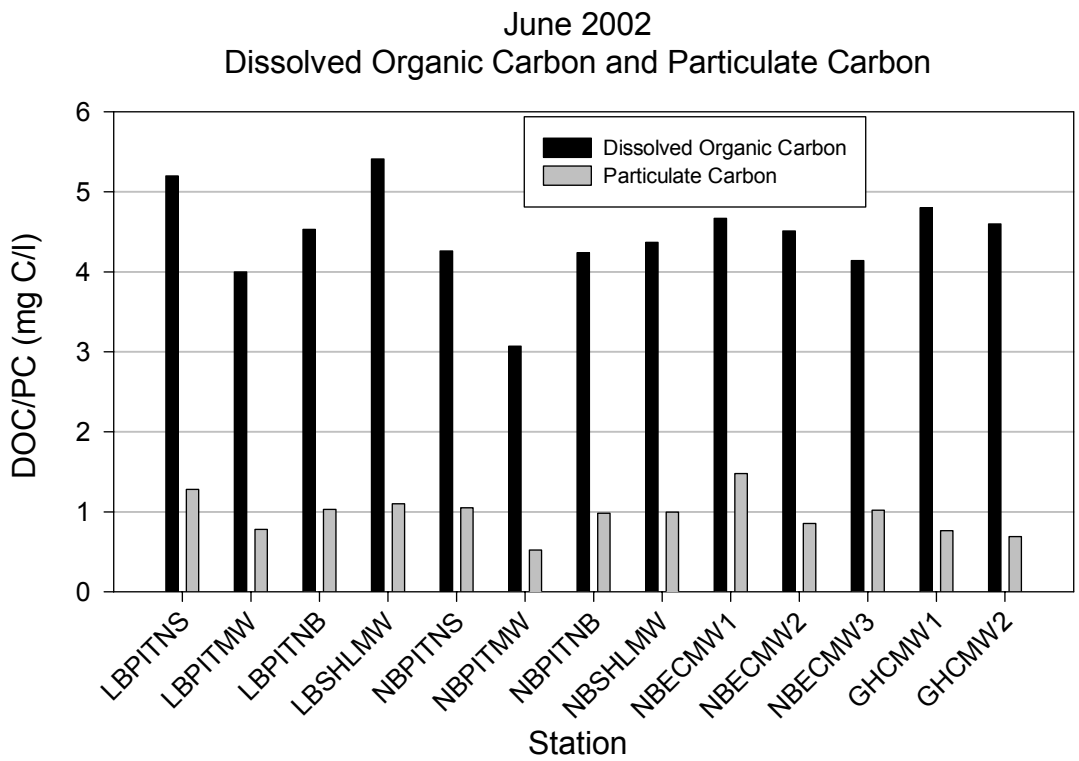
Figure B-11. Total chlorophyll and active chlorophyll in water samples collected 19 June 2002.

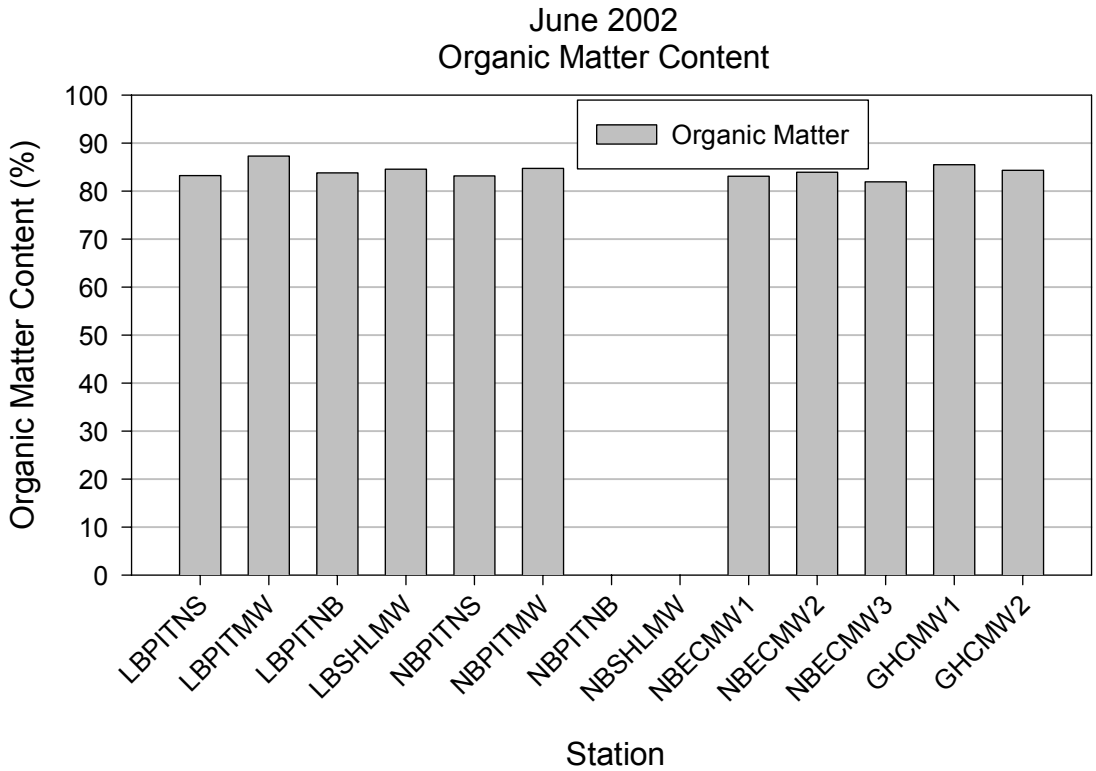




Sample names are spelled out in Figure B-14.

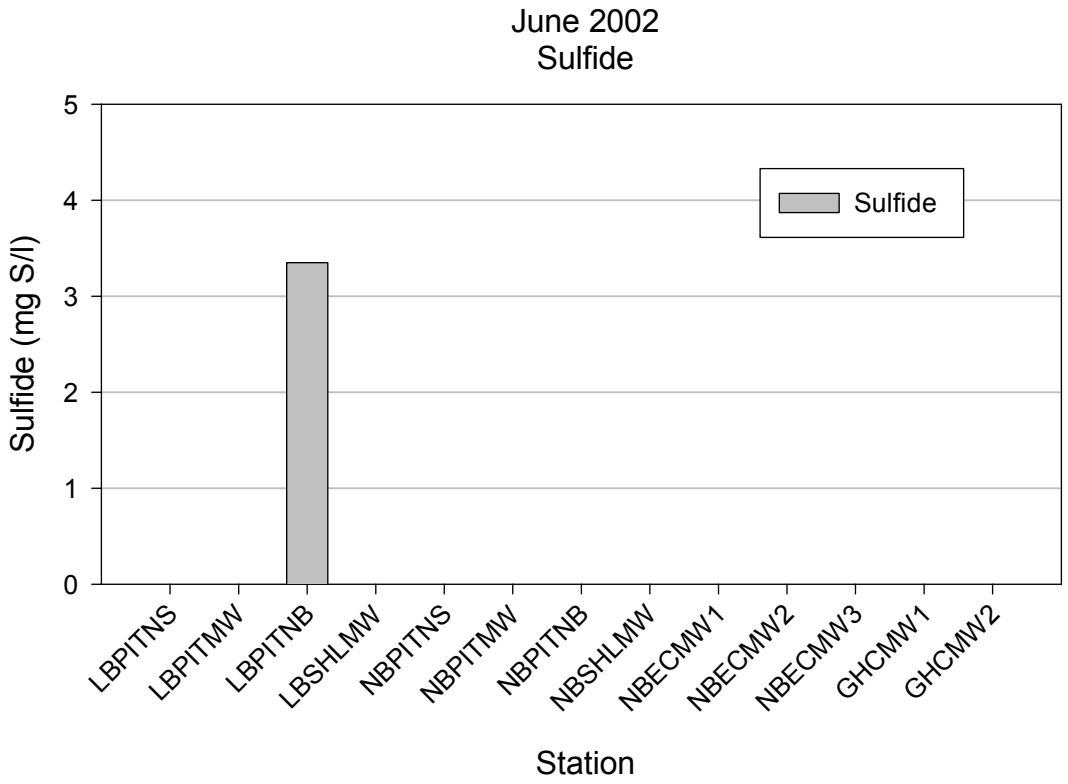
Figure B-12. Phaeophytin and total suspended solids in water samples collected 19 June 2002.





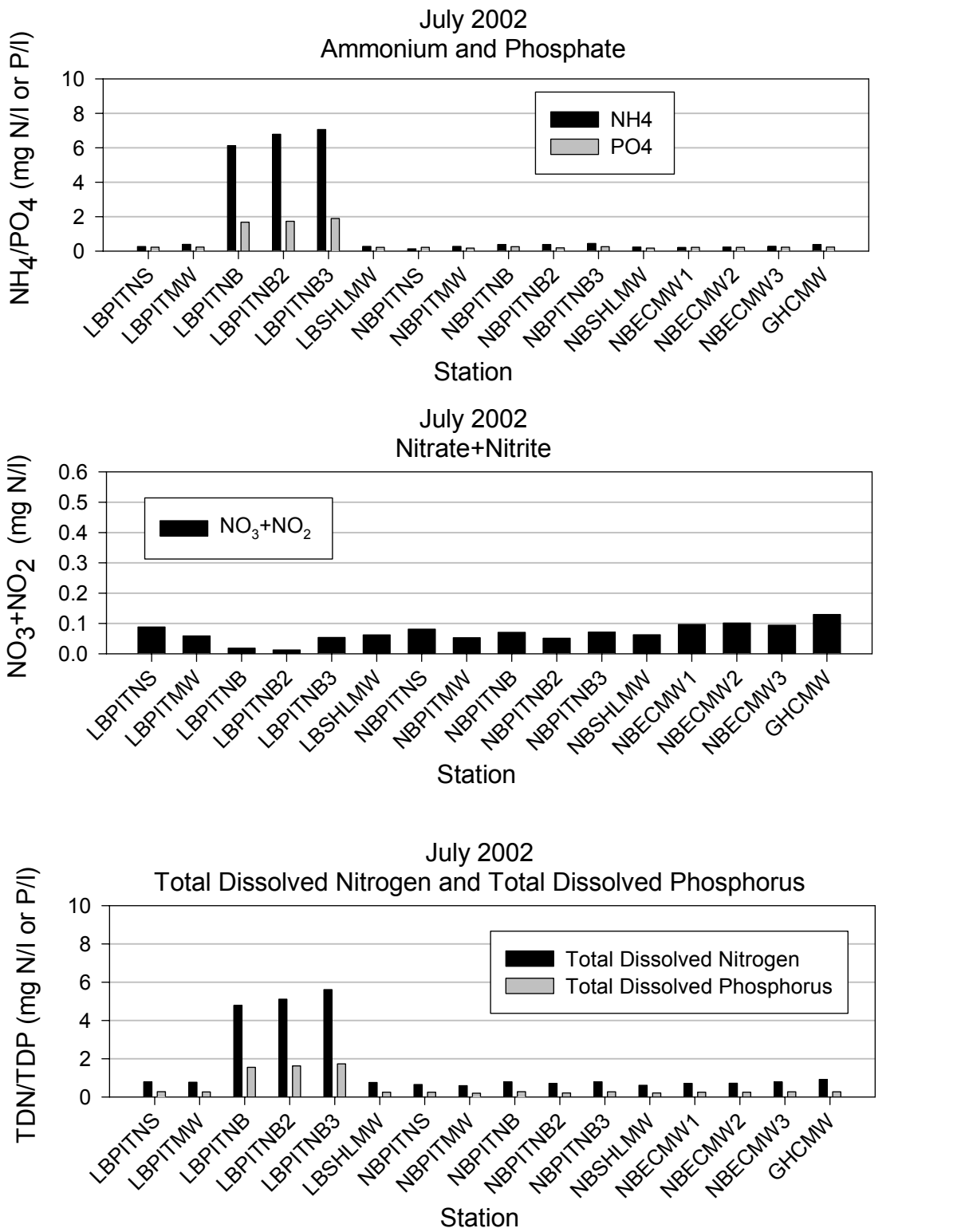
Sample names are spelled out in Figure B-14.

Figure B-13. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 19 June 2002.



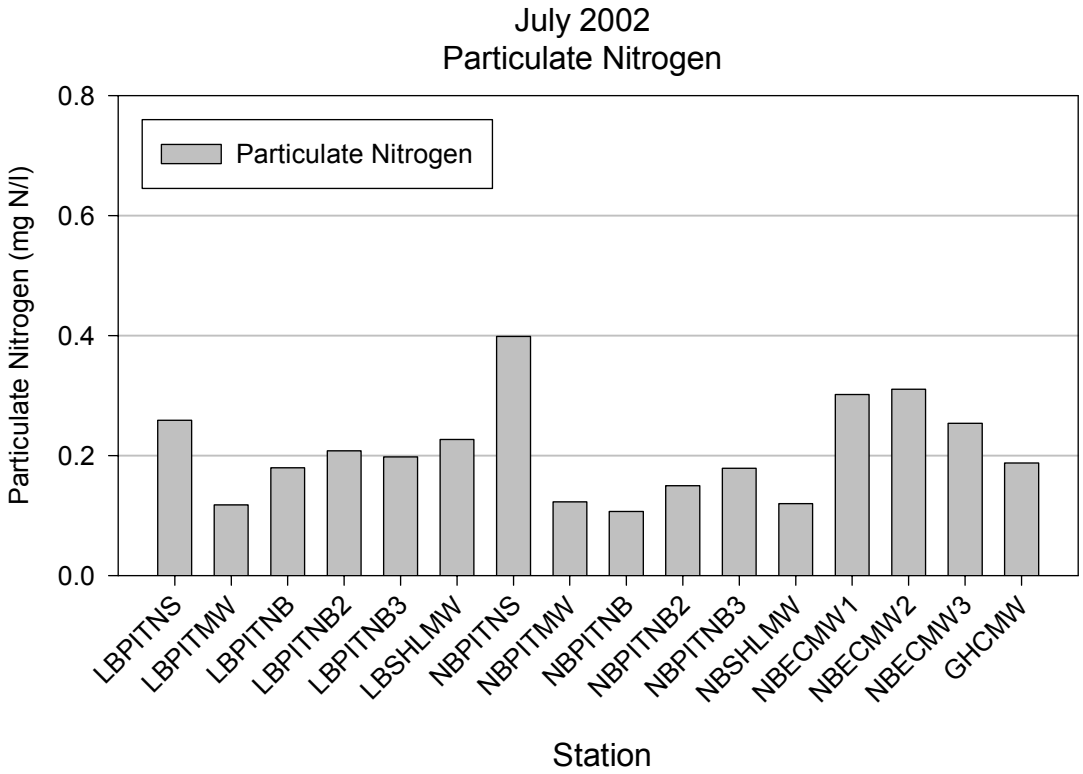
LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3
GHCMW1 - Grass Hassock Channel Midwater Sample 1
GHCMW2 - Grass Hassock Channel Midwater Sample 2

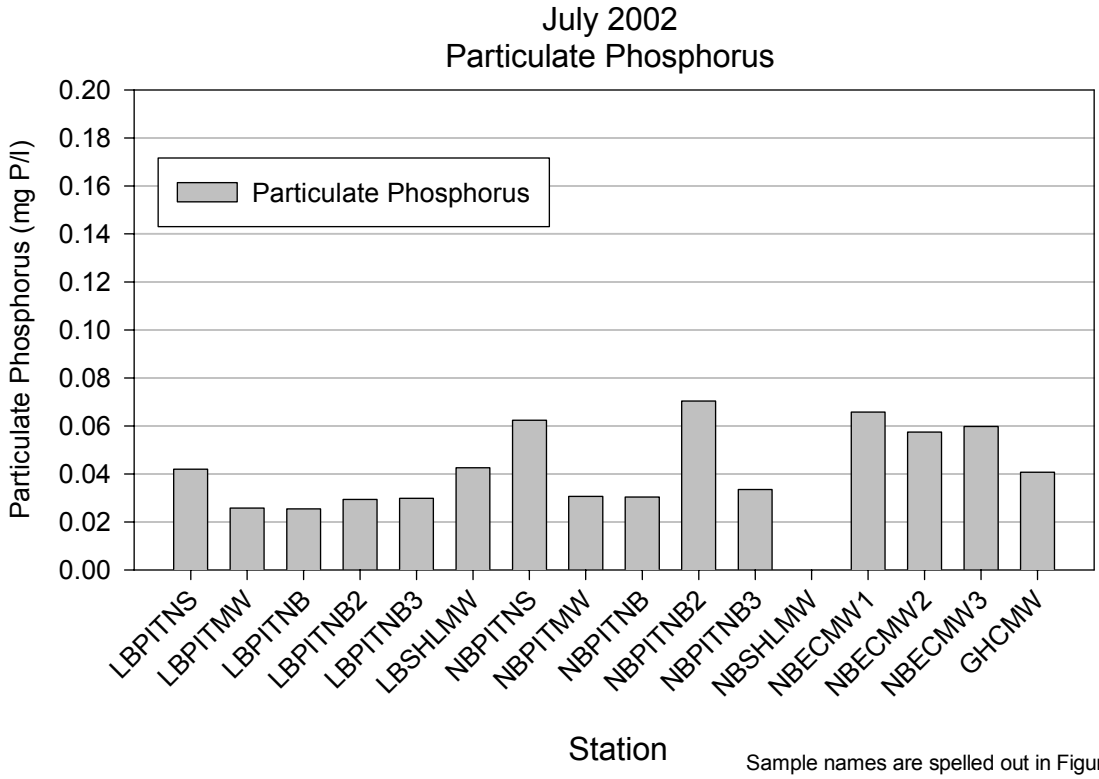
Figure B-14. Sulfide in water samples collected 19 June 2002.



Sample names are spelled out in Figure B-21.

Figure B-15. Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 30 July 2002.





Sample names are spelled out in Figure B-21.

Figure B-16. Particulate nitrogen and particulate phosphorus in water samples collected 30 July 2002.

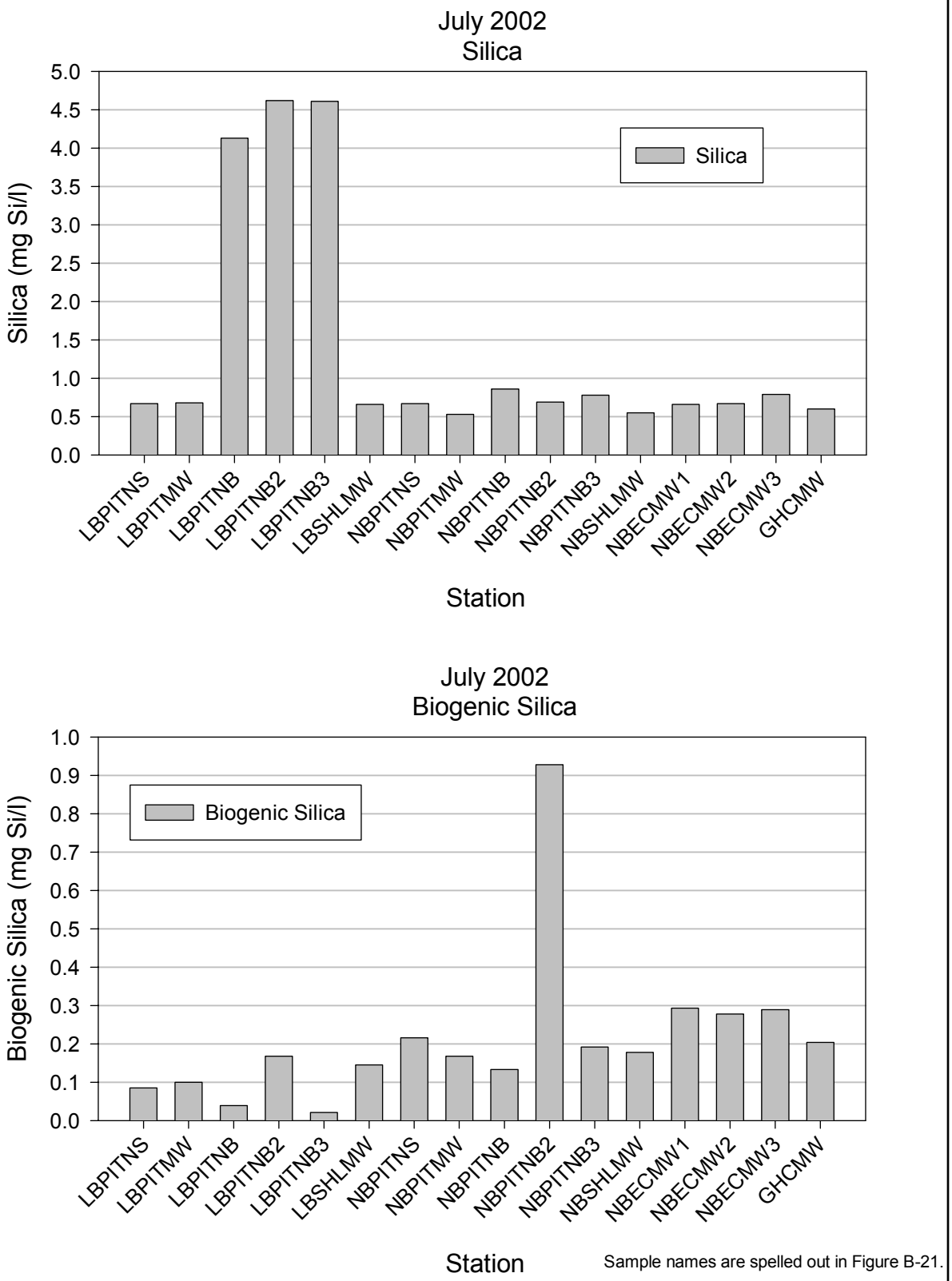
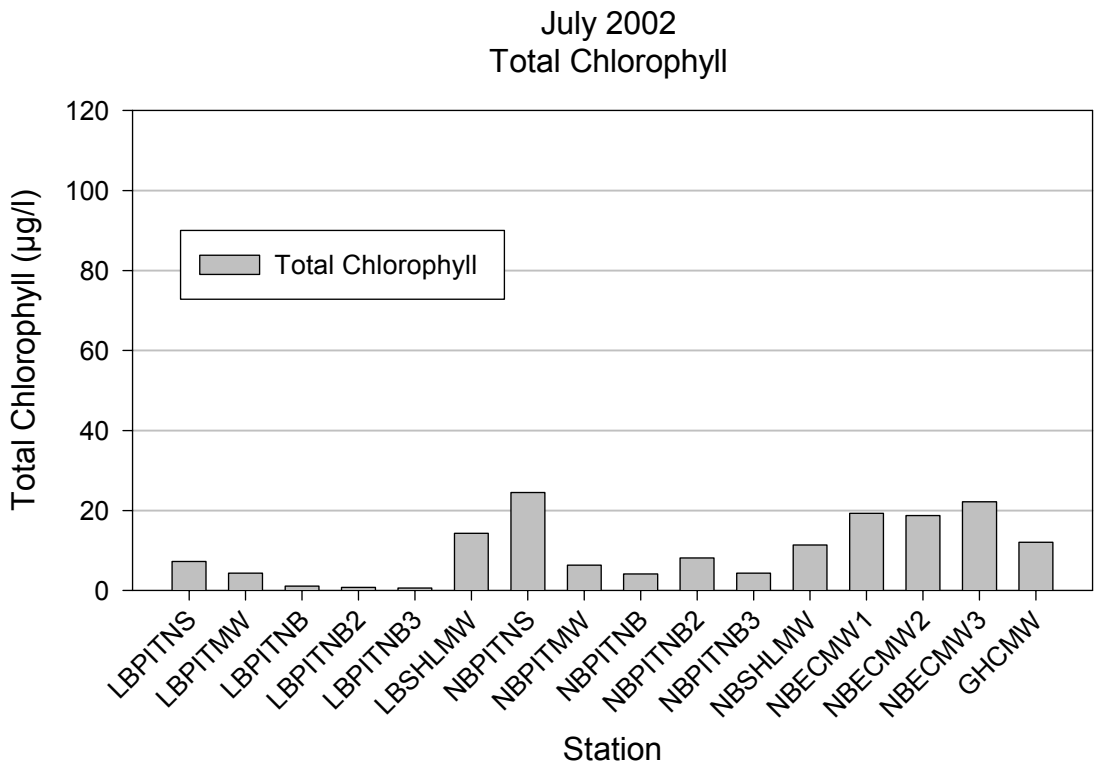
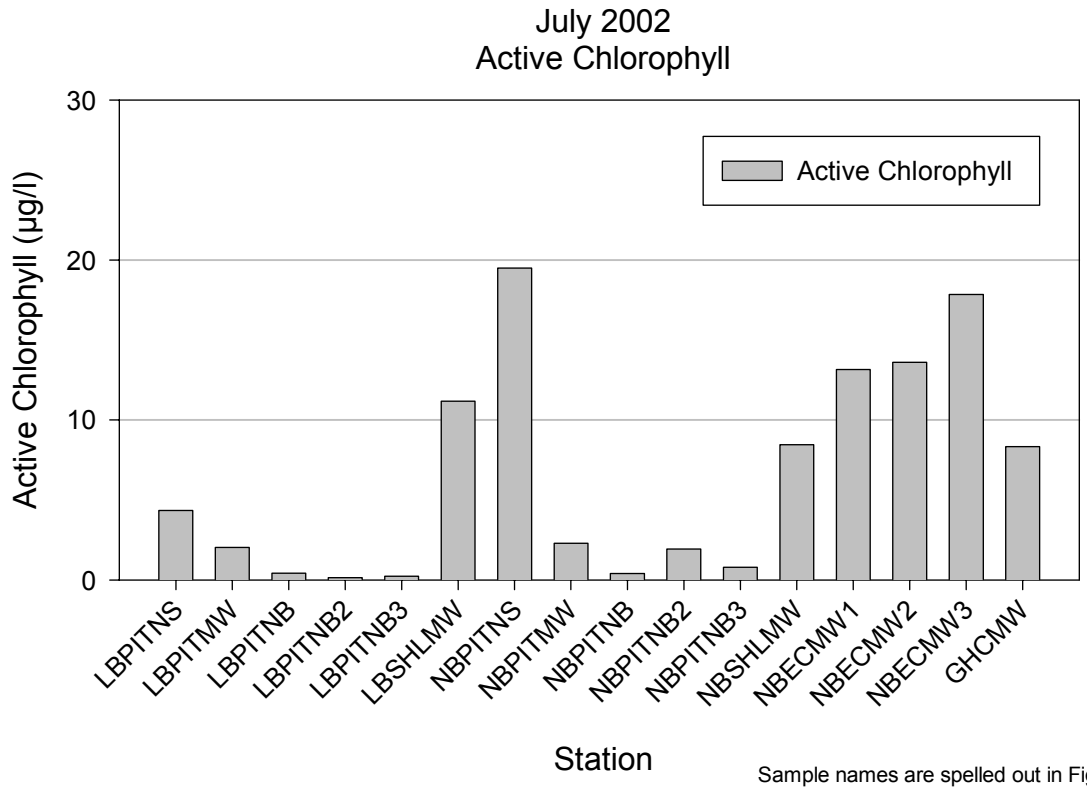


Figure B-17. Silica and biogenic silica in water samples collected 30 July 2002.





Sample names are spelled out in Figure B-21.

Figure B-18. Total chlorophyll and active chlorophyll in water samples collected 30 July 2002.

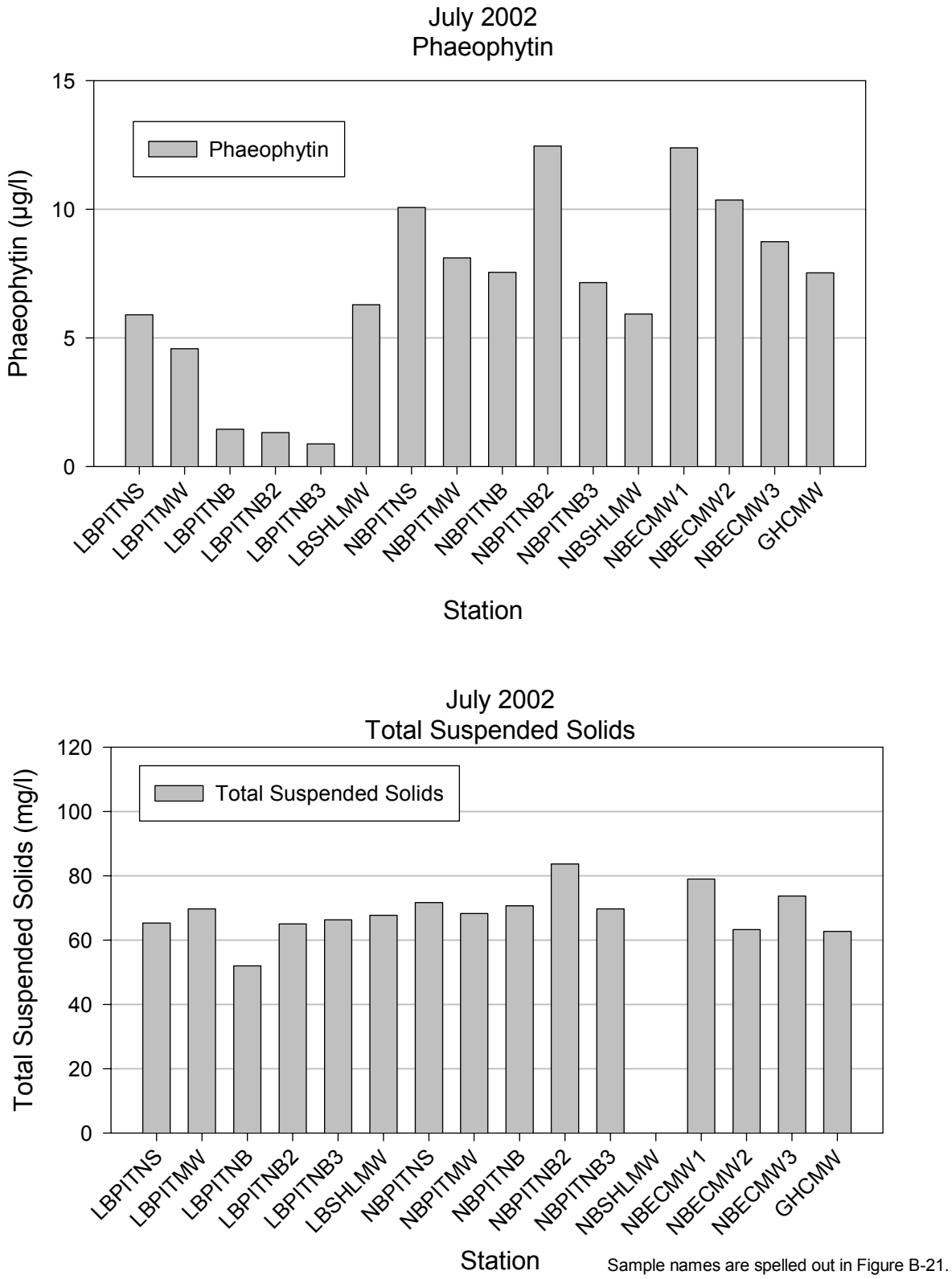
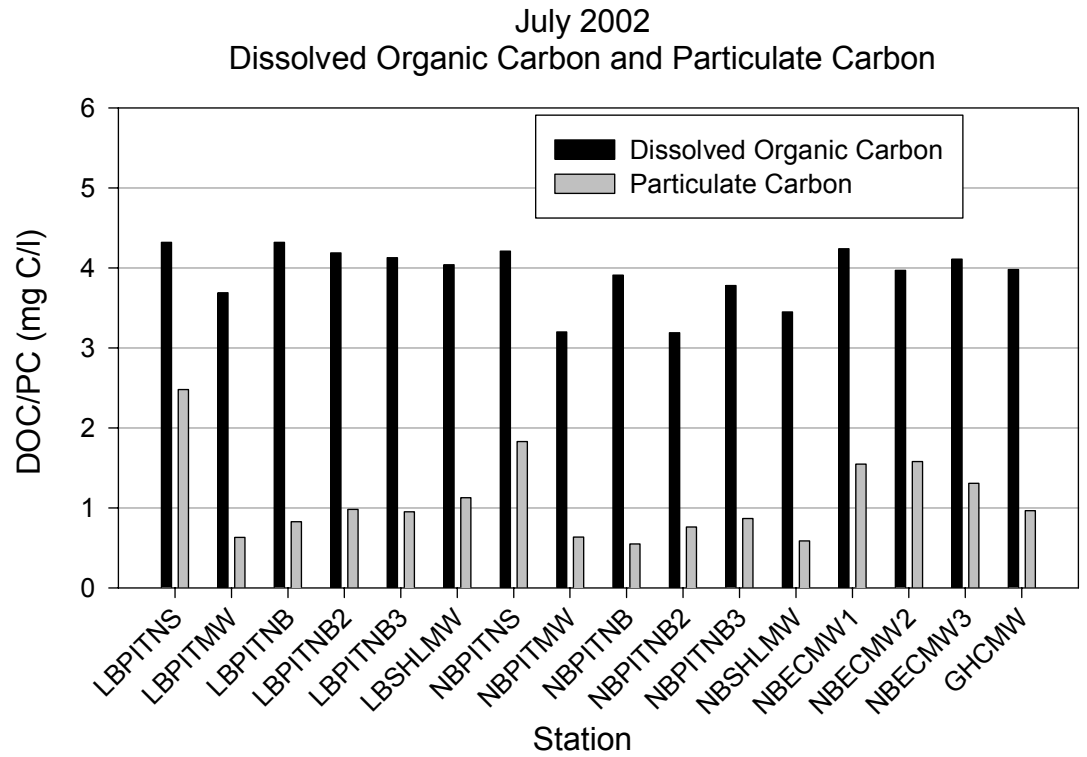
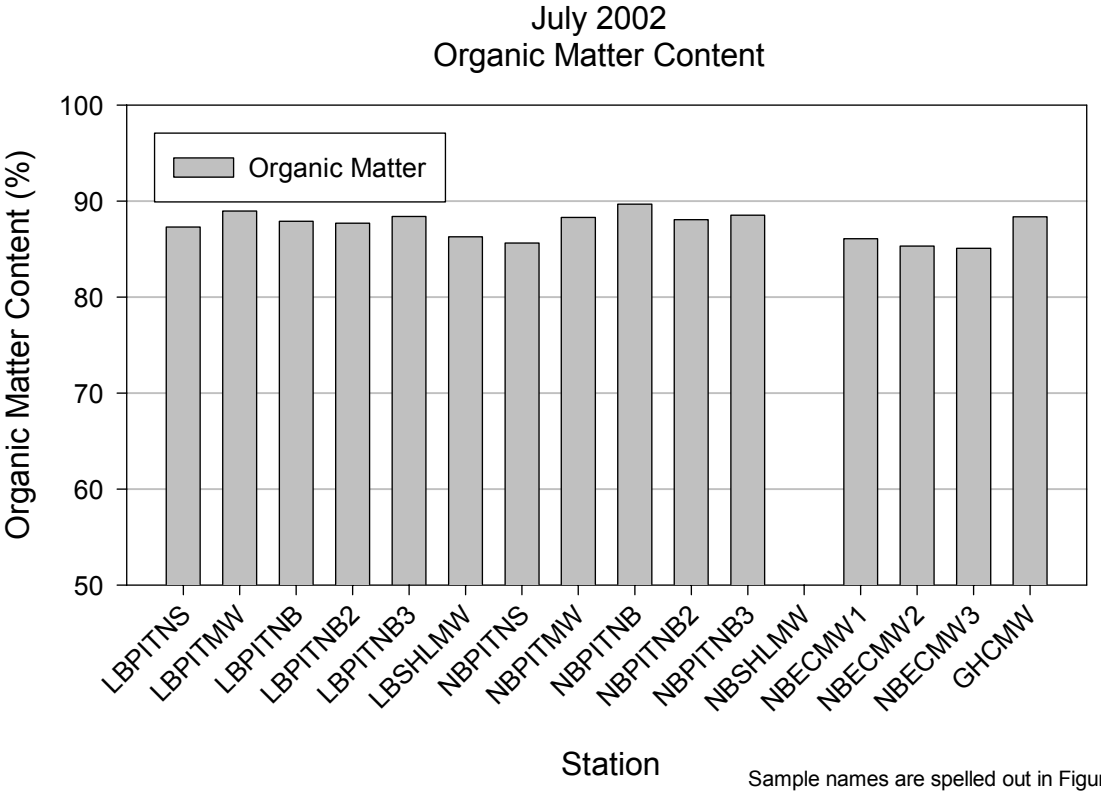


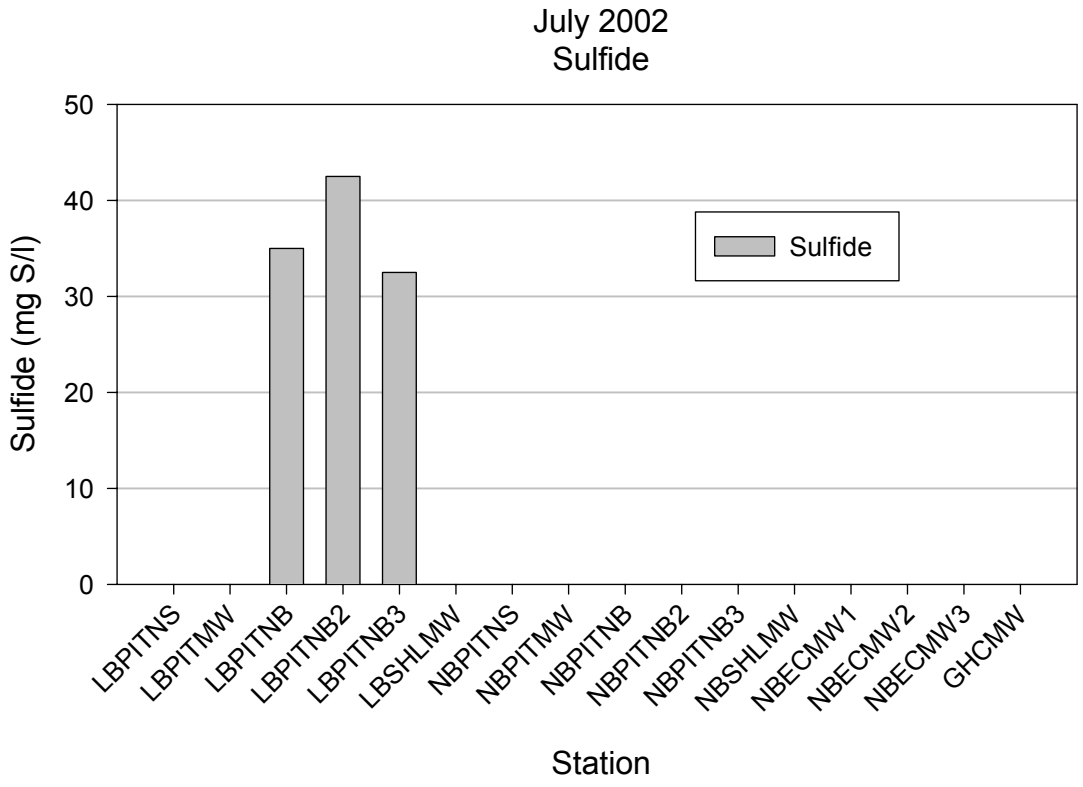
Figure B-19. Phaeophytin and total suspended solids in water samples collected 30 July 2002.





Sample names are spelled out in Figure B-21.

Figure B-20. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 30 July 2002.



LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom Sample 1
LBPITNB2 - Little Bay Pit Near Bottom Sample 2
LBPITNB3 - Little Bay Pit Near Bottom Sample 3
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom Sample 1
NBPITNB2 - Norton Basin Pit Near Bottom Sample 2
NBPITNB3 - Norton Basin Pit Near Bottom Sample 3
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3
GHCMW - Grass Hassock Channel Midwater

Figure B-21. Sulfide in water samples collected 30 July 2002.

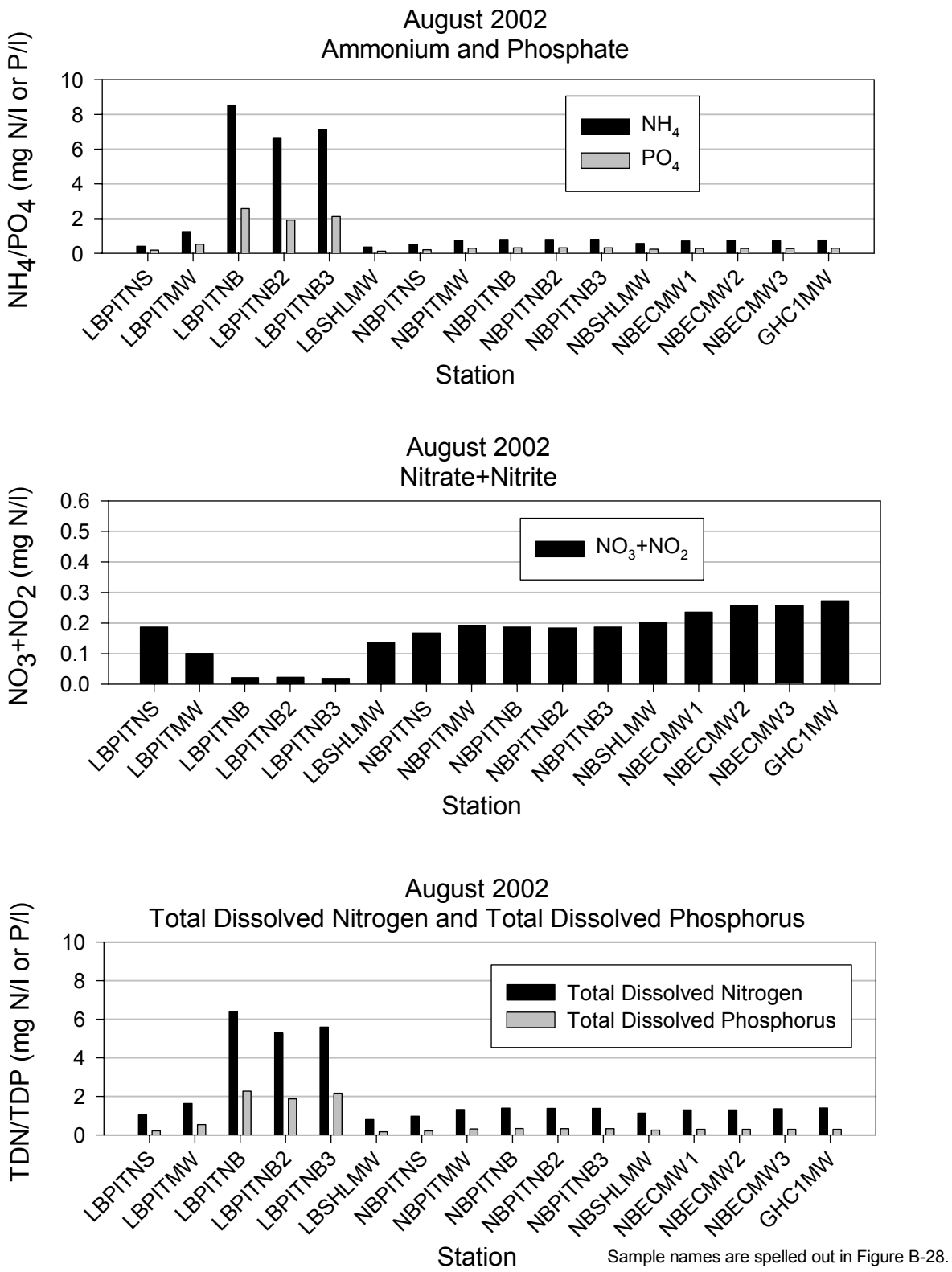
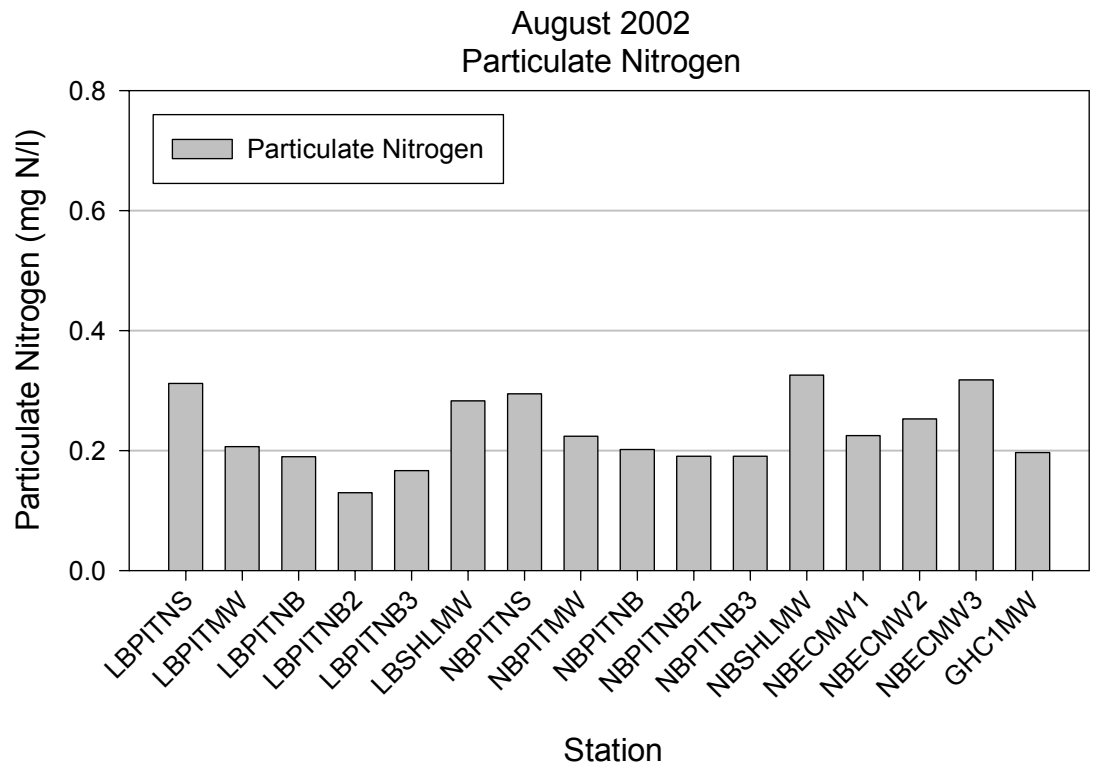
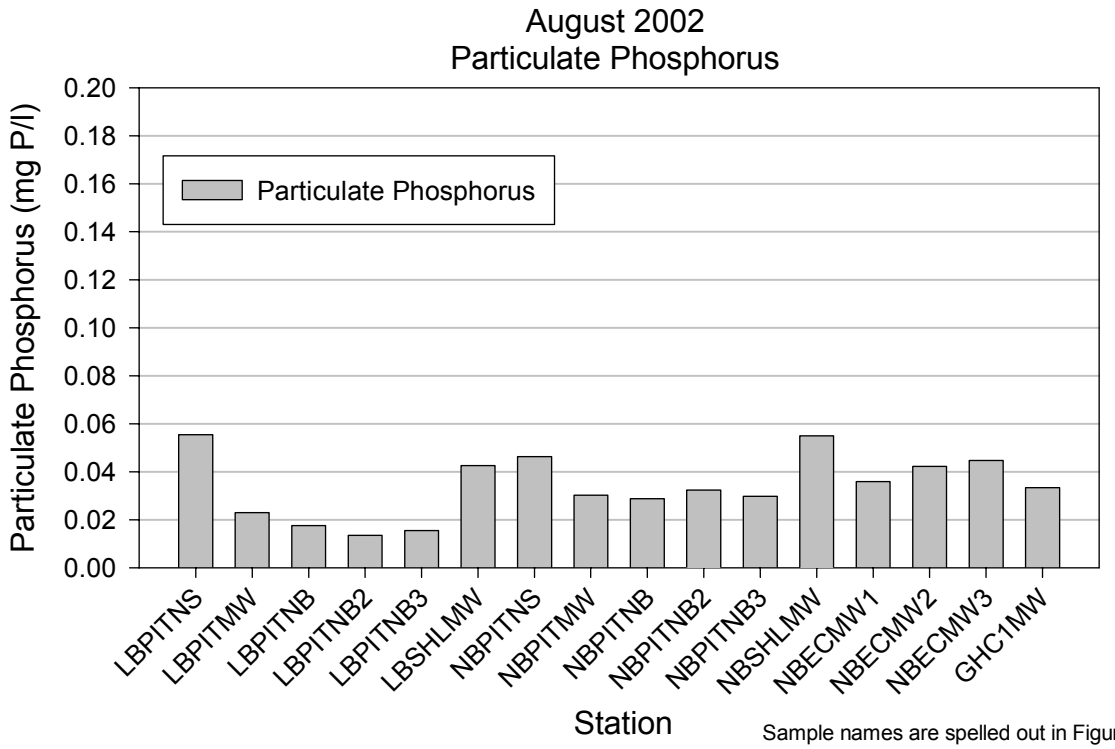


Figure B-22. Ammonium, phosphate, nitrate+nitrite, and total dissolved nitrogen and total dissolved phosphorus in water samples collected 30 August 2002.





Sample names are spelled out in Figure B-28.

Figure B-23. Particulate nitrogen and particulate phosphorus in water samples collected 30 August 2002.

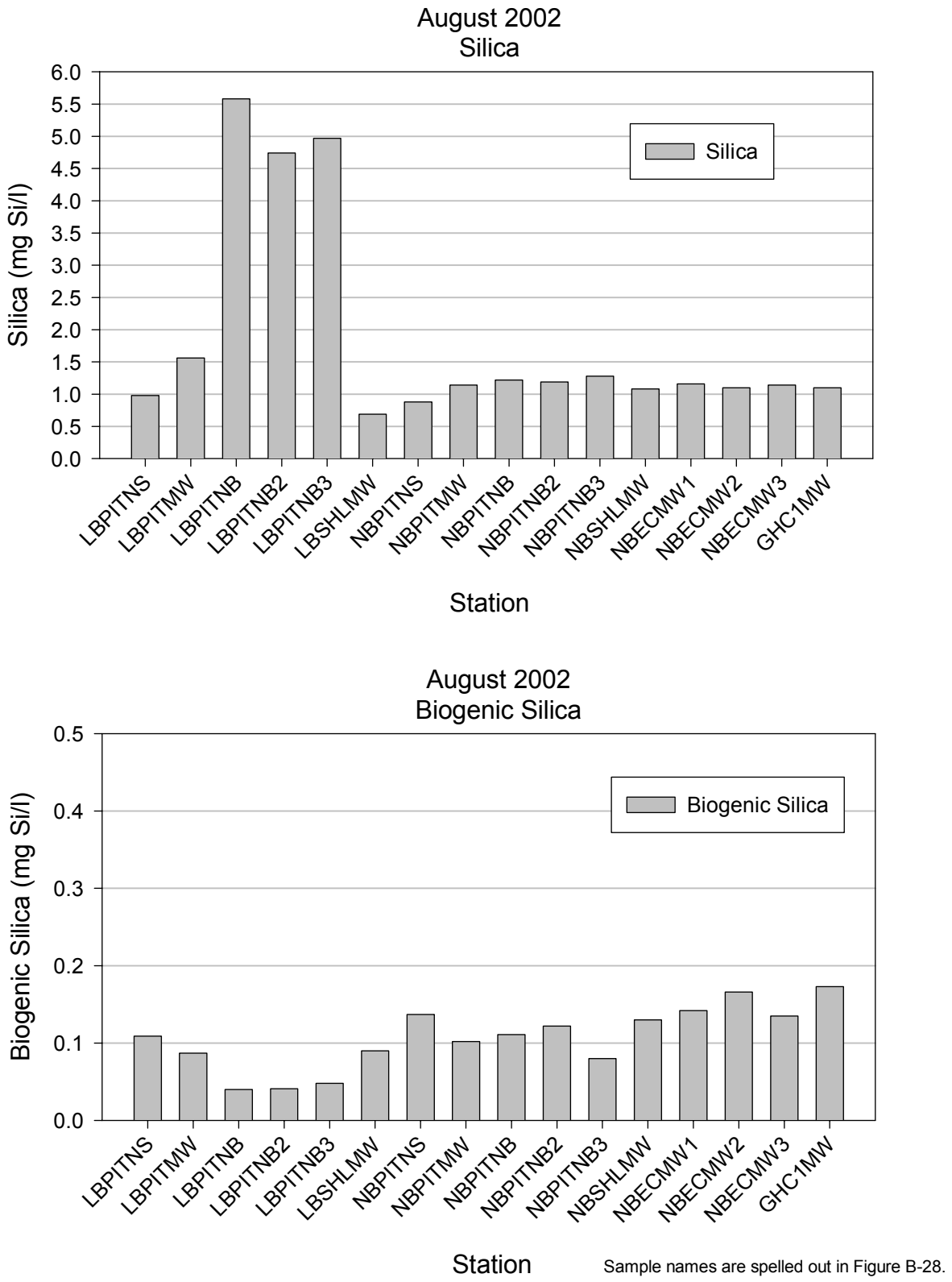
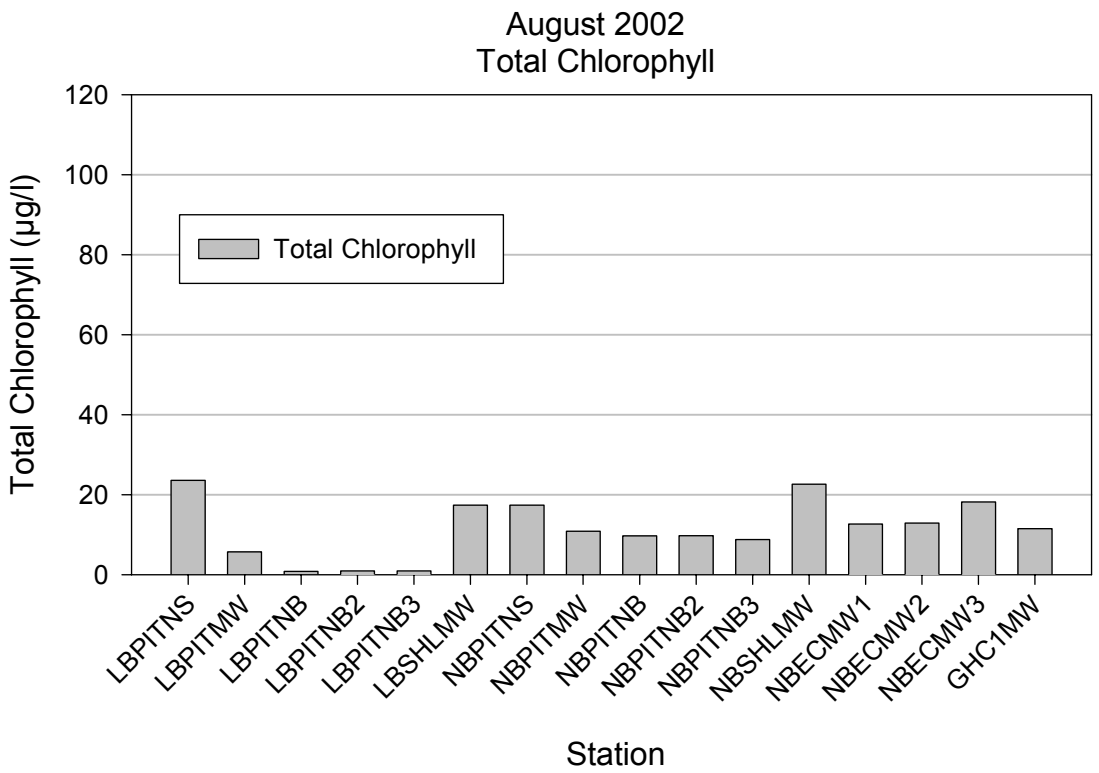
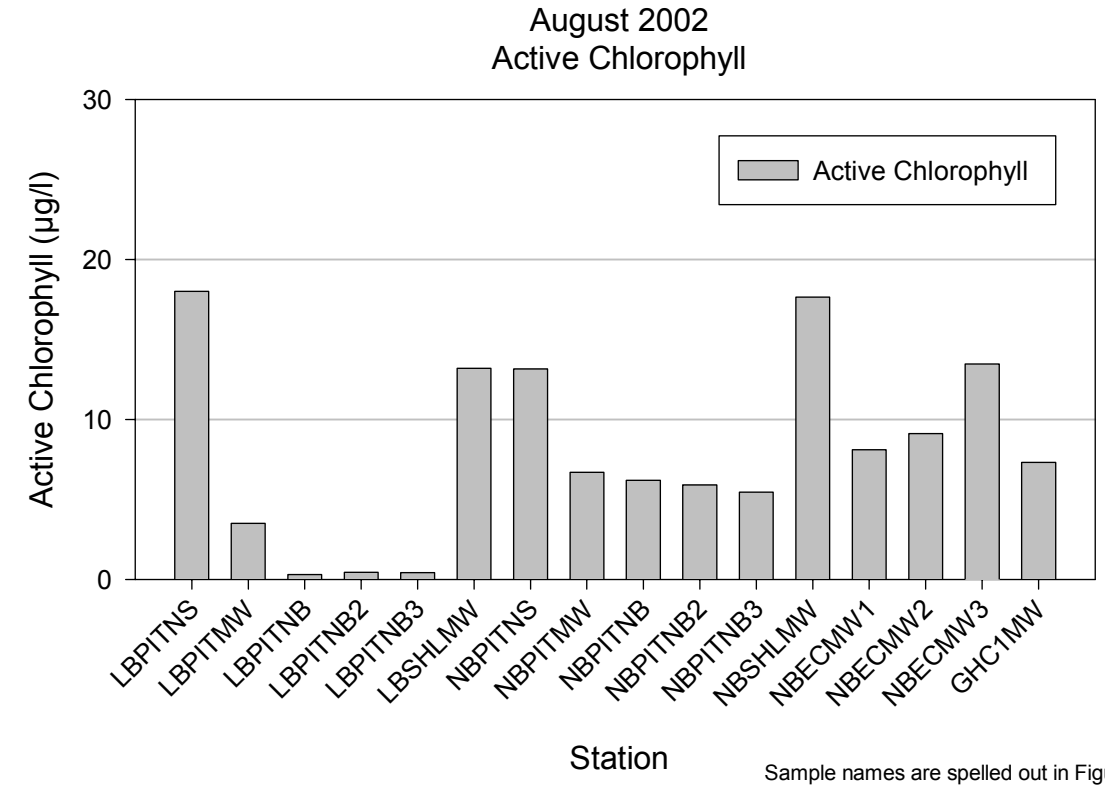


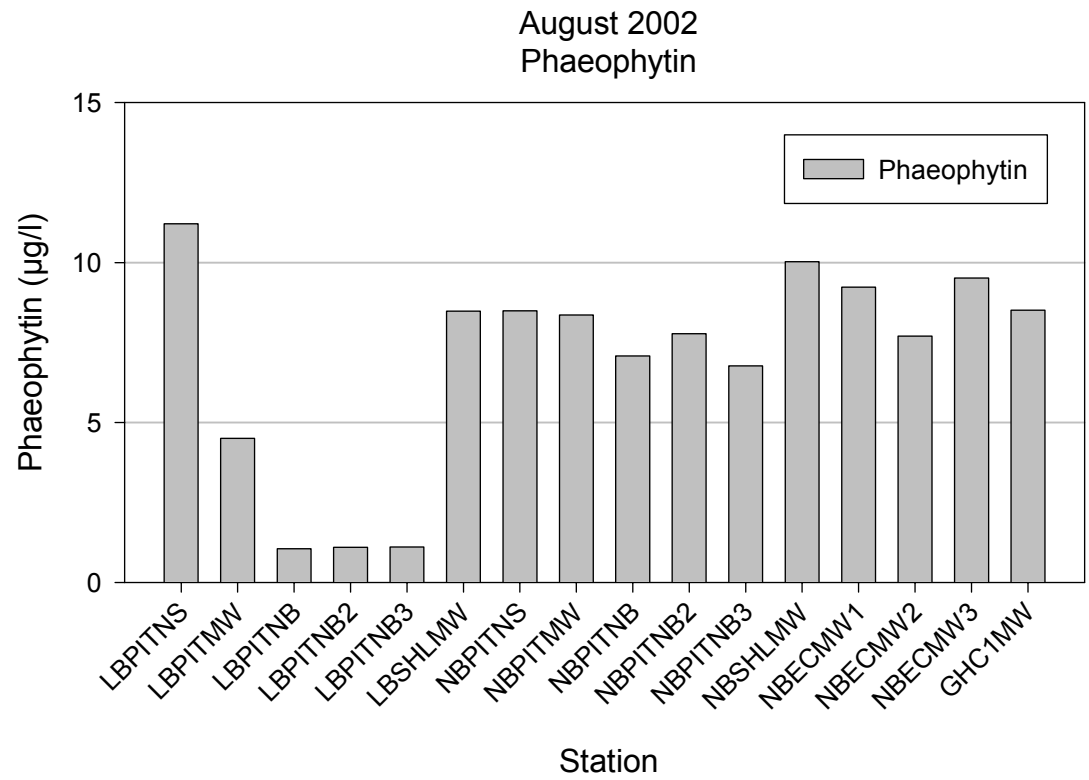
Figure B-24. Silica and biogenic silica in water samples collected 30 August 2002.

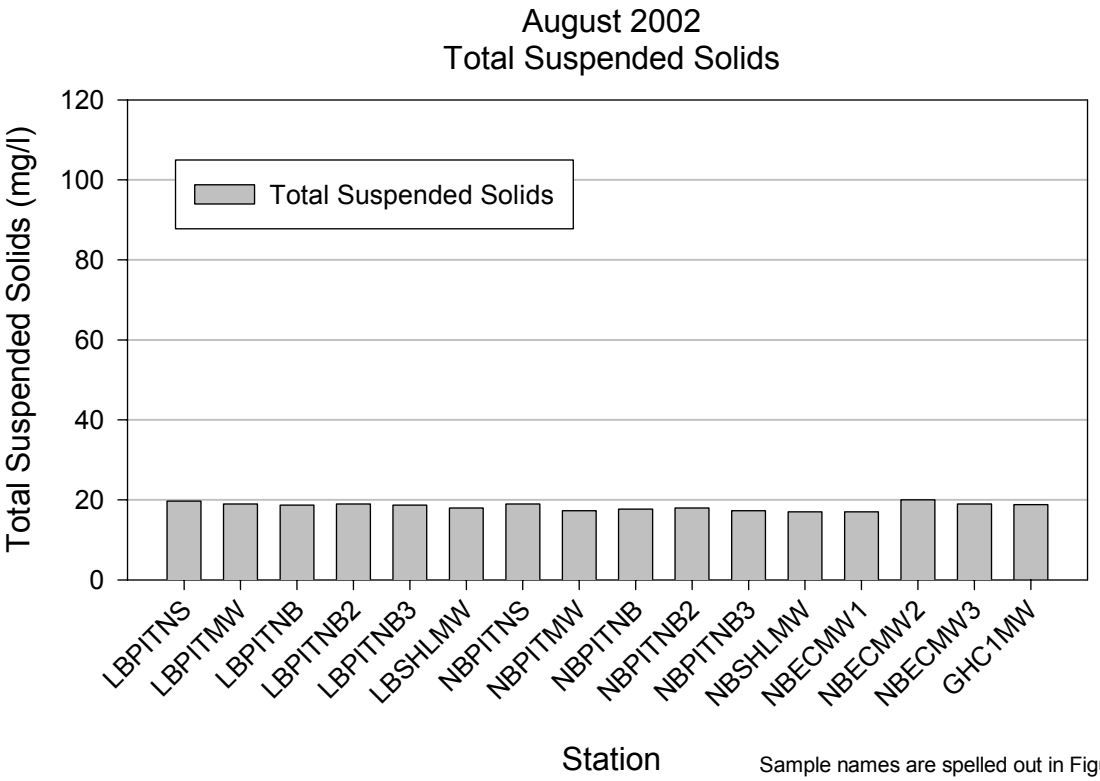




Sample names are spelled out in Figure B-28.

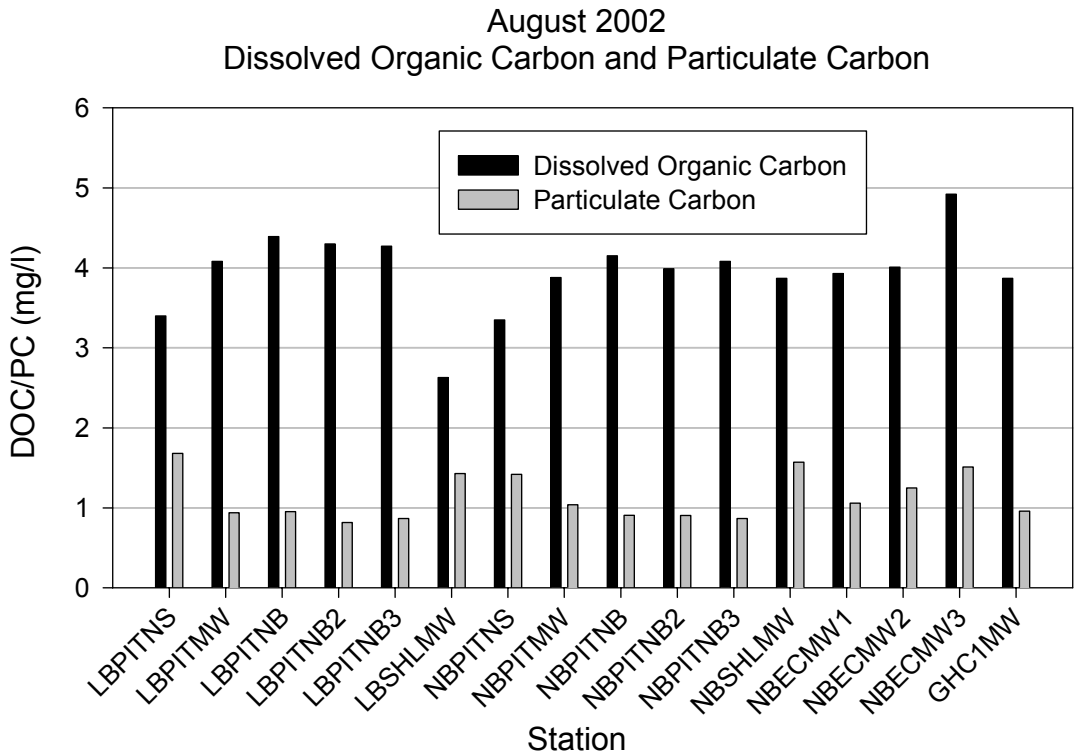
Figure B-25. Total chlorophyll and active chlorophyll in water samples collected 30 August 2002.

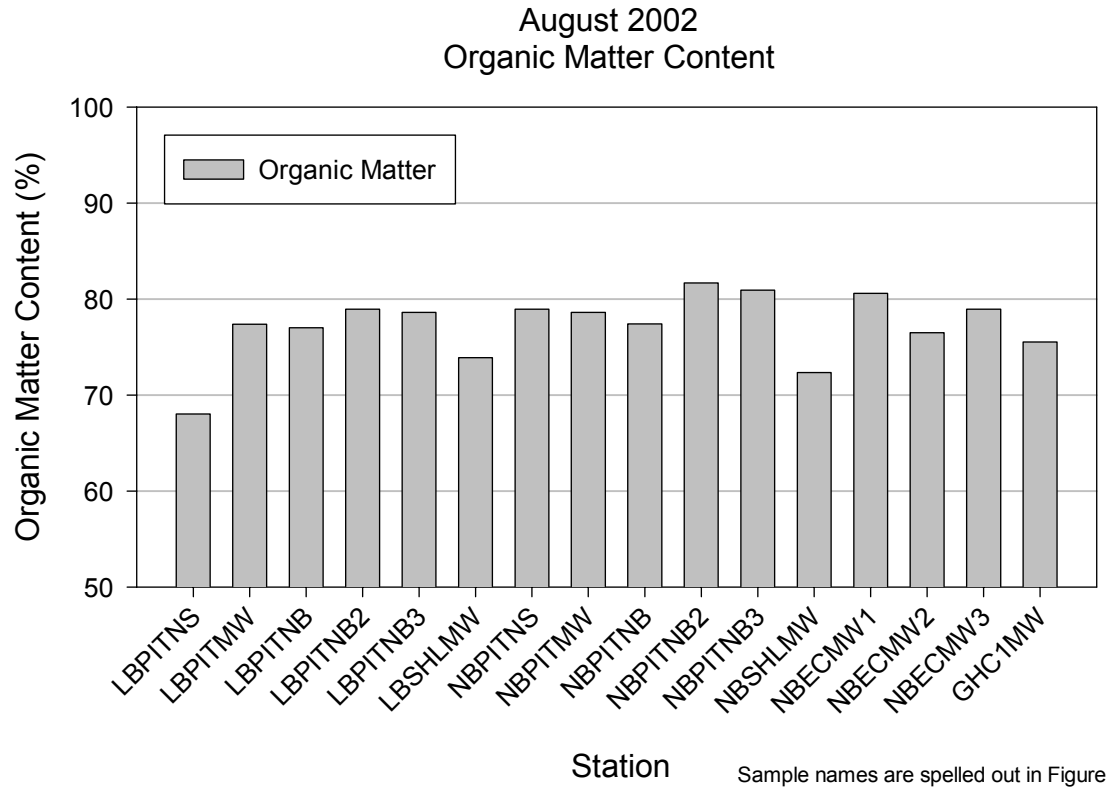




Sample names are spelled out in Figure B-28.

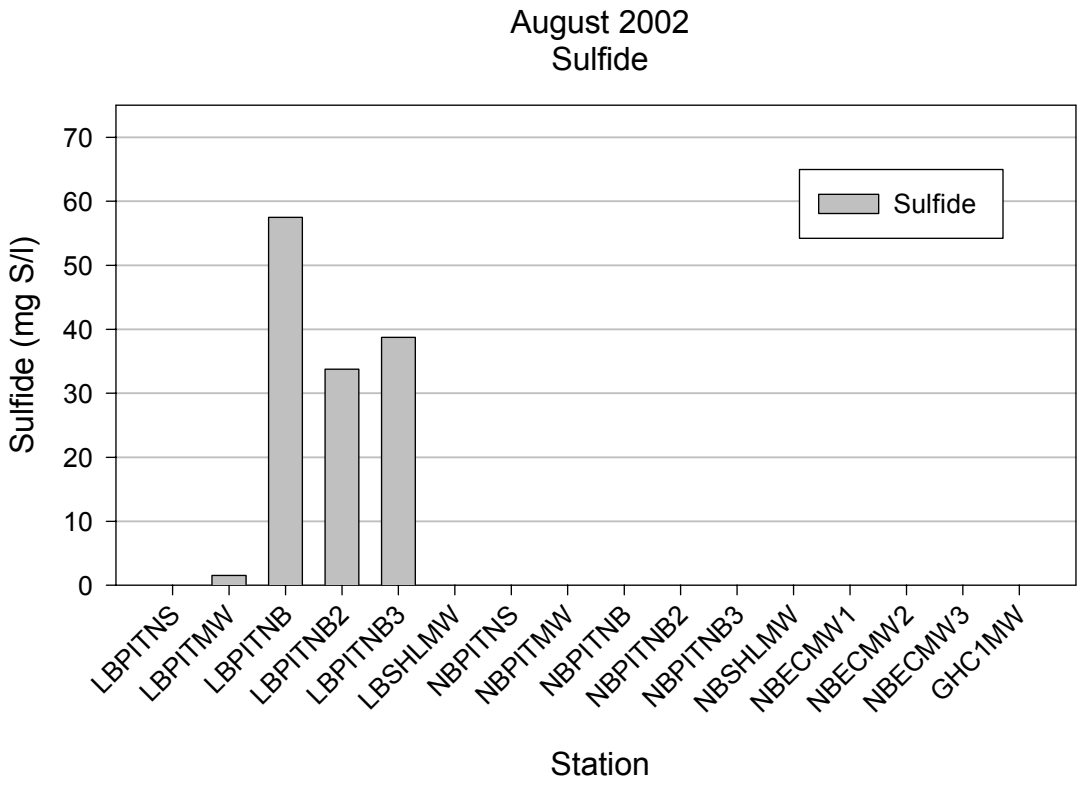
Figure B-26. Phaeophytin and total suspended solids in water samples collected 30 August 2002.





Sample names are spelled out in Figure B-28.

Figure B-27. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 30 August 2002.



LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom Sample 1
LBPITNB2 - Little Bay Pit Near Bottom Sample 2
LBPITNB3 - Little Bay Pit Near Bottom Sample 3
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom Sample 1
NBPITNB2 - Norton Basin Pit Near Bottom Sample 2
NBPITNB3 - Norton Basin Pit Near Bottom Sample 3
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3
GHCMW - Grass Hassock Channel Midwater

Figure B-28. Sulfide in water samples collected 30 August 2002.

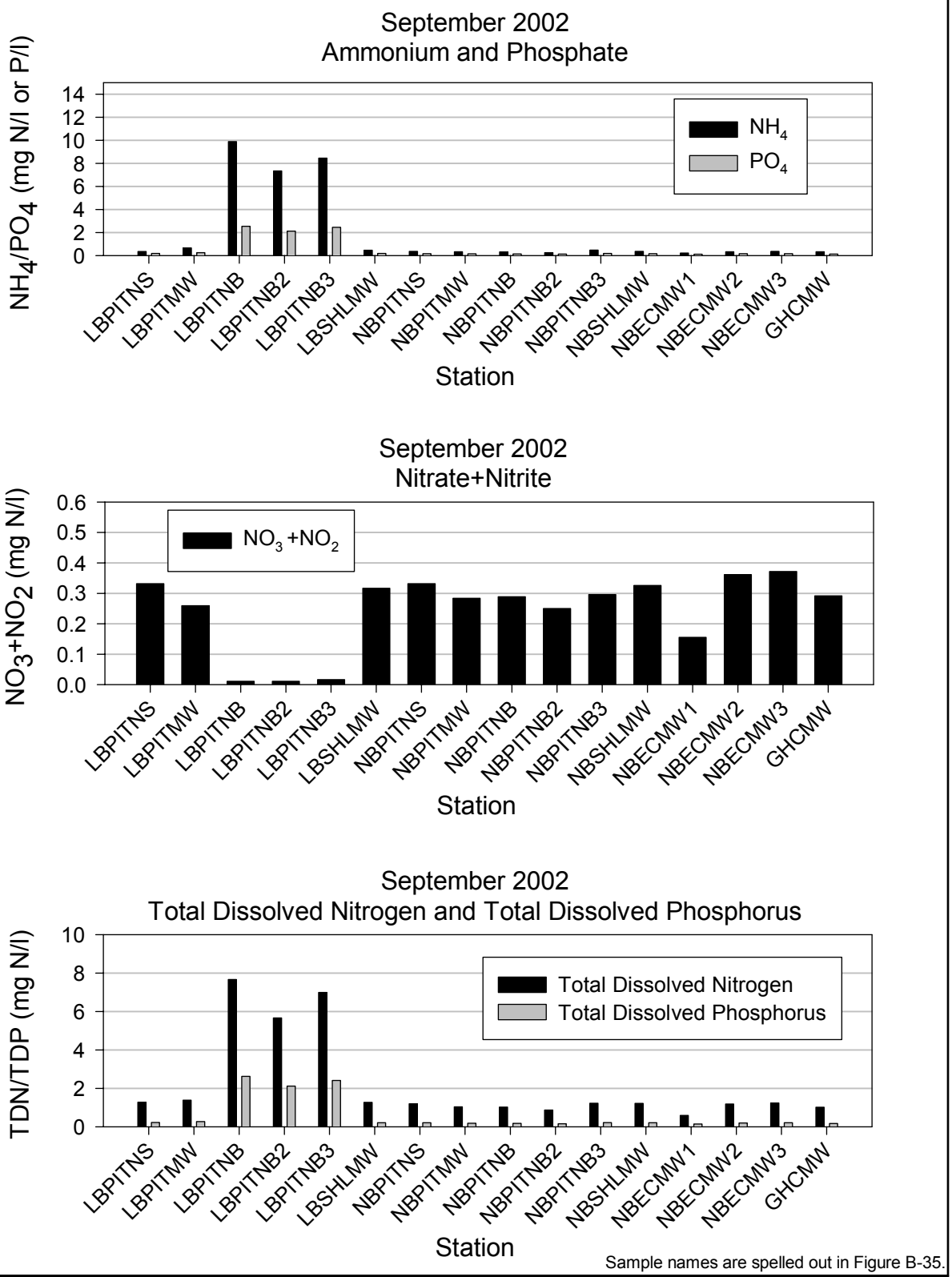
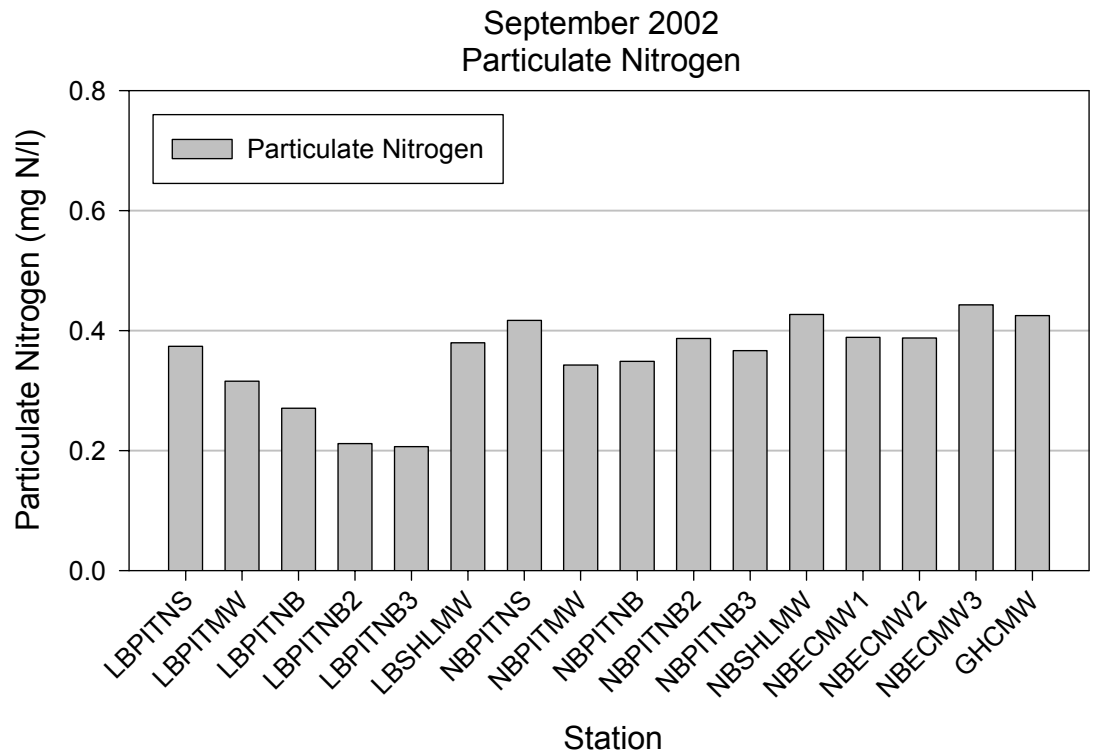
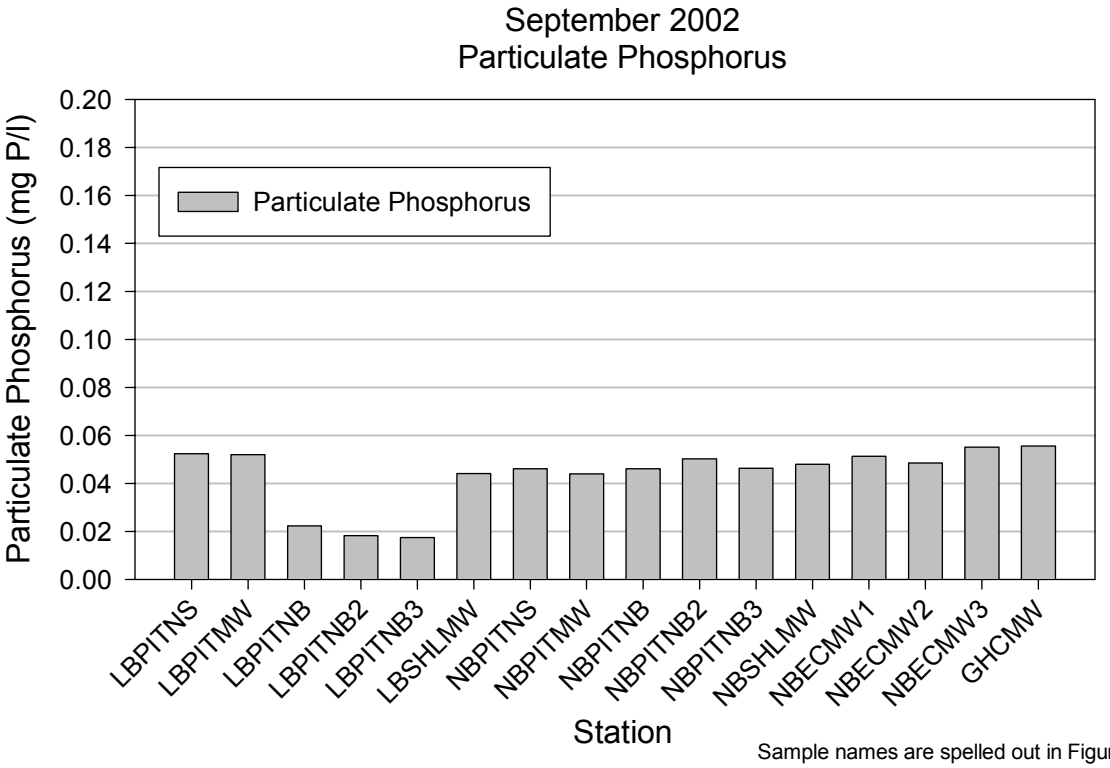


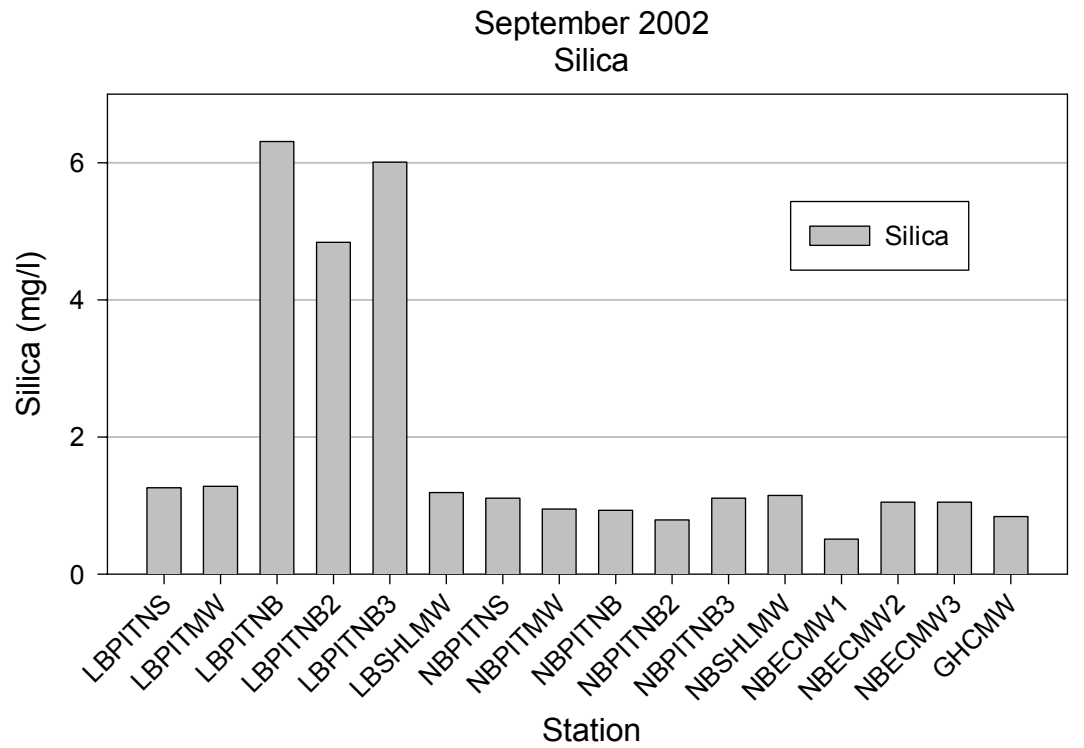
Figure B-29. Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 25 September 2002.

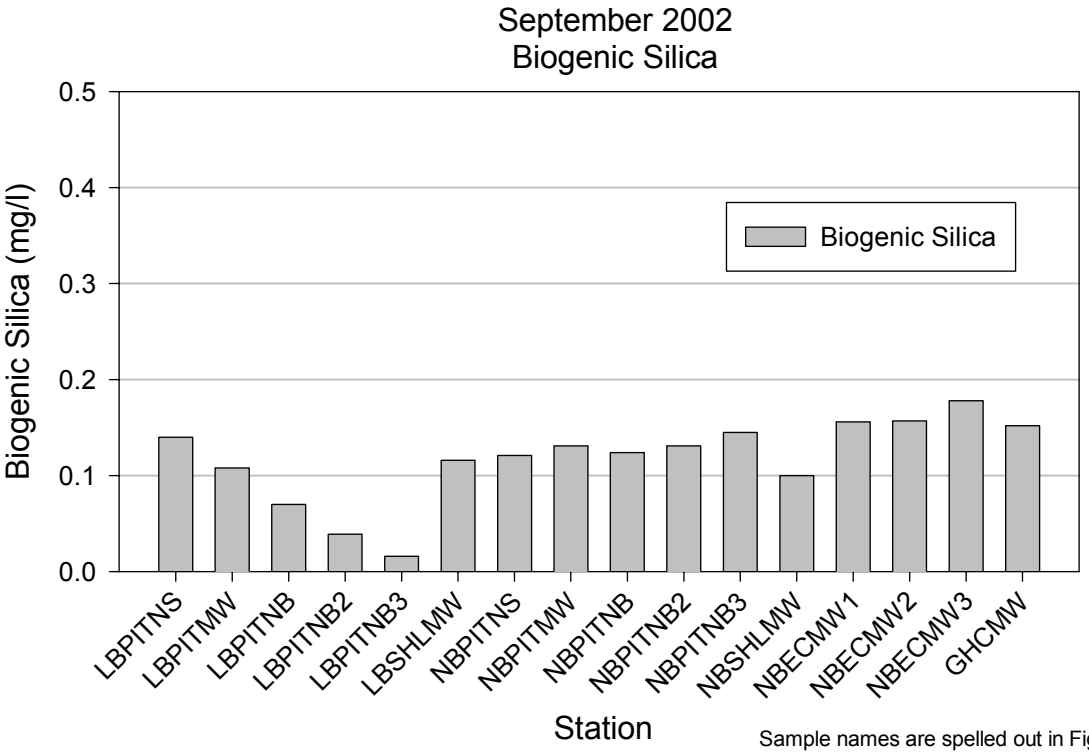




Sample names are spelled out in Figure B-35.

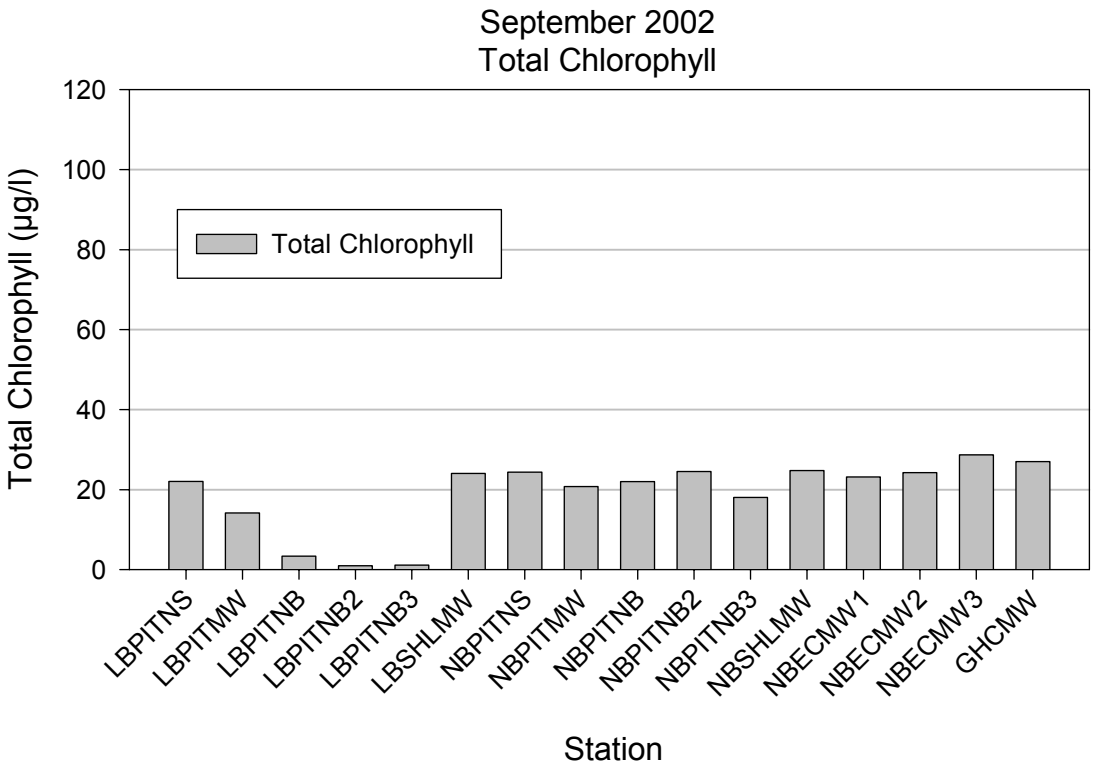
Figure B-30. Particulate nitrogen and particulate phosphorus in water samples collected 25 September 2002.

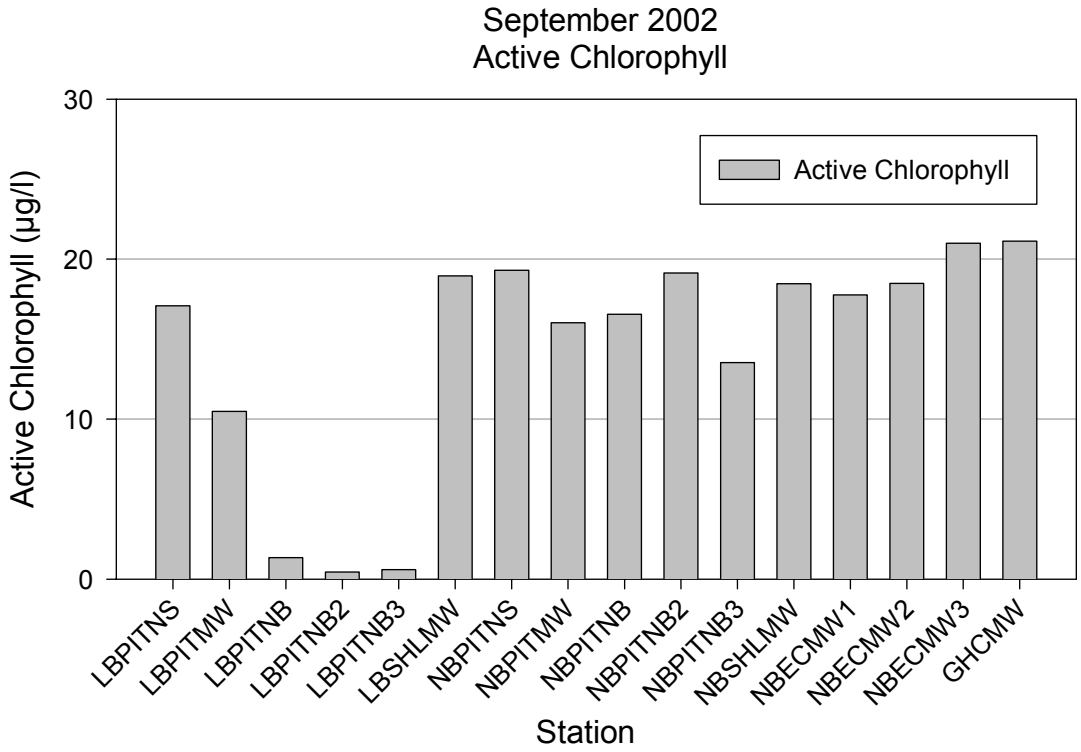




Sample names are spelled out in Figure B-35.

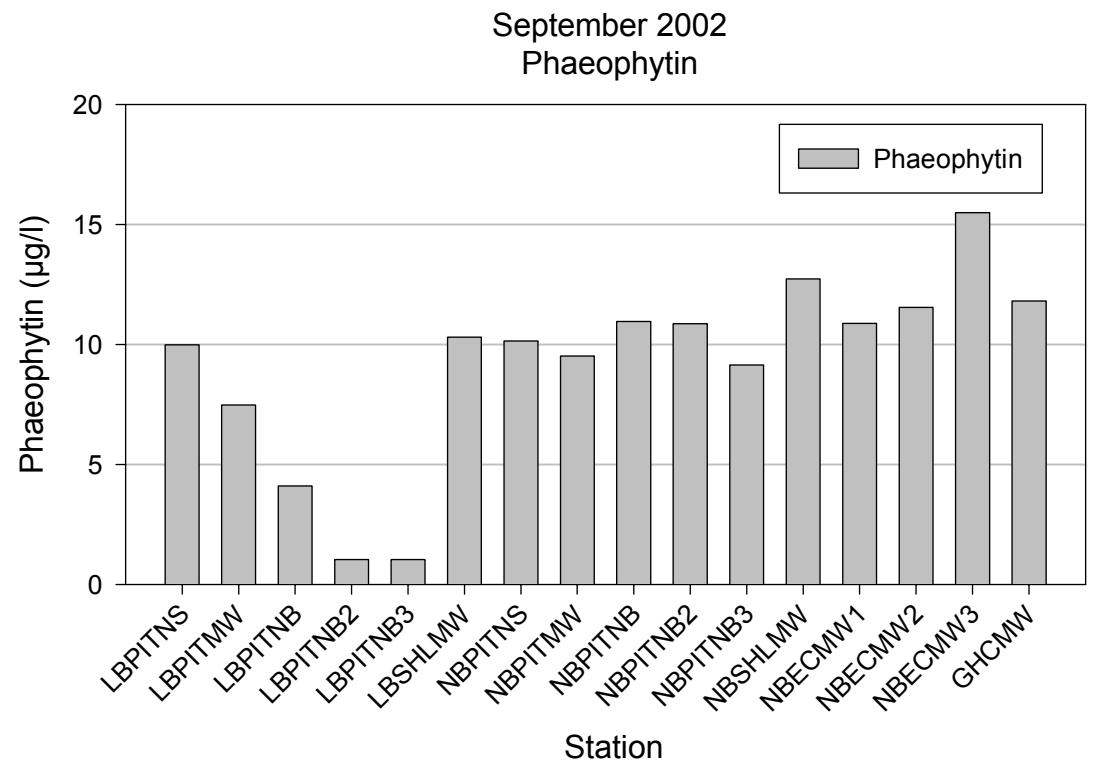
Figure B-31. Silica and biogenic silica in water samples collected 25 September 2002.

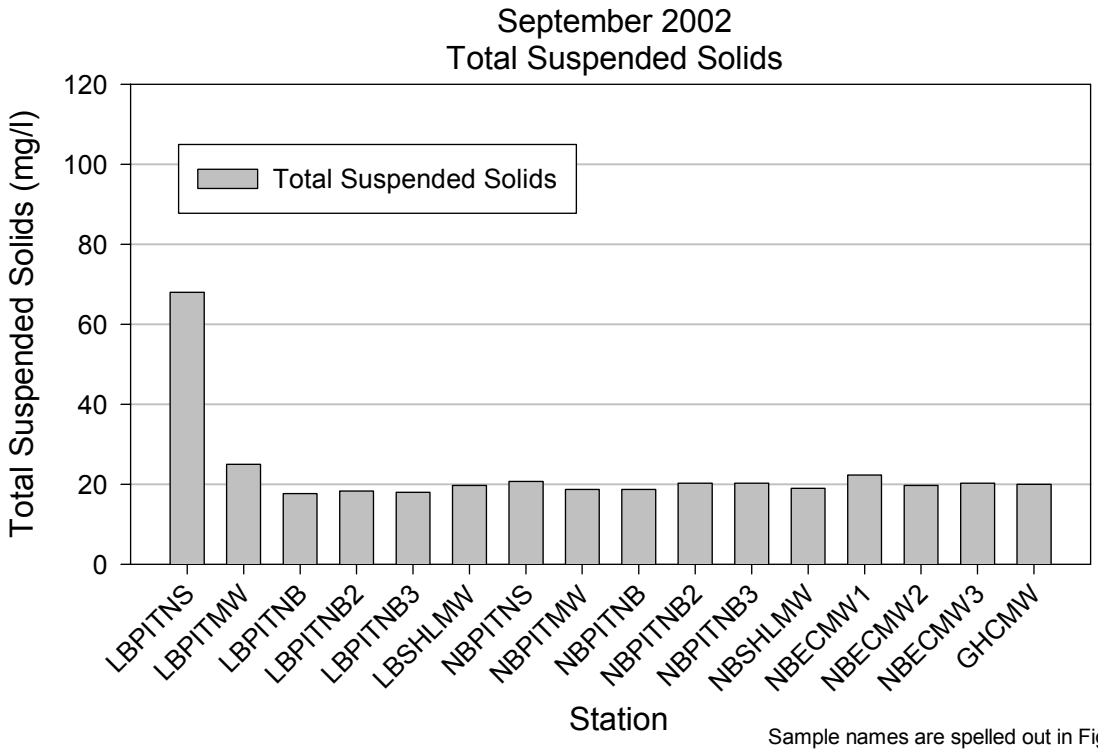




Sample names are spelled out in Figure B-35.

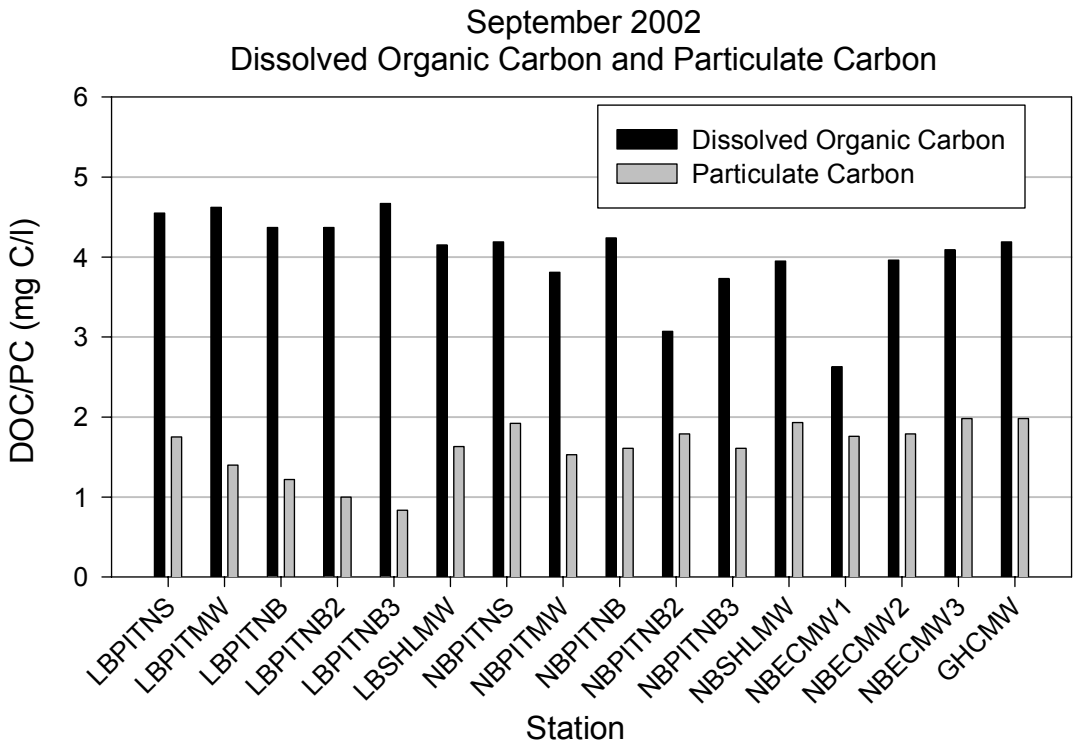
Figure B-32. Total chlorophyll and active chlorophyll in water samples collected 25 September 2002.

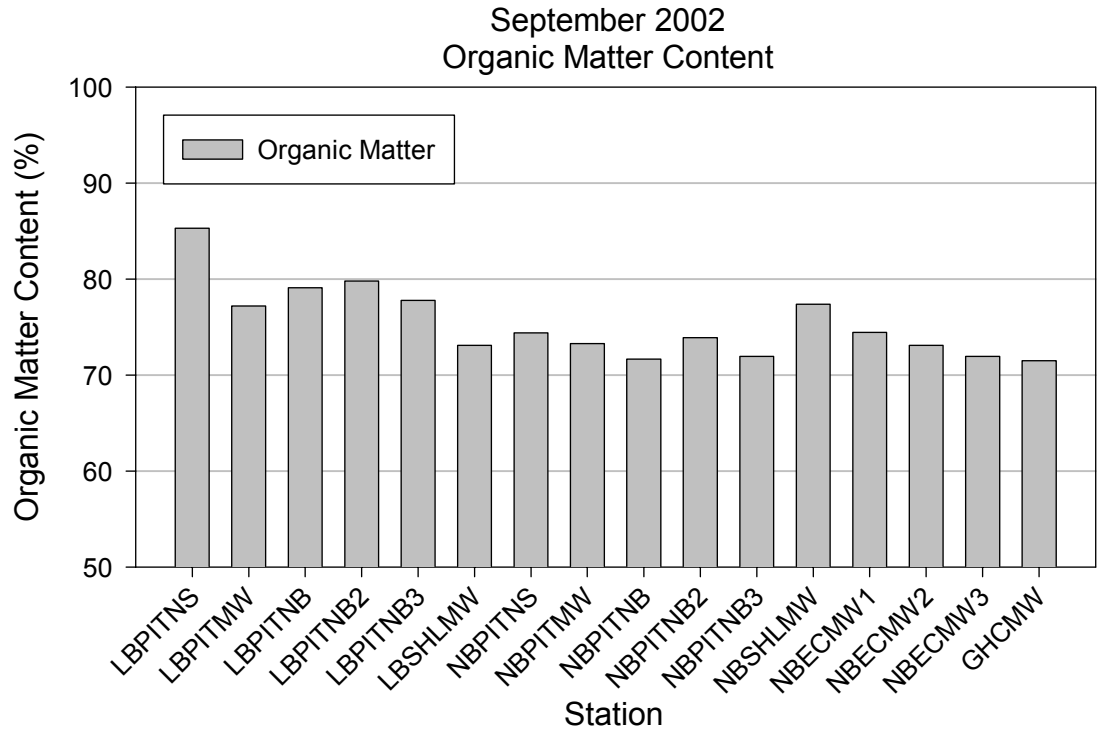




Sample names are spelled out in Figure B-35.

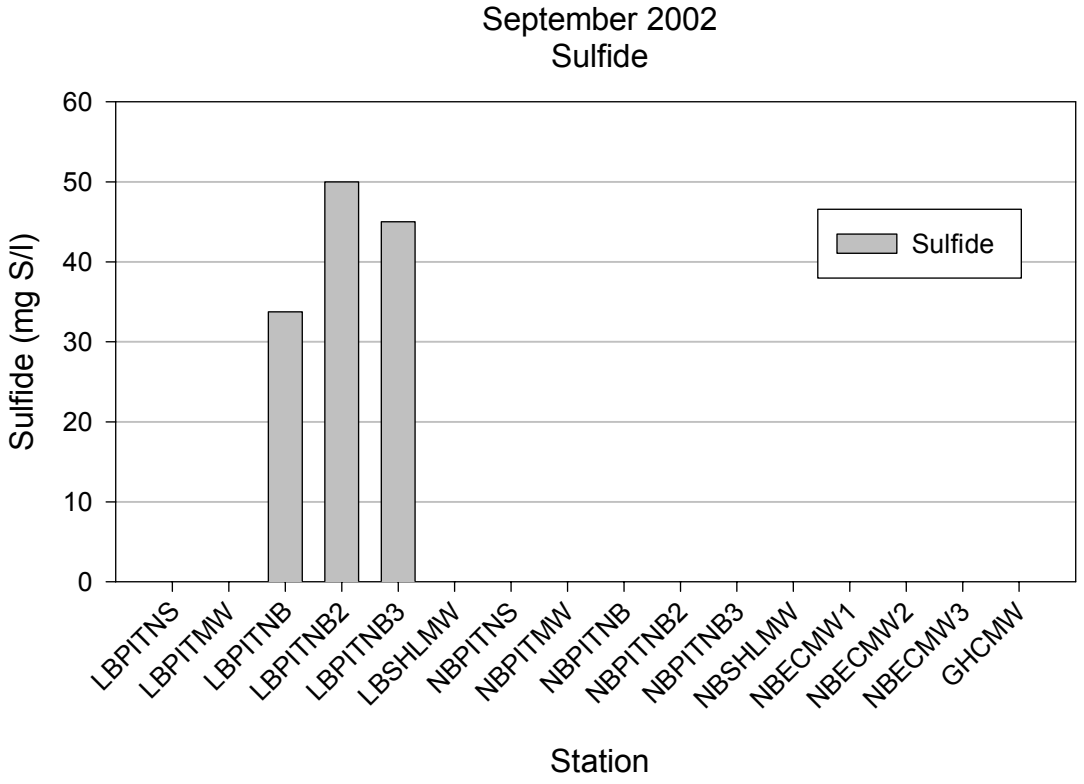
Figure B-33. Phaeophytin and total suspended solids in water samples collected 25 September 2002.





Sample names are spelled out in Figure B-35.

Figure B-34. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 25 September 2002.



LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom Sample 1
LBPITNB2 - Little Bay Pit Near Bottom Sample 2
LBPITNB3 - Little Bay Pit Near Bottom Sample 3
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom Sample 1
NBPITNB2 - Norton Basin Pit Near Bottom Sample 2
NBPITNB3 - Norton Basin Pit Near Bottom Sample 3
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3
GHCMW - Grass Hassock Channel Midwater

Figure B-35. Sulfide in water samples collected 25 September 2002.

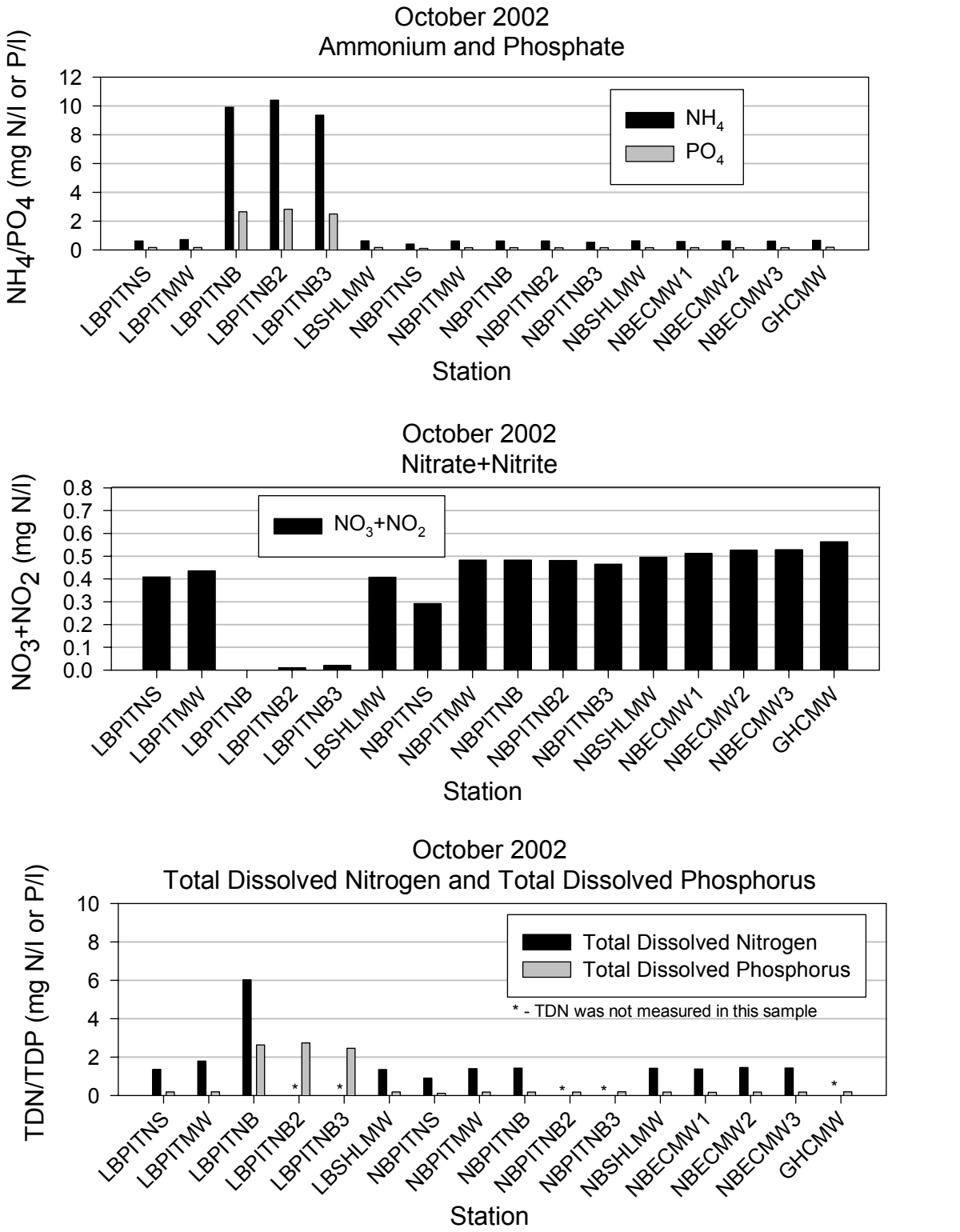
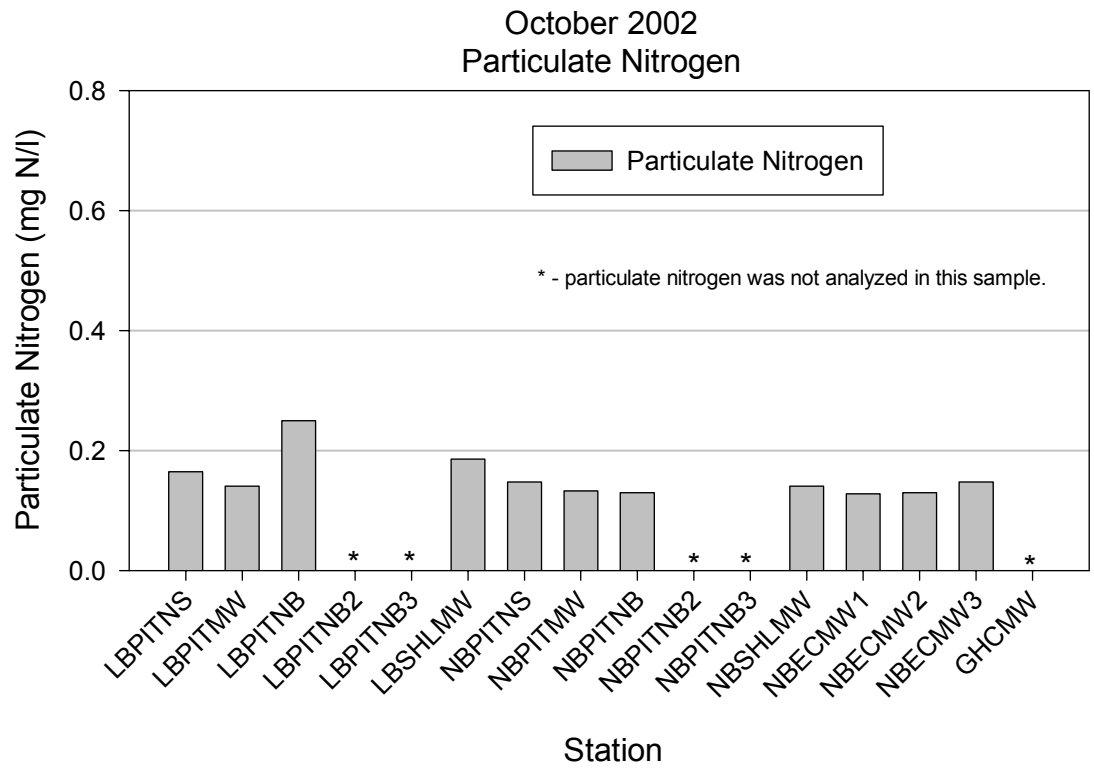
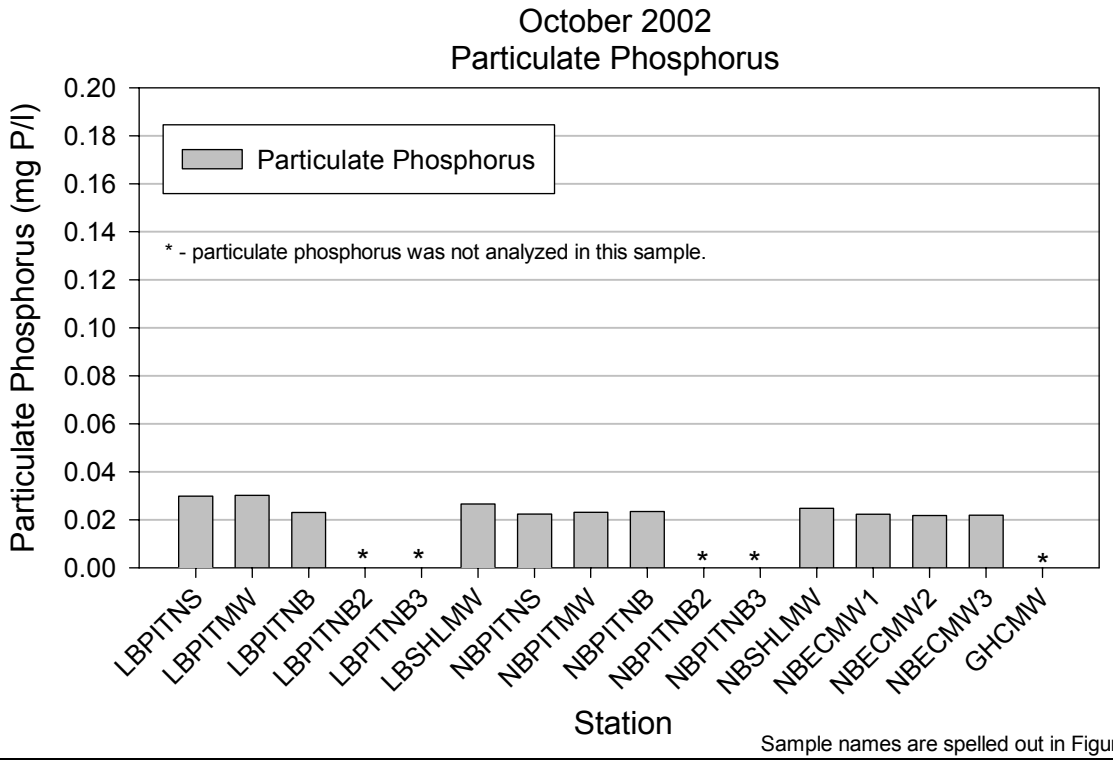


Figure B-36. Ammonium, phosphate, nitrate+nitrite, total dissolved nitrogen, and total dissolved phosphorus in water samples collected 23 October 2002.





Sample names are spelled out in Figure B-42.

Figure B-37. Particulate nitrogen and particulate phosphorus in water samples collected 23 October 2002.

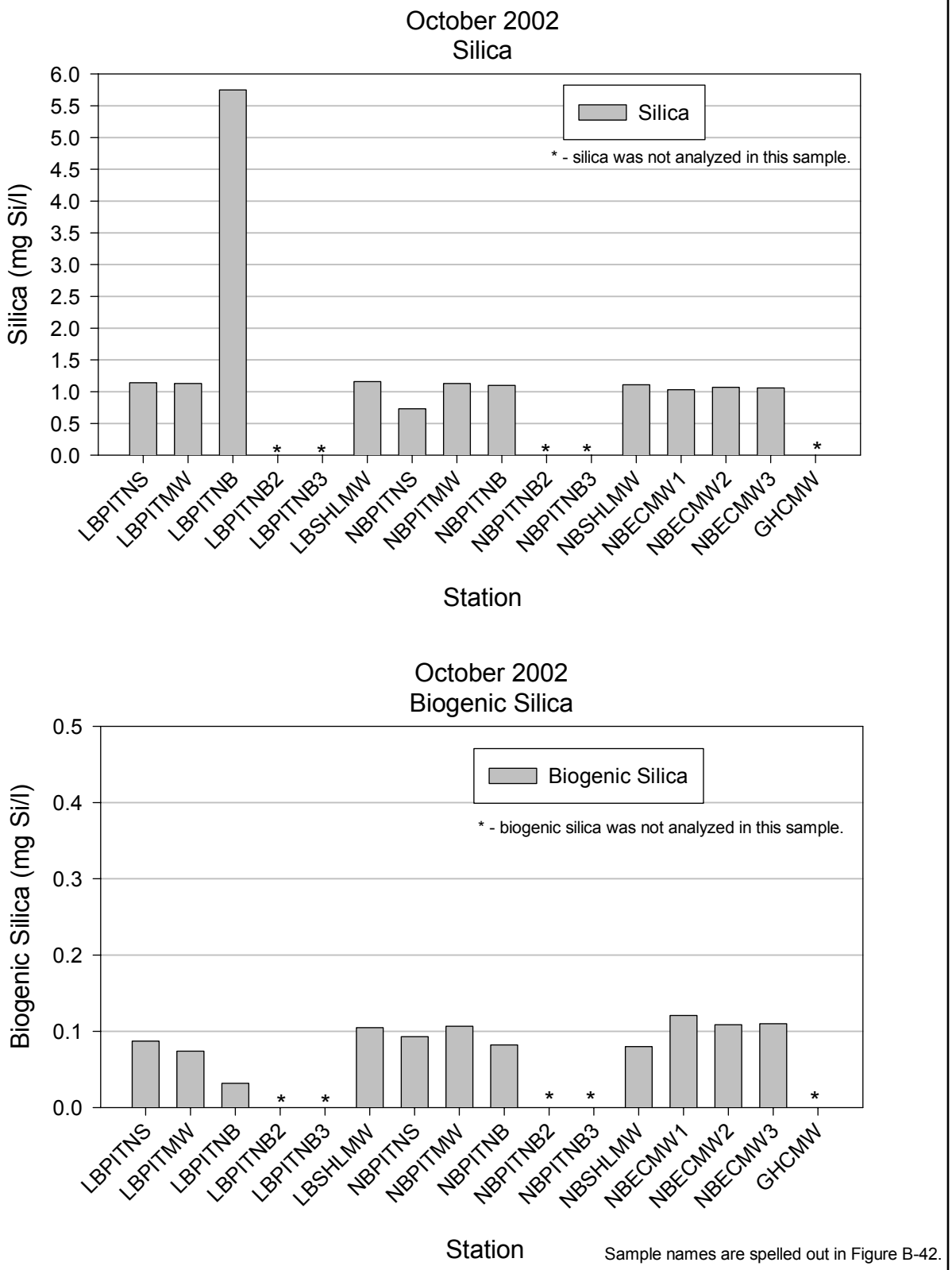
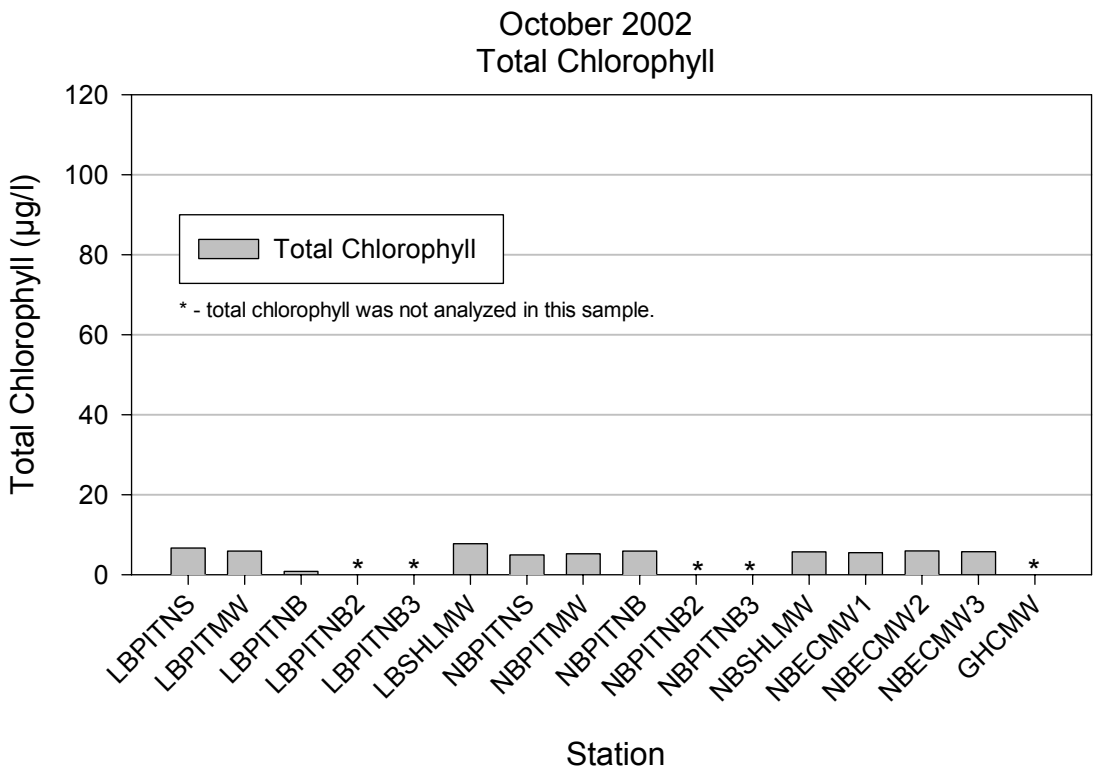
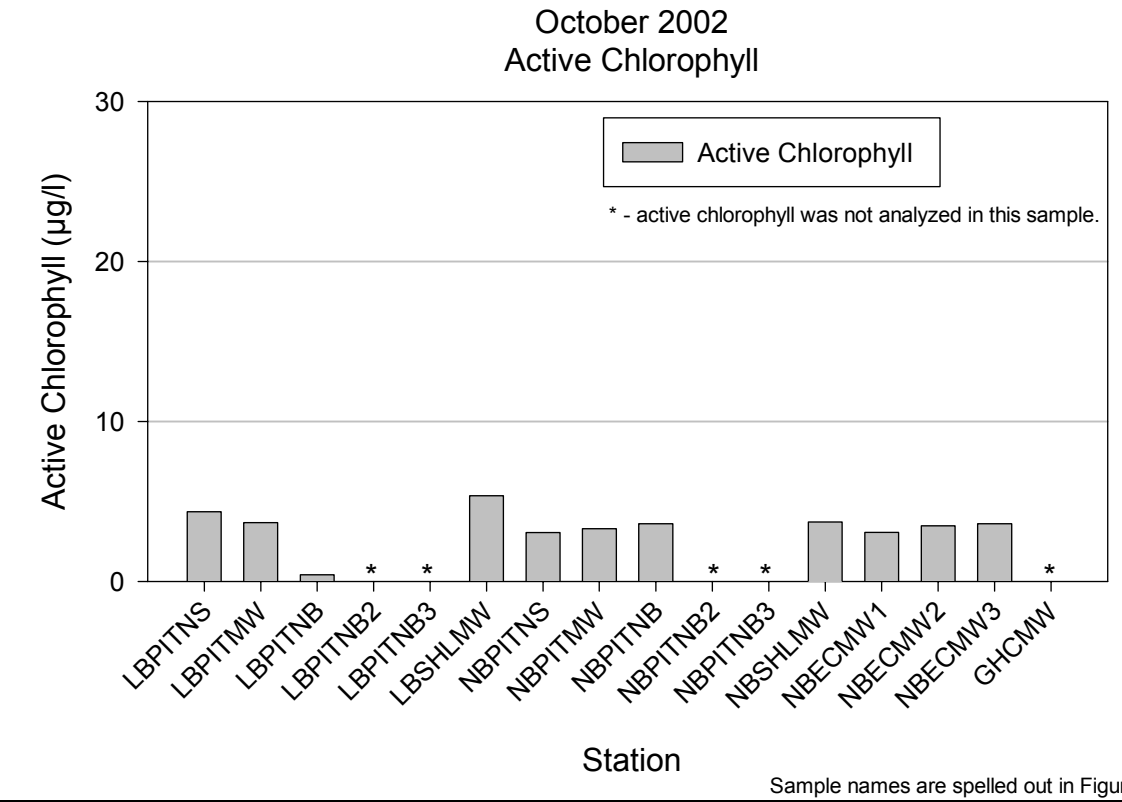


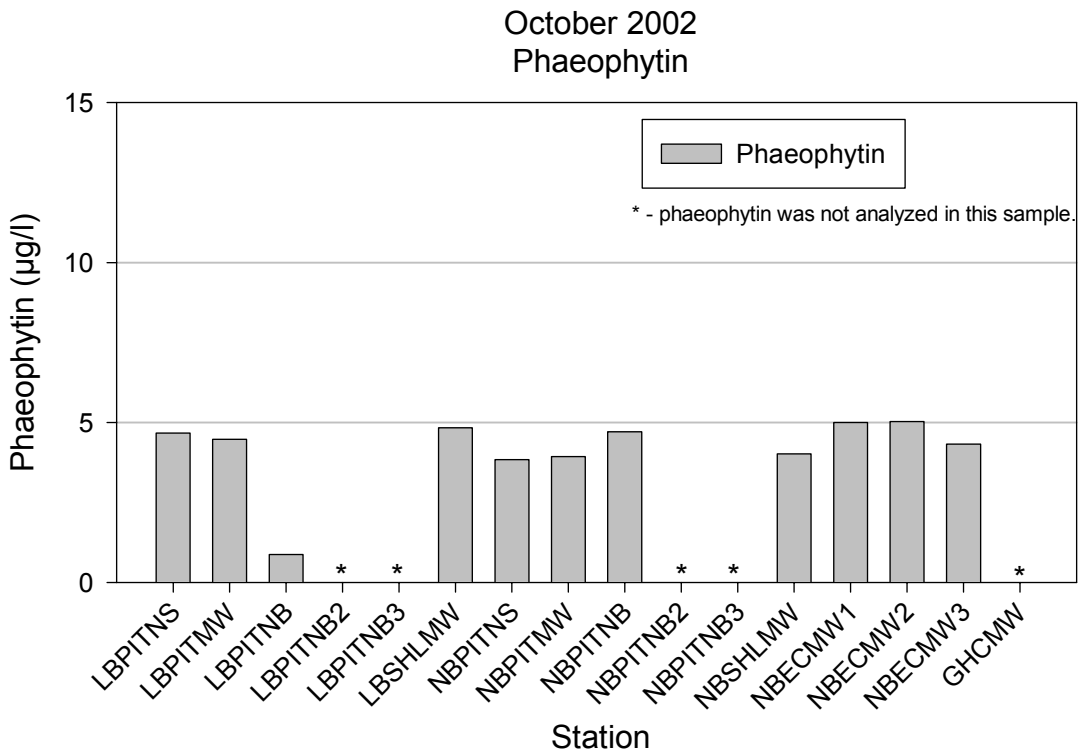
Figure B-38. Silica and biogenic silica in water samples collected 23 October 2002.





Sample names are spelled out in Figure B-42.

Figure B-39. Total chlorophyll and active chlorophyll in water samples collected 23 October 2002.



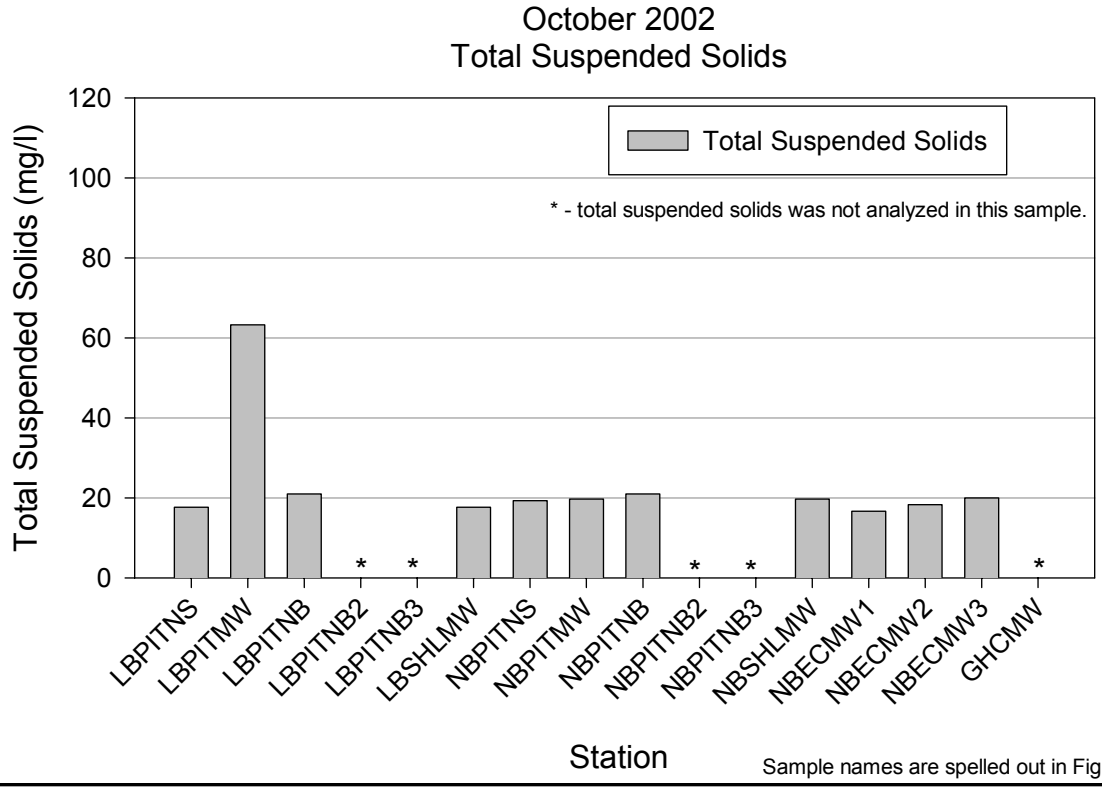
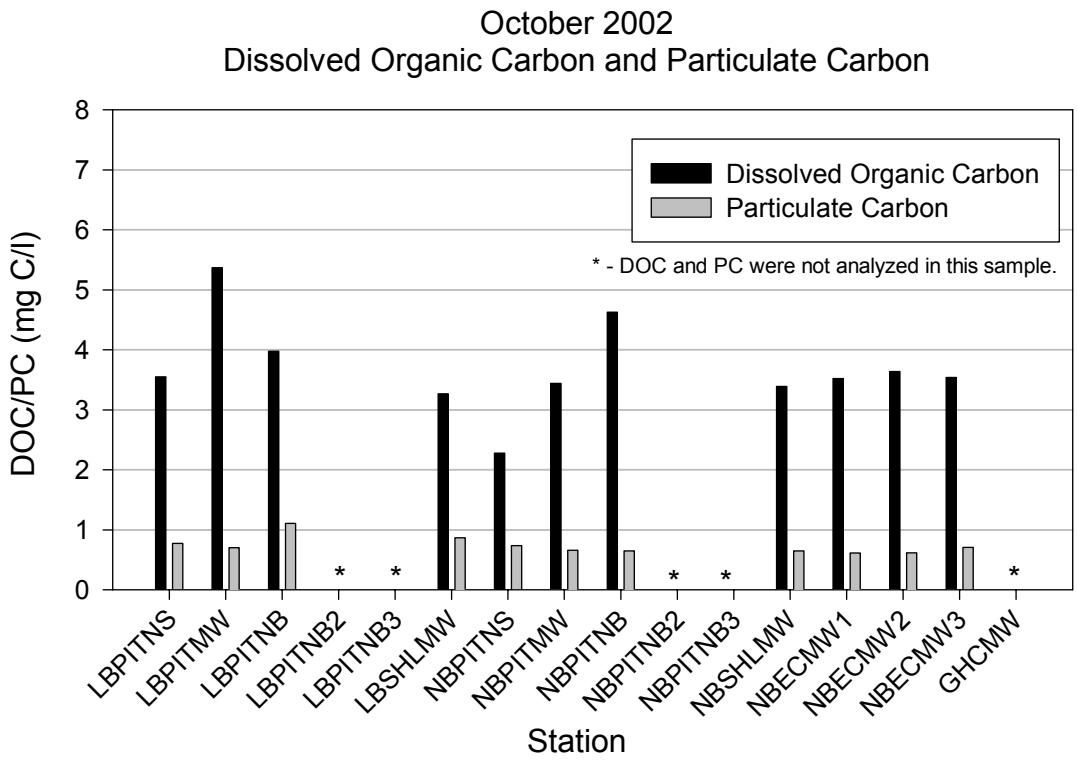
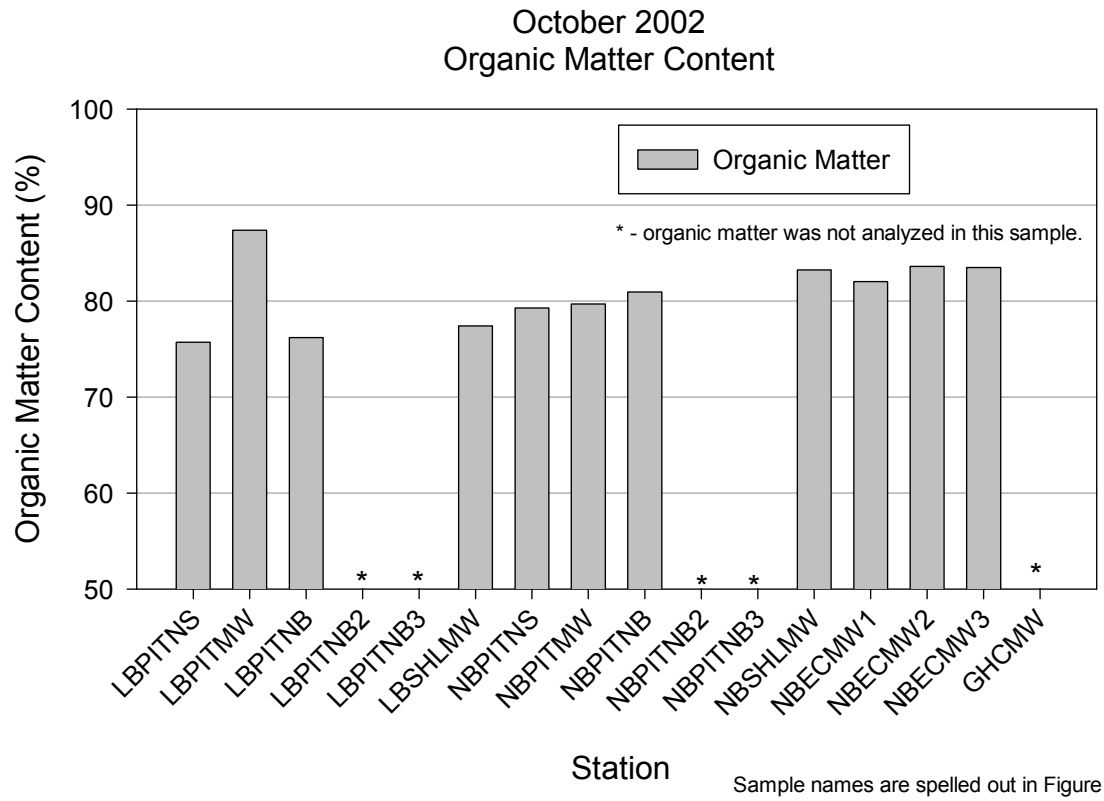


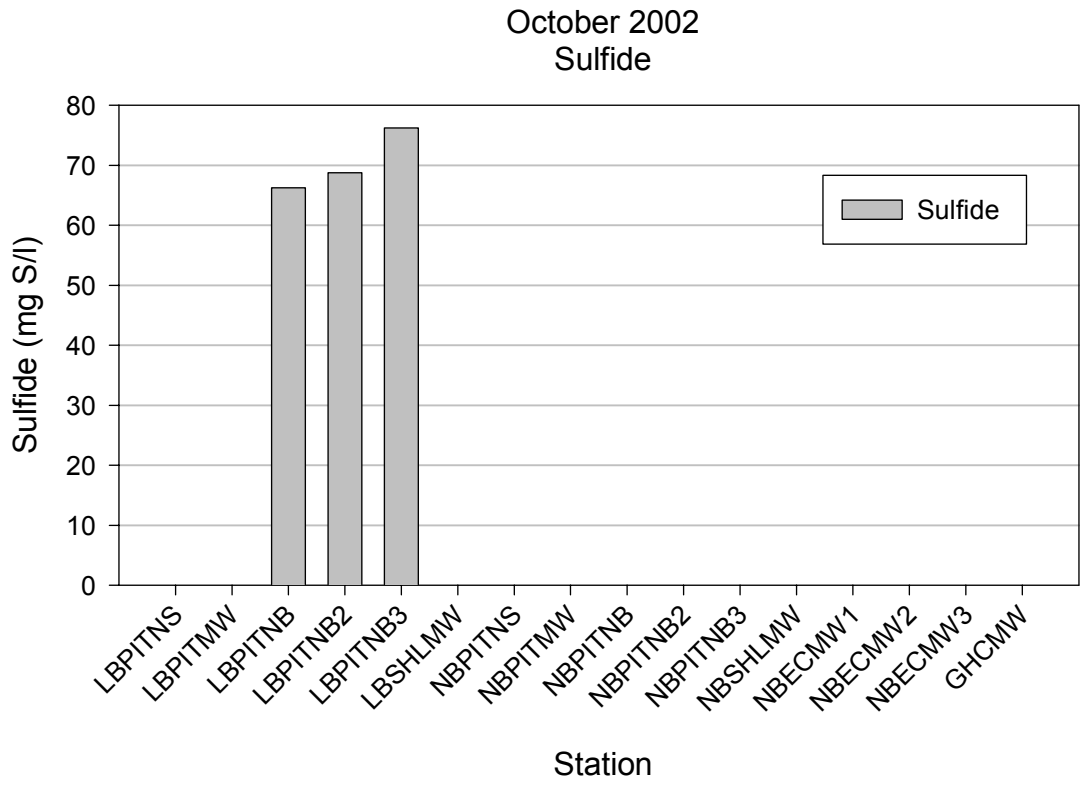
Figure B-40. Phaeophytin and total suspended solids in water samples collected 23 October 2002.





Sample names are spelled out in Figure B-42.

Figure B-41. Dissolved organic carbon, particulate carbon, and organic matter content in water samples collected 23 October 2002.



LBPITNS - Little Bay Pit Near Surface
LBPITMW - Little Bay Pit Midwater
LBPITNB - Little Bay Pit Near Bottom Sample 1
LBPITNB2 - Little Bay Pit Near Bottom Sample 2
LBPITNB3 - Little Bay Pit Near Bottom Sample 3
LBSHLMW - Little Bay Shallow Midwater
NBPITNS - Norton Basin Pit Near Surface
NBPITMW - Norton Basin Pit Midwater
NBPITNB - Norton Basin Pit Near Bottom Sample 1
NBPITNB2 - Norton Basin Pit Near Bottom Sample 2
NBPITNB3 - Norton Basin Pit Near Bottom Sample 3
NBSHLMW - Norton Basin Shallow Midwater
NBECMW1 - Norton Basin Entrance Channel Midwater Sample 1
NBECMW2 - Norton Basin Entrance Channel Midwater Sample 2
NBECMW3 - Norton Basin Entrance Channel Midwater Sample 3
GHCMW - Grass Hassock Channel Midwater

Figure B-42. Sulfide in water samples collected 23 October 2002.