# APPENDIX A

## Photographs of Noyes Slough

- Page Intentionally Left Blank -

Noyes Slough, Illinois Street Bridge.

Noyes Slough, Illinois Street Bridge stormwater outfall.

Noyes Slough, GVEA transformers near Illinois Street.

Noyes Slough, Isabella Creek outfall.

Noyes Slough, Isabella Creek culvert.

Noyes Slough, Minnie Street stormwater outfall.

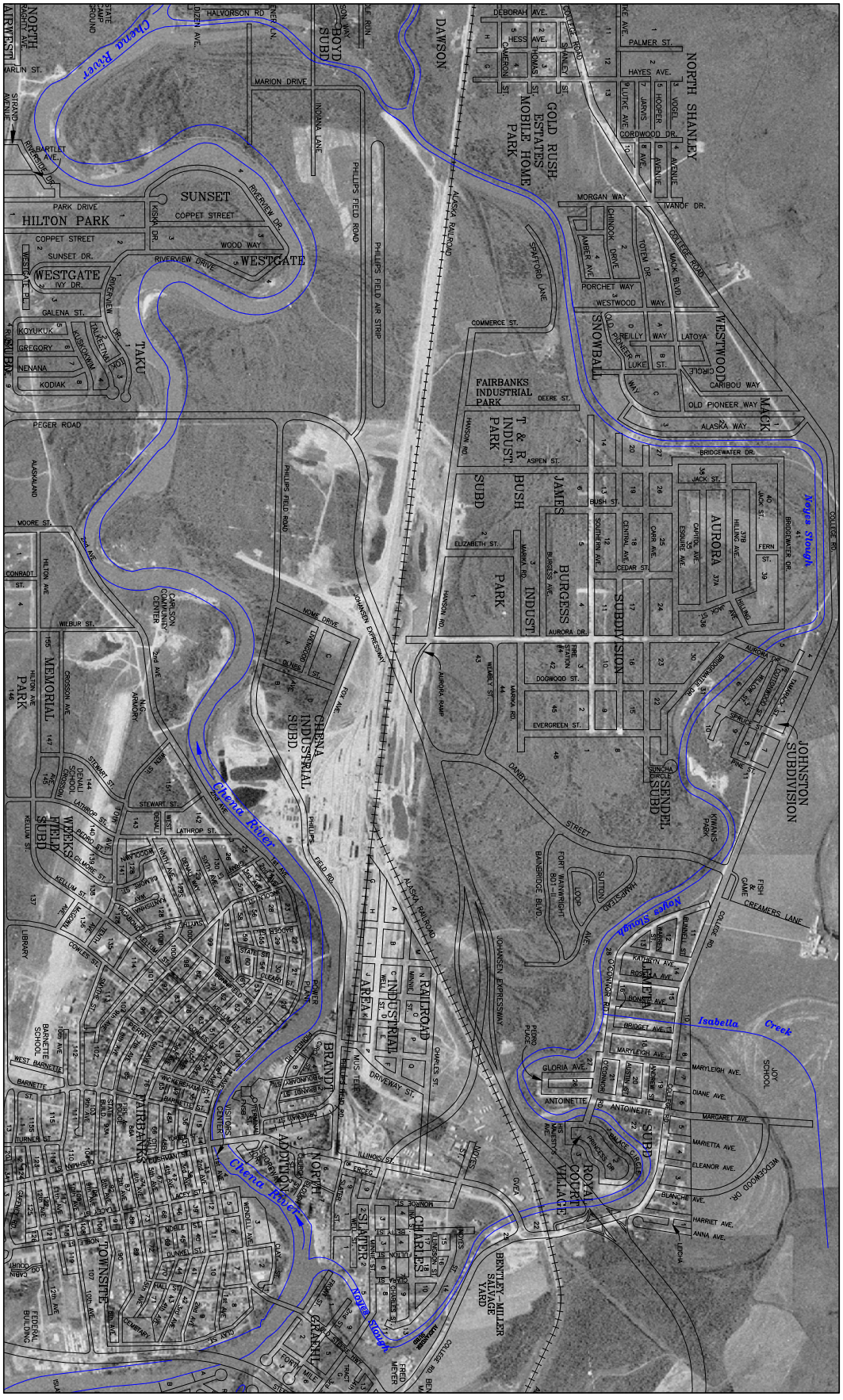
# APPENDIX B

## Historical Aerial Photographs

- Page Intentionally Left Blank -

PATH: V:\Project Drawings\Noyes Slough FILE:14-102-NS-F4.DWG PLOTTED: 12/6/07.

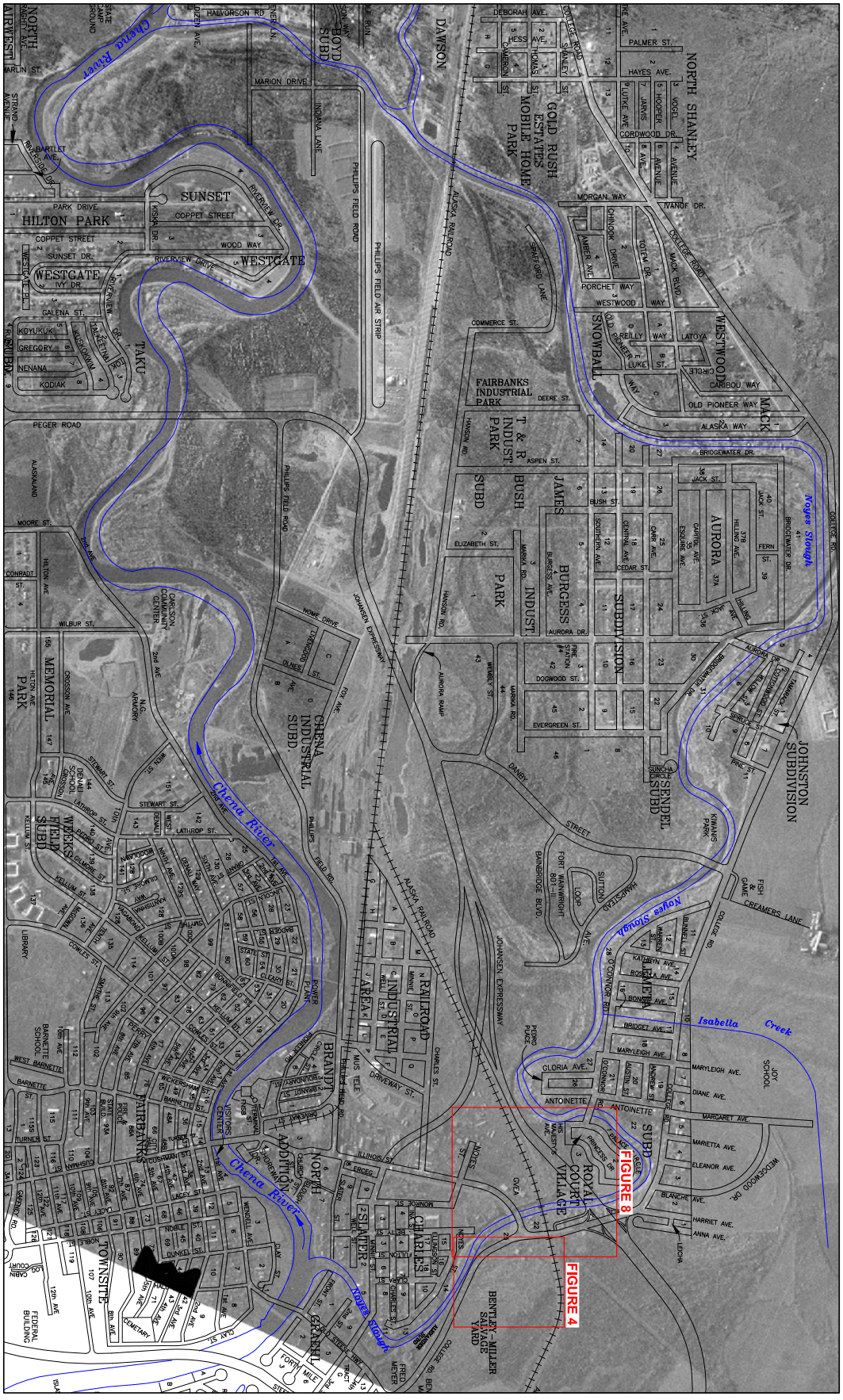
SOURCE: AERIAL PHOTO FAI_8-4-49.TIFF
PROVIDED BY AERO METRIC INC.




| | | | |
|---|---|---|---|
| oasis ENVIRONMENTAL | DATE: DEC. 2007<br>CHKD: G.M.B.<br>DRAWN: C.E.H.<br>PROJ. No.: 14-102<br>825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880 | **1949 NOYES SLOUGH**<br>NOYES SLOUGH<br>Fairbanks, Alaska | FIGURE<br>**B1** |

PATH: V:\Project Drawings\Noyes Slough FILE:14-102-NS-B2.DWG PLOTTED: 1/24/07.

SOURCE: AERIAL PHOTO FAI_9-20-59.TIFF
PROVIDED BY AERO METRIC INC.




| | | | |
|---|---|---|---|
| oasis ENVIRONMENTAL | DATE: JAN. 2008<br>CHKD: G.M.B.<br>DRAWN: C.E.H.<br>PROJ. No.: 14-102<br>825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880 | **1959 NOYES SLOUGH**<br>NOYES SLOUGH<br>Fairbanks, Alaska | FIGURE<br>**B2** |

PATH: V:\Project Drawings\Noyes Slough FILE: 14-102-NS-F6.DWG PLOTTED: 12/6/07.

SOURCE: AERIAL PHOTO FAI_5-22-79.TIFF
PROVIDED BY AERO METRIC INC.

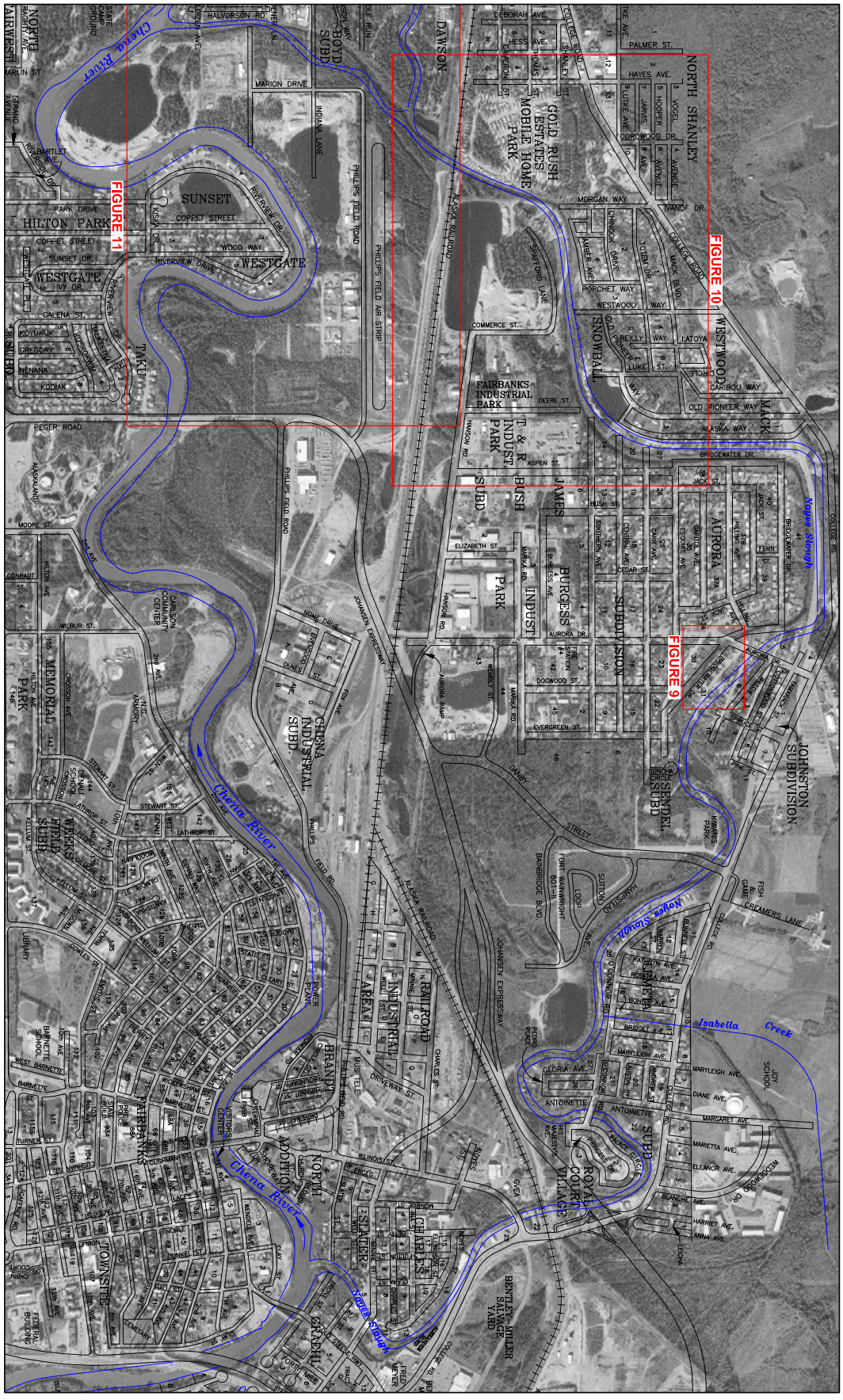
0 300 600
APPROX. SCALE IN FEET

NORTH

| | | | |
|---|---|---|---|
| oasis ENVIRONMENTAL | DATE: DEC. 2007<br>CHKD: G.M.B.<br>DRAWN: C.E.H.<br>PROJ. No.: 14-102<br>825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880 | **1979 NOYES SLOUGH**<br>NOYES SLOUGH<br>Fairbanks, Alaska | FIGURE<br>**B3** |

PATH: V:\Project Drawings\Noyes Slough FILE:14-102-NS-B4.DWG PLOTTED: 1/30/08.

SOURCE: AERIAL PHOTO FAI_8-10-87.TIFF
PROVIDED BY AERO METRIC INC.




| | | | |
|---|---|---|---|
| oasis ENVIRONMENTAL | DATE: JAN. 2008<br>CHKD: M.S.<br>DRAWN: C.E.H.<br>PROJ. No.: 14-102<br>825 W. 8th Ave., Anchorage, AK 99501, (907) 258-4880 | **1987 NOYES SLOUGH**<br>NOYES SLOUGH<br>Fairbanks, Alaska | FIGURE<br>**B4** |

# APPENDIX C

## USGS Stream Reaches and Data

- Page Intentionally Left Blank -

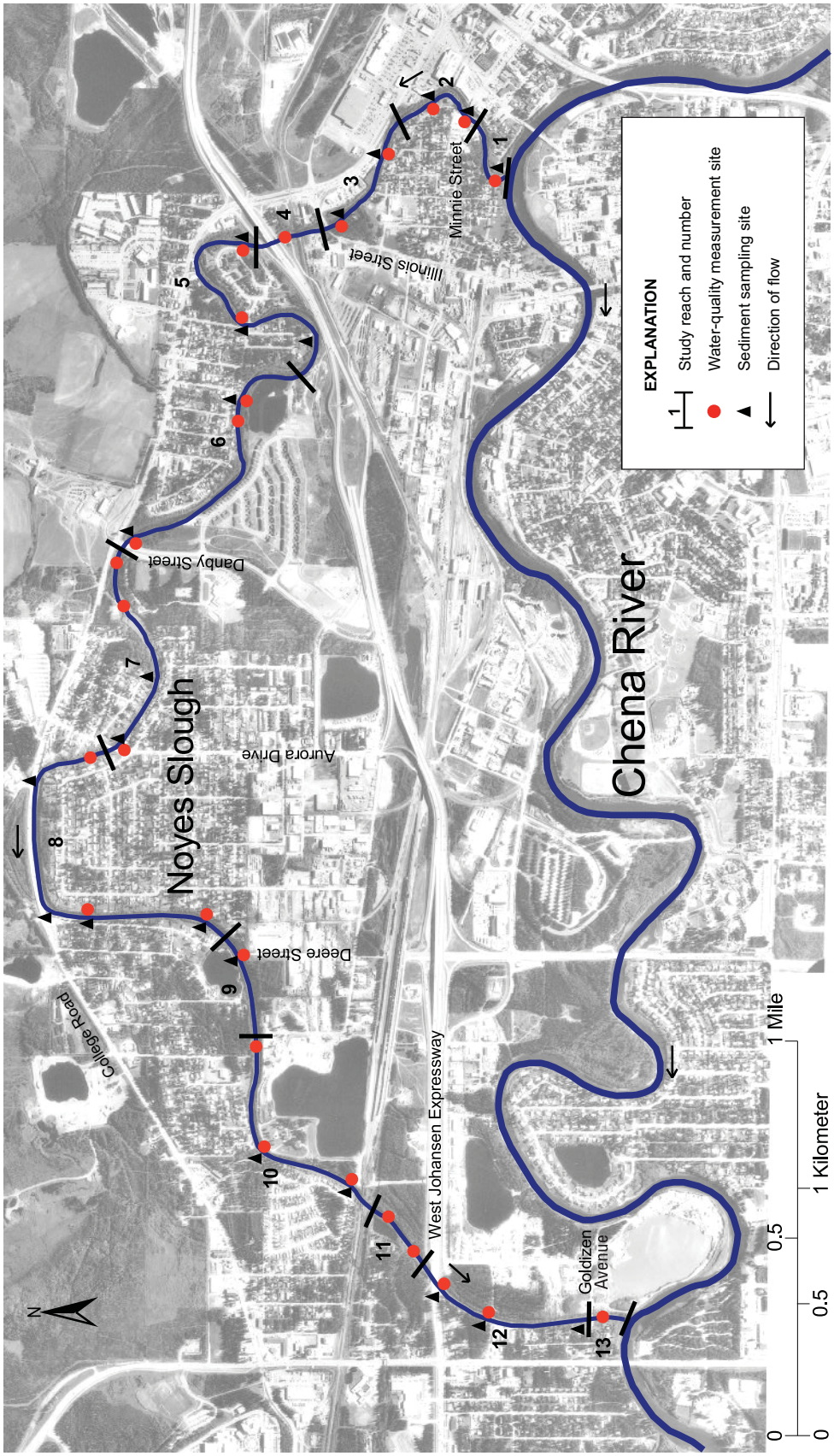
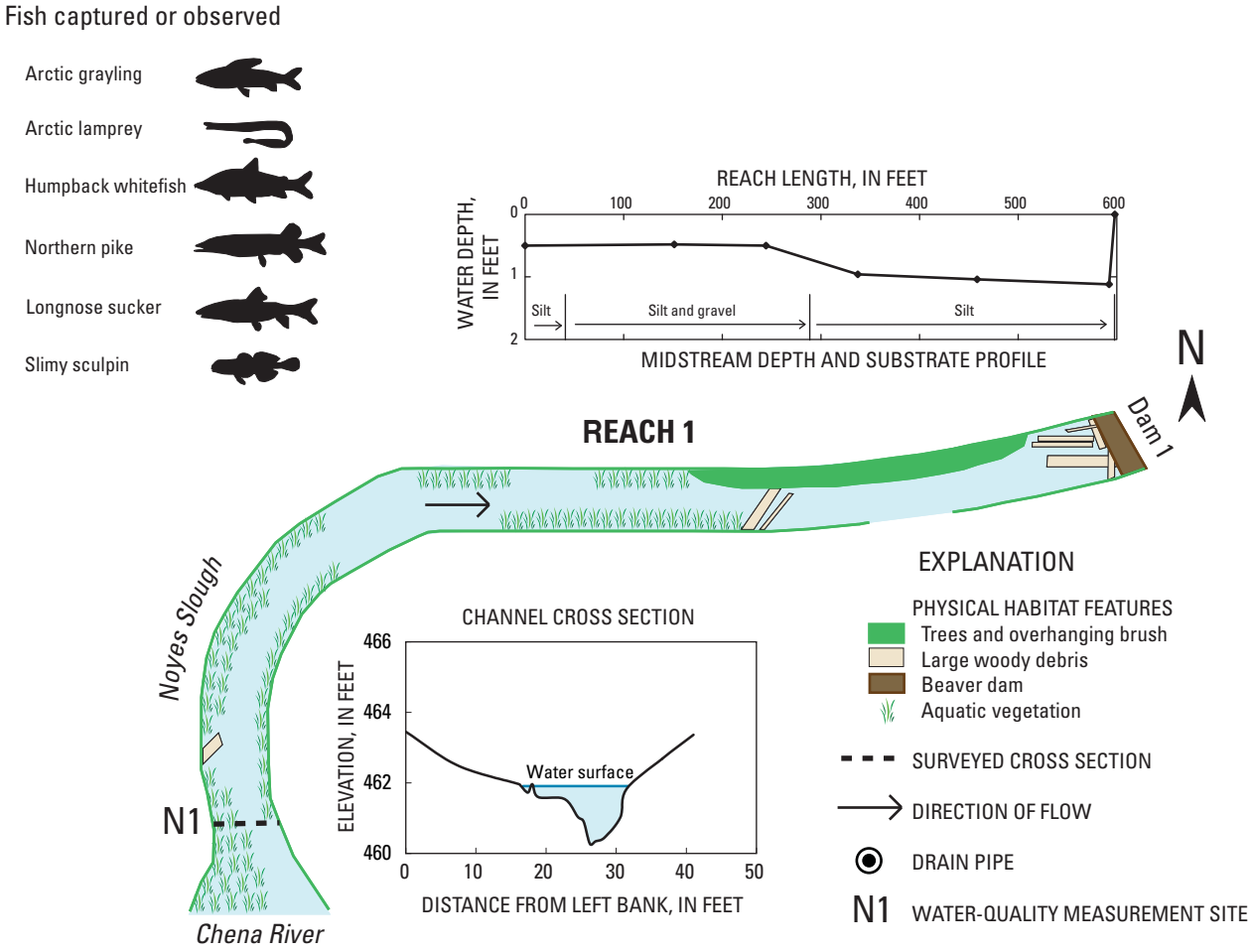
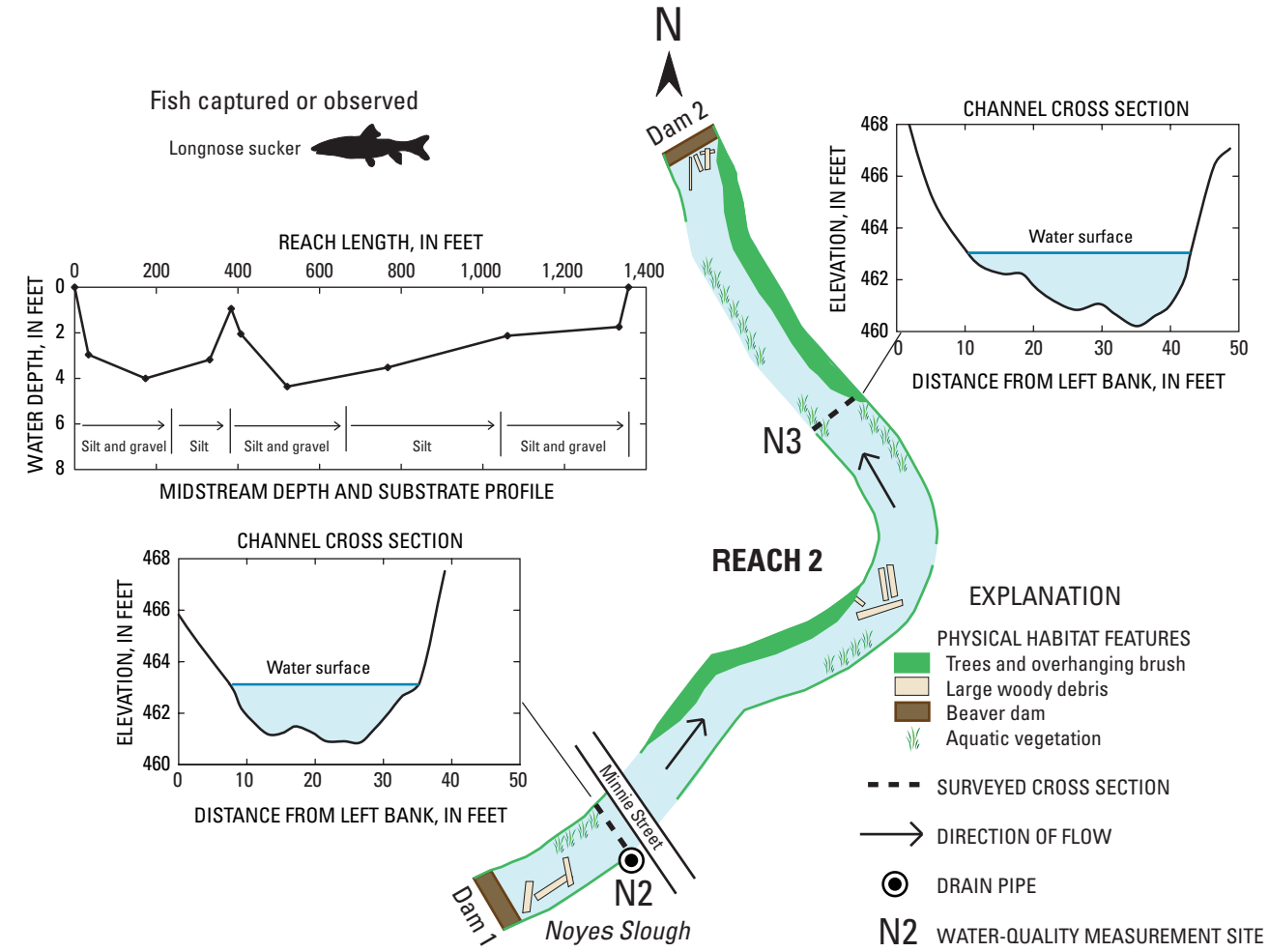



**Figure 3.** Location of study reach boundaries, water-quality measurement sites, and streambed-sediment sampling sites in Noyes Slough, Fairbanks, Alaska, 2001-2002. Aerial photograph, from 1996 flight, is from Natural Resources Conservation Service.



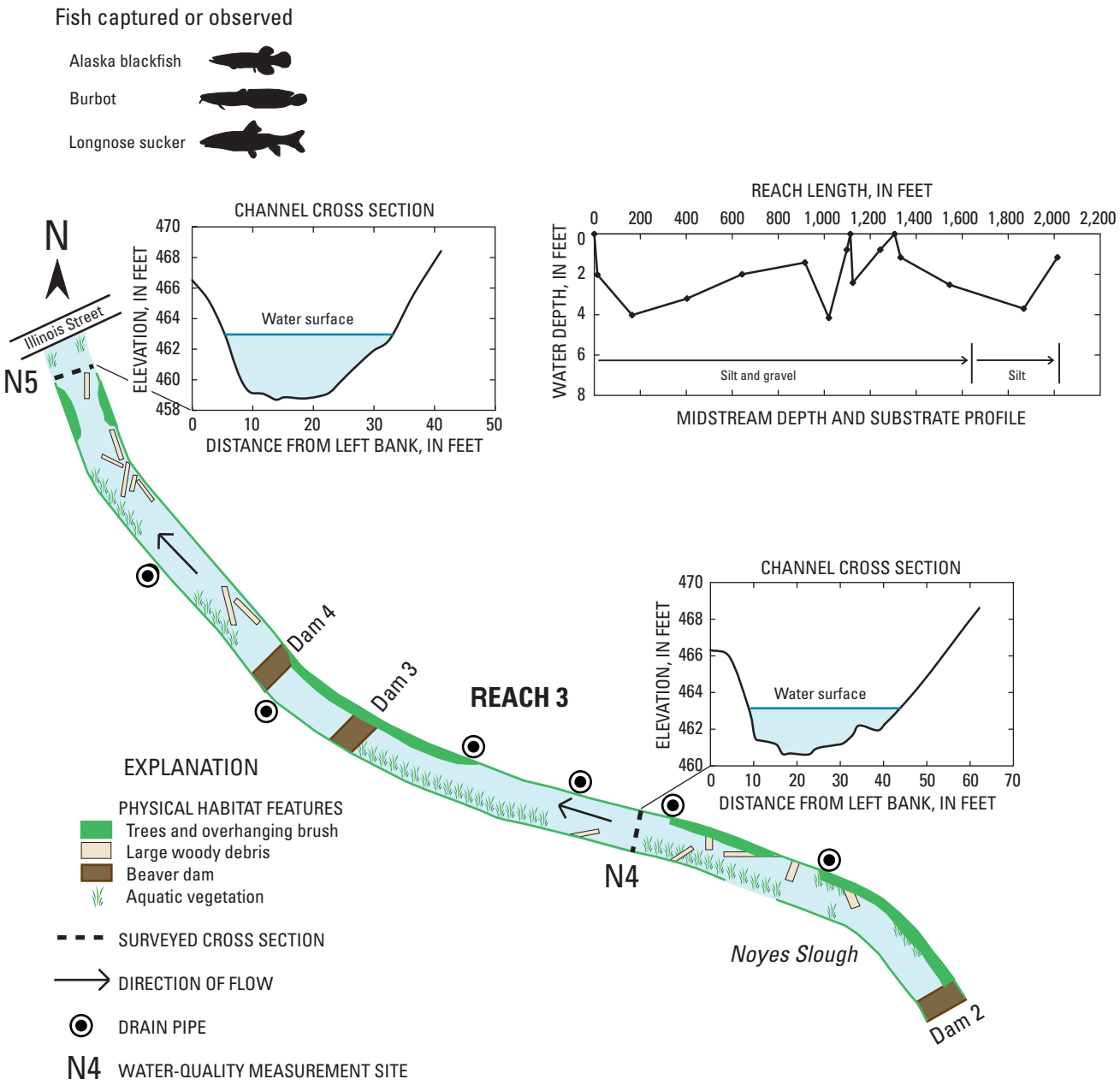

***A.***

**Figure 4**. Channel characteristics, fish habitat, and types of fish present during summer 2001 in the 13 study reaches in Noyes Slough, Fairbanks, Alaska.
The scale of features is exaggerated to improve presentation, but their distribution in relation to each other is as observed on site.



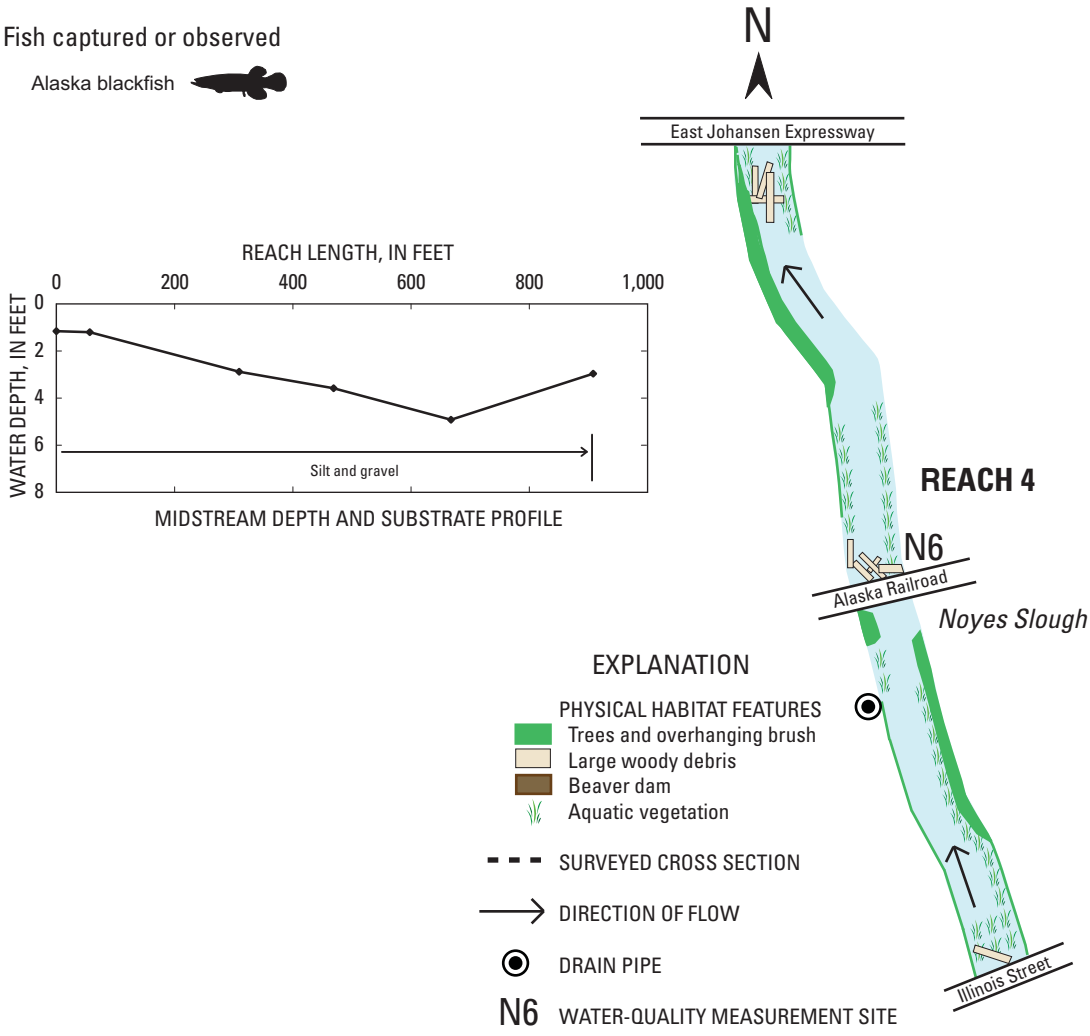

***B.***

**Figure 4**.—*Continued.*



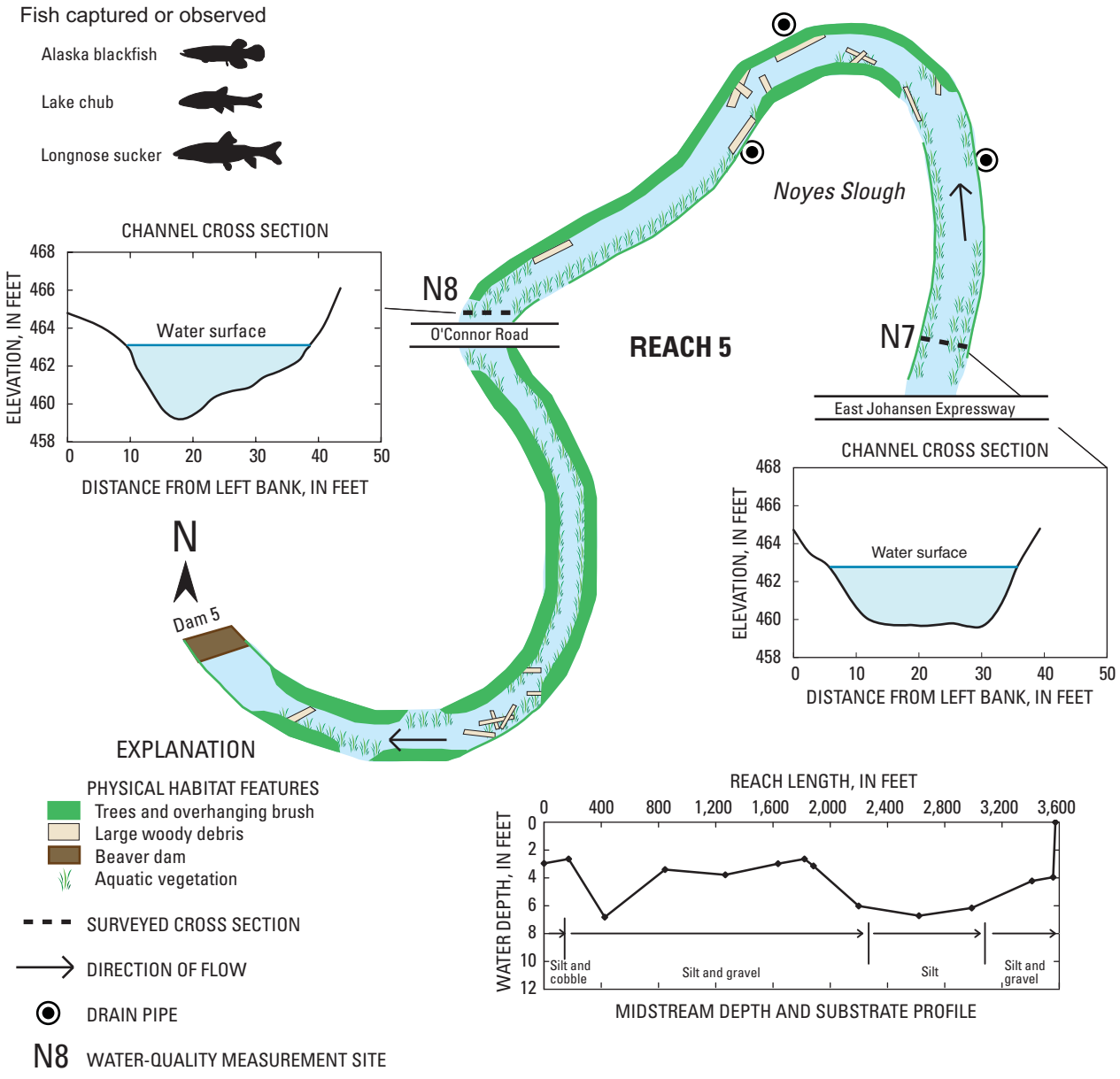

***C.***

**Figure 4**.—*Continued.*



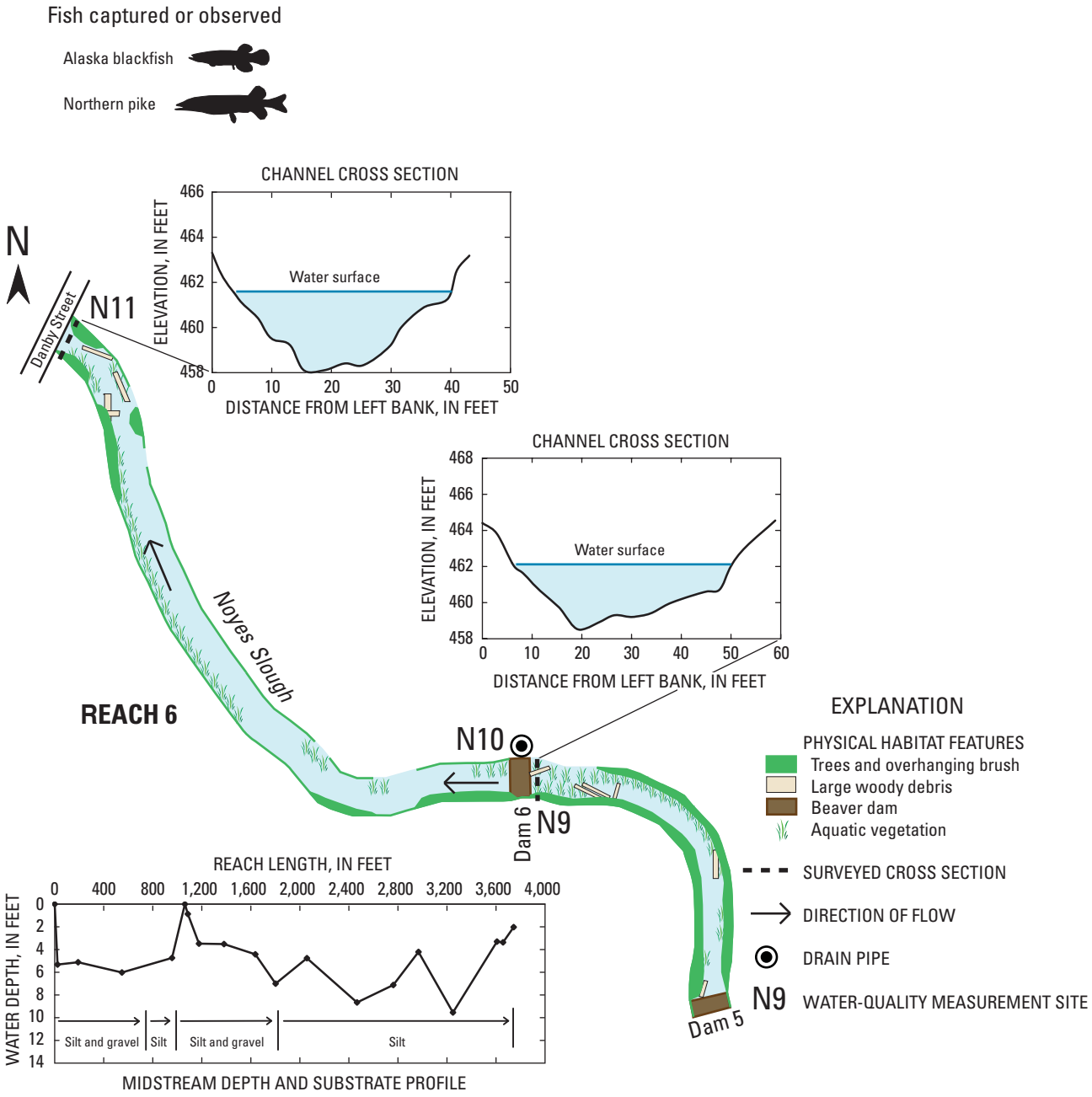

***D.***

**Figure 4**.—*Continued*



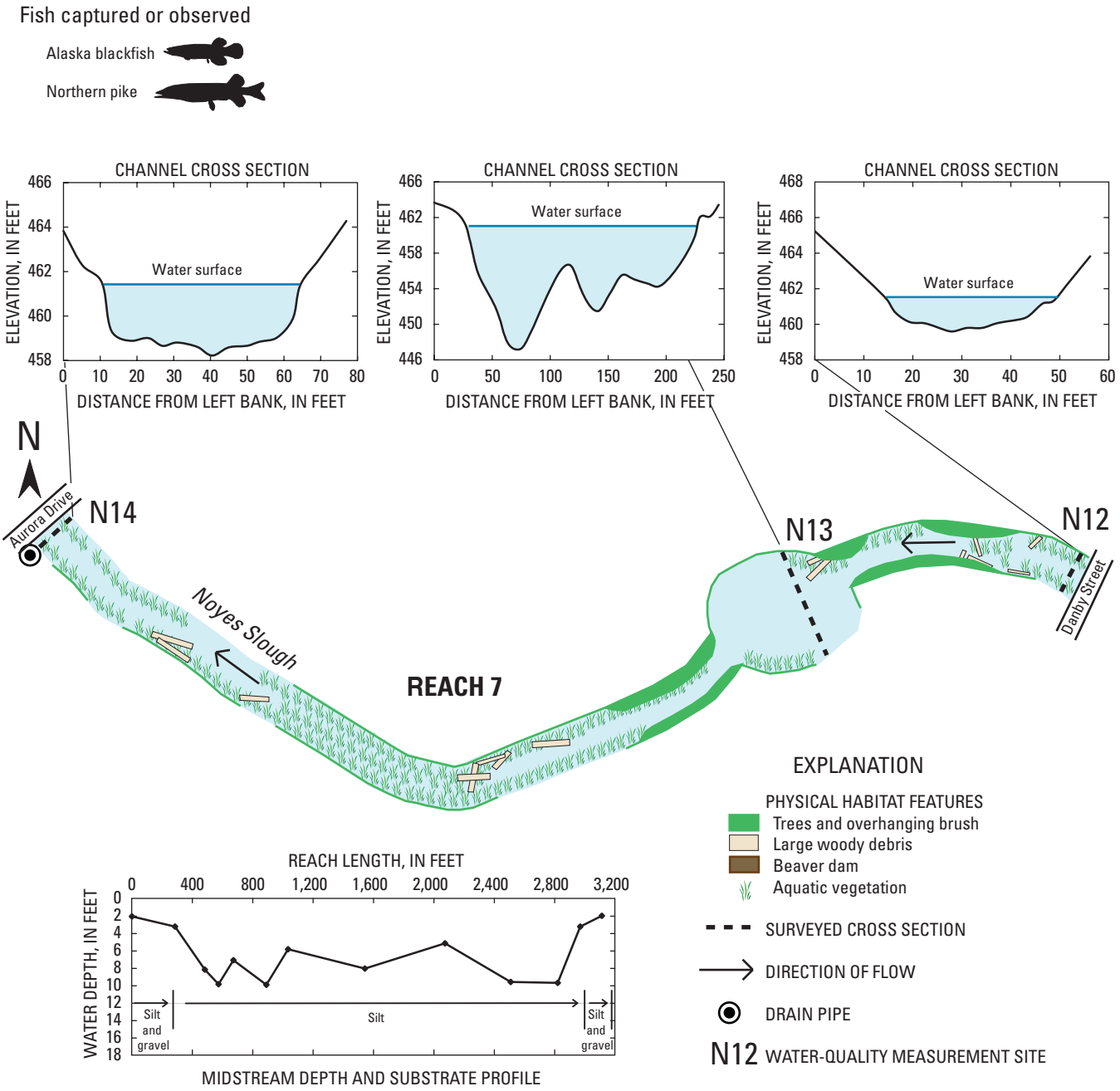

***E.***

**Figure 4**.—*Continued.*



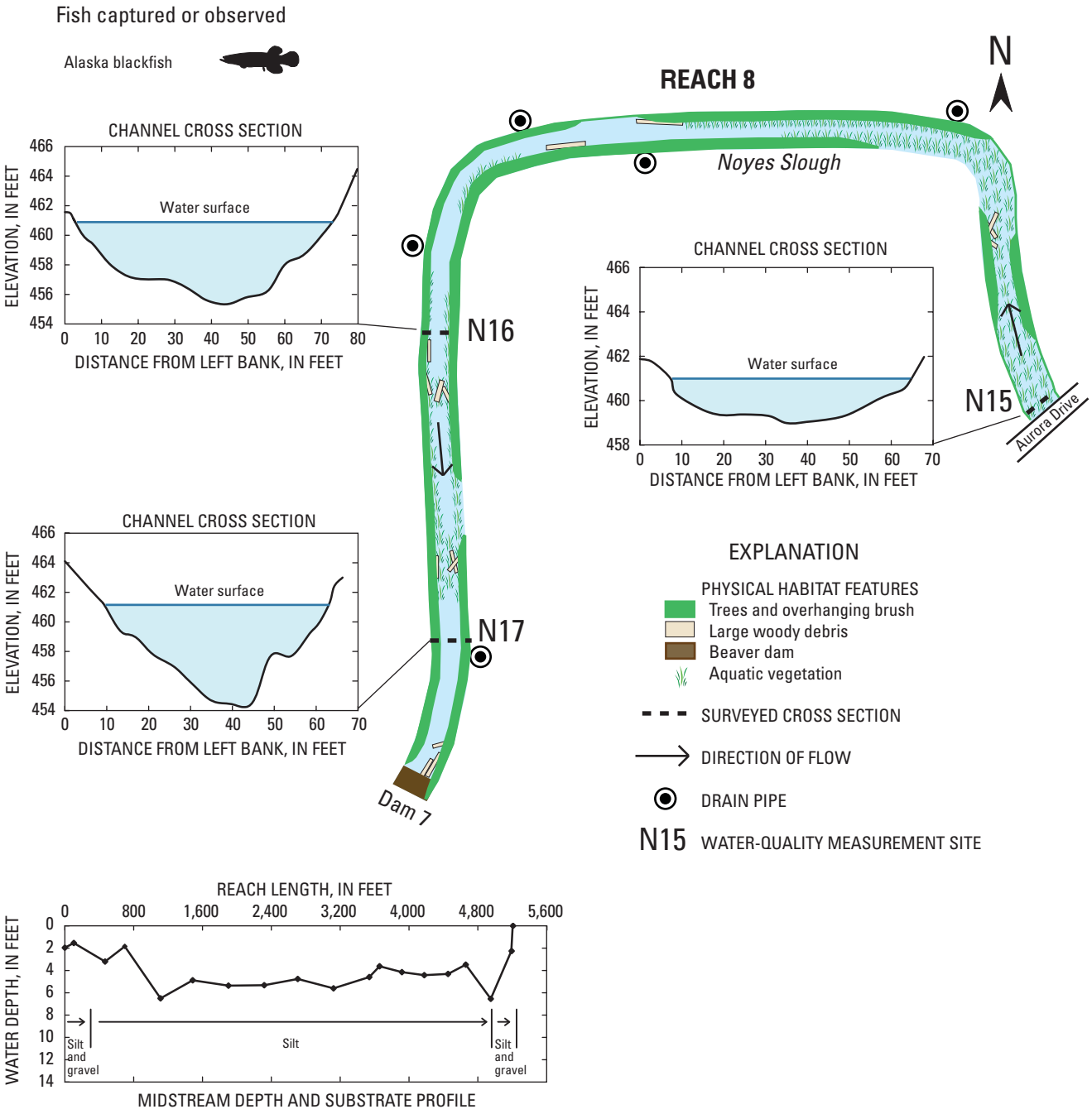

***F.***

**Figure 4**.—*Continued.*



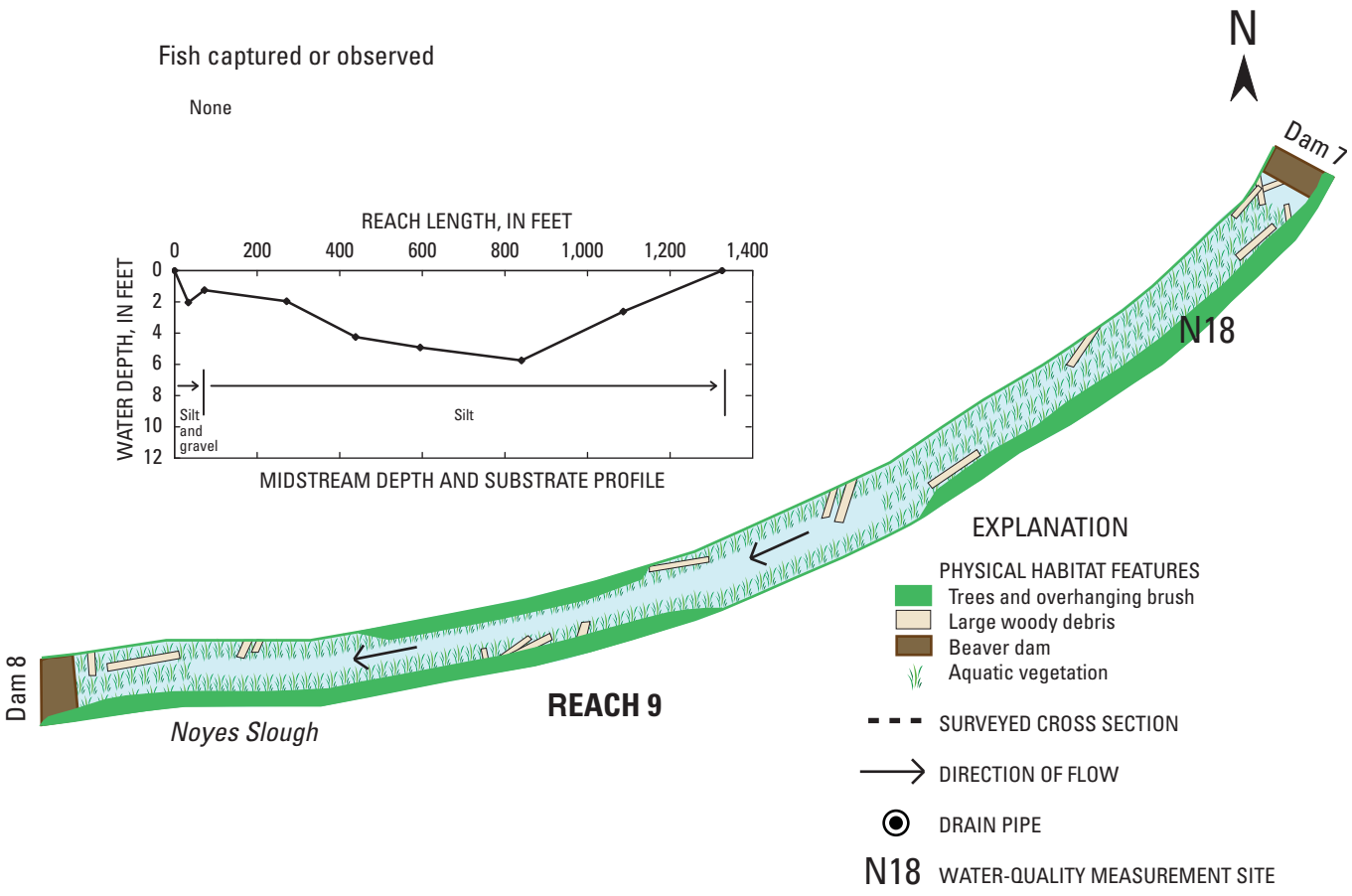

***G.***

**Figure 4**.—*Continued.*



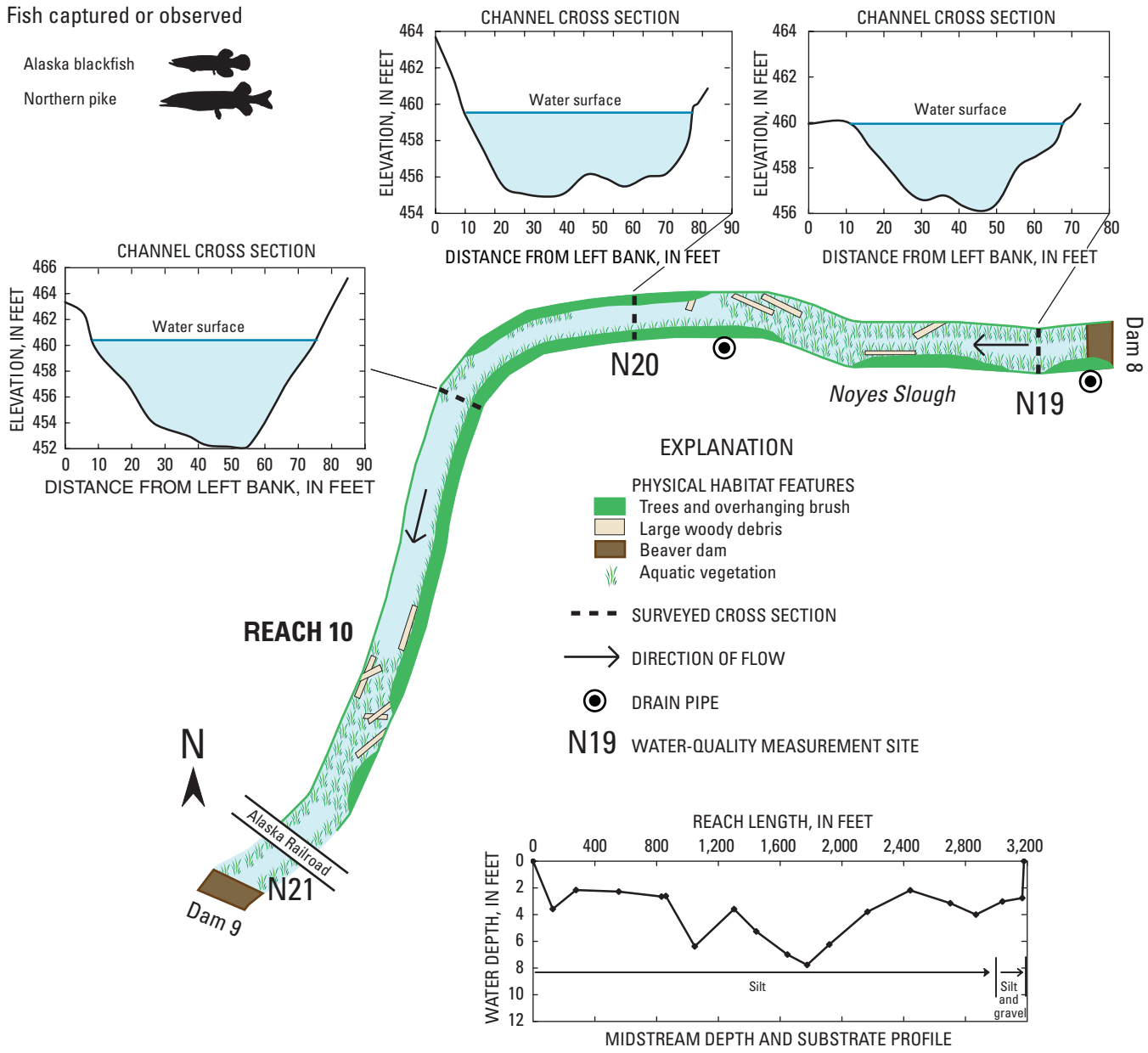

***H.***

**Figure 4**.—*Continued.*



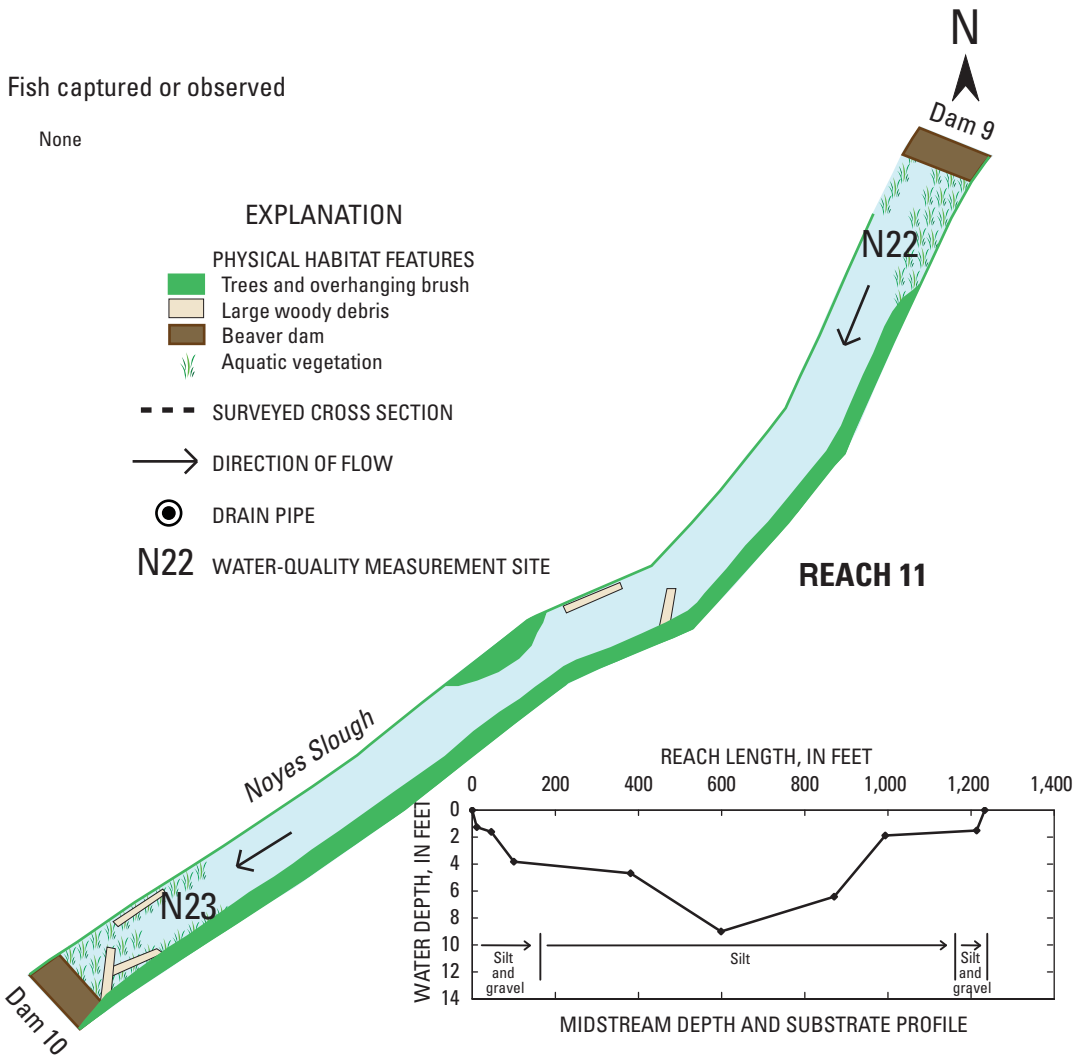

***I.***

**Figure 4**.—*Continued.*



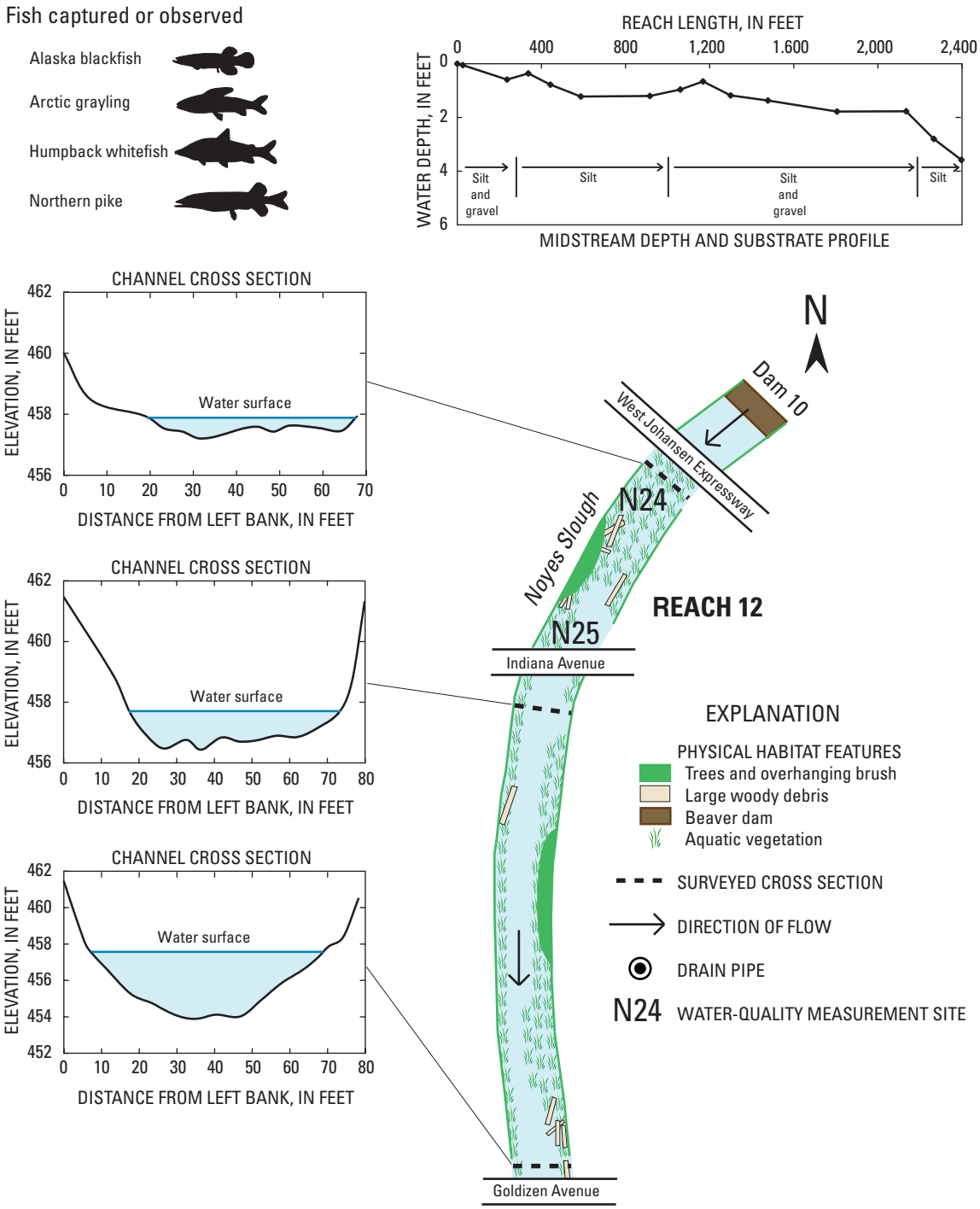

***J.***

**Figure 4**.—*Continued.*



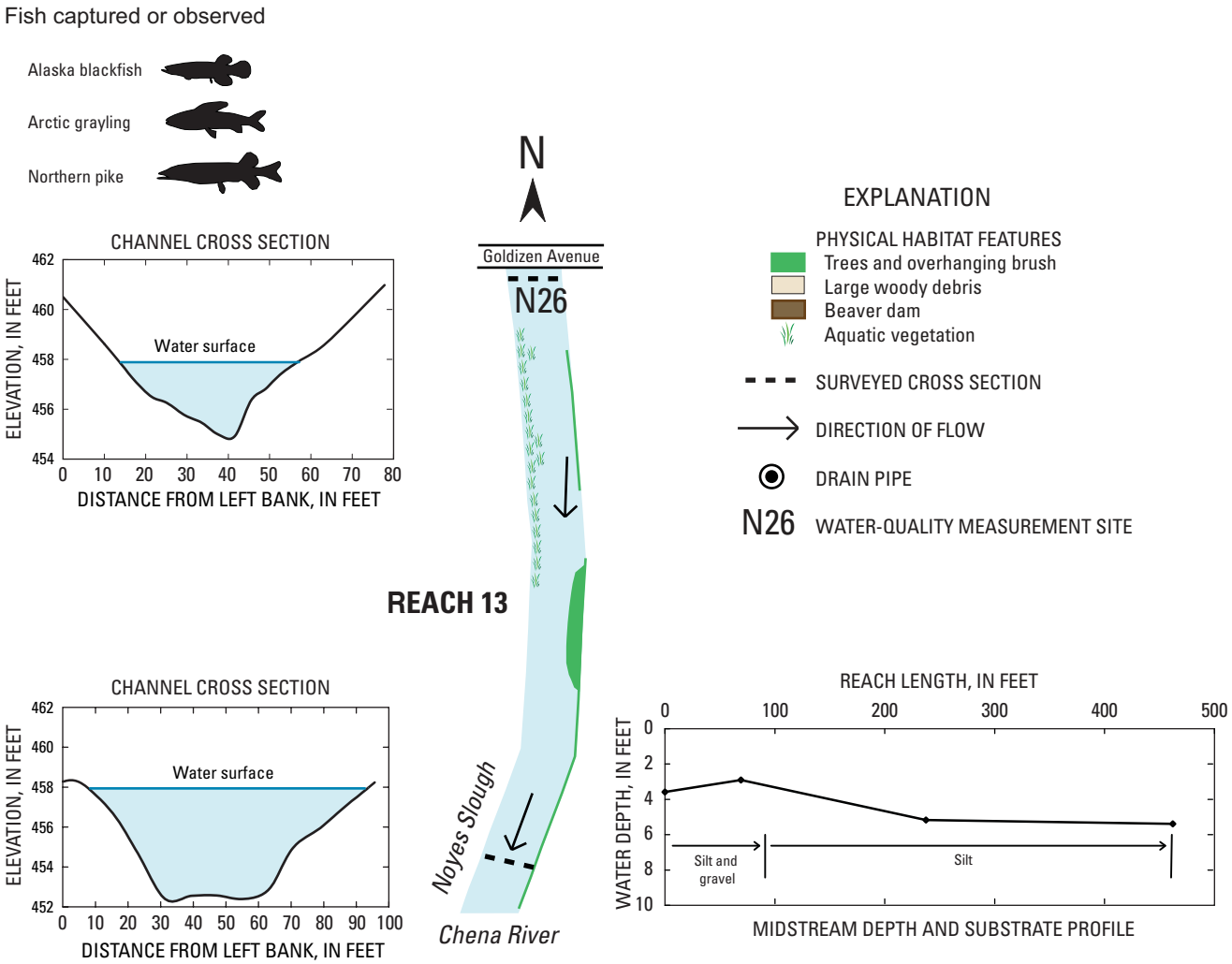

***K.***

**Figure 4**.—*Continued.*




***L.***

**Figure 4**.—*Continued.*




***M.***

**Figure 4**.—*Continued.*

**Table 7.** Trace-element concentrations and summary statistics for bulk streambed sediments in Noyes Slough, Fairbanks, Alaska, 2001

[**Abbreviations**: Stdev, standard deviation; TRMmean, trimmed mean excludes maximum and minimum data values: TRMstdev, trimmed standard deviation excludes maximum and minimum data values; ND, trace element not detected; B, concentration is below minimum reporting limit; mg/kg, milligram per kilogram, dry weight]

| | Concentration (mg/kg) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sediment sampling site** | **Aluminum** | **Antimony** | **Arsenic** | **Barium** | **Beryllium** | **Cadmium** | **Calcium** | **Chromium** | **Cobalt** | **Copper** | **Iron** |
| SED01 | 14,400 | ND | 14.5 | 150 | ND | ND | 5,840 | 26.6 | 12.4 | 29.6 | 28,800 |
| SED02 | 14,700 | 1.1 B | 13.0 | 157 | ND | ND | 5,340 | 22.6 | 8.9 | 25.4 | 27,800 |
| SED03 | 15,900 | 1.4 B | 16.6 | 181 | ND | ND | 5,310 | 25.6 | 11.5 | 30.5 | 28,900 |
| SED04 | 14,500 | 1.2 B | 9.9 | 169 | ND | ND | 5,340 | 30.1 | 10.6 | 28.2 | 24,500 |
| SED05 | 13,900 | ND | 9.8 | 152 | ND | ND | 5,420 | 27.5 | 12.3 | 29.1 | 25,900 |
| SED06 | 15,500 | ND | 16.3 | 185 | .11 B | ND | 5,880 | 31.1 | 13.6 | 32.3 | 29,300 |
| SED07 | 16,800 | ND | 12.6 | 183 | ND | ND | 6,300 | 31.8 | 14.1 | 34.4 | 29,800 |
| SED08 | 14,900 | ND | 11.9 | 165 | .10 B | ND | 5,360 | 28.4 | 12.2 | 34.4 | 25,900 |
| SED09 | 16,600 | ND | 9.5 | 165 | ND | ND | 6,370 | 24.8 | 11.2 | 30.3 | 27,500 |
| SED10 | 14,900 | ND | 13.6 | 165 | ND | ND | 6,110 | 27.3 | 12.6 | 31.5 | 29,600 |
| SED11 | 13,700 | ND | 17.3 | 159 | ND | ND | 6,380 | 24.8 | 11.6 | 30.0 | 29,400 |
| SED12 | 19,600 | 1.3 B | 15.9 | 237 | ND | ND | 7,110 | 36.7 | 16.2 | 43.9 | 36,200 |
| SED13 | 12,400 | ND | 11.3 | 299 | ND | ND | 6,860 | 32.1 | 11.7 | 34.2 | 22,400 |
| SED14 | 10,300 | ND | 7.4 | 112 | ND | ND | 4,750 | 27.0 | 8.5 | 21.3 | 18,100 |
| SED15 | 14,700 | ND | 9.3 | 159 | ND | ND | 5,280 | 27.4 | 12.6 | 33.1 | 25,900 |
| SED16 | 16,200 | ND | 16.1 | 183 | ND | ND | 6,260 | 30.8 | 13.7 | 37.0 | 29,300 |
| SED17 | 17,000 | ND | 16.0 | 244 | ND | ND | 6,010 | 34.1 | 15.0 | 40.4 | 30,900 |
| SED18 | 18,200 | 1.2 B | 12.5 | 239 | ND | ND | 7,440 | 34.1 | 14.9 | 42.5 | 31,500 |
| SED19 | 11,000 | ND | 12.9 | 136 | .30 B | .53 B | 5,820 | 21.4 | 9.8 | 30.4 | 21,900 |
| SED20 | 13,200 | 1.1 B | 9.7 | 164 | ND | ND | 5,500 | 21.0 | 10.2 | 30.4 | 24,300 |
| SED21 | 14,900 | ND | 18.2 | 180 | .41 B | .83 B | 5,130 | 29.0 | 12.4 | 29.4 | 29,000 |
| SED22 | 6,830 | ND | 6.1 | 66.5 | .17 B | .18 B | 3,810 | 14.2 | 6.2 | 11.3 | 12,500 |
| SED23 | 10,200 | 1.0 B | 10.1 | 120 | .24 B | .45 B | 4,810 | 20.0 | 8.9 | 20.0 | 19,000 |
| **Summary Statistics**[1] | | | | | | | | | | | |
| Count[2] | 23 | n<20 | 23 | 23 | n<20 | n<20 | 23 | 23 | 23 | 23 | 23 |
| Maximum | 19,600 | | 18.2 | 299 | | | 7,440 | 36.7 | 16.2 | 43.9 | 36,200 |
| Minimum | 6,830 | | 6.1 | 66.5 | | | 3,810 | 14.2 | 6.2 | 11.3 | 12,500 |
| Range | 12,770 | | 12.1 | 232.5 | | | 3,630 | 22.5 | 10 | 32.6 | 23,700 |
| Mean | 14,362 | | 12.6 | 172.6 | | | 5,758 | 27.3 | 11.8 | 30.9 | 26,452 |
| Stdev | 2,828 | | 3.3 | 48.1 | | | 815 | 5.2 | 2.3 | 7.1 | 5,106 |
| TRMmean | 14,471 | | 12.7 | 171.7 | | | 5,770 | 27.5 | 11.8 | 31.2 | 26,652 |
| TRMstdev | 2,139 | | 2.9 | 34.4 | | | 632 | 4.1 | 1.9 | 5.3 | 3,763 |
| **Median** | **14,700** | | **12.6** | **165.0** | | | **5,820** | **27.4** | **12.2** | **30.4** | **27,800** |

DRAFT

**Table 7.** Trace-element concentrations and summary statistics for bulk streambed sediments in Noyes Slough, Fairbanks, Alaska, 2001—*Continued.*

[**Abbreviations**: Stdev, standard deviation; TRMmean, trimmed mean excludes maximum and minimum data values: TRMstdev, trimmed standard deviation excludes maximum and minimum data values; ND, trace element not detected; B, concentration is below minimum reporting limit; mg/kg, milligram per kilogram, dry weight]

| | Concentration (mg/kg) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sediment sampling site** | **Lead** | **Magnesium** | **Manganese** | **Mercury** | **Molybdenum** | **Nickel** | **Potassium** | **Selenium** | **Silver** | **Sodium** | **Thallium** | **Vanadium** | **Zinc** |
| SED01 | 10.3 | 6,140 | 363 | 0.036 B | 0.49 B | 25.3 | 969 | 3.8 | ND | 538 B | ND | 41.8 | 82.2 |
| SED02 | 12.6 | 5,860 | 320 | .027 B | .78 B | 24.2 | 1,110 | 1.30 B | 0.55 B | ND | ND | 39.4 | 86.4 |
| SED03 | 12.6 | 6,110 | 316 | .035 B | .67 B | 26.9 | 1,320 | 1.50 B | .64 B | ND | ND | 44.5 | 108.0 |
| SED04 | 20.3 | 5,780 | 284 | .034 B | .66 B | 25.1 | 1,140 | .78 B | .57 B | ND | ND | 40.2 | 200.0 |
| SED05 | 13.3 | 6,130 | 316 | .034 B | .77 B | 25.7 | 1,060 | 3.6 | ND | 369 B | ND | 41.0 | 104.0 |
| SED06 | 14.1 | 6,330 | 324 | .040 B | .77 B | 27.7 | 1,250 | 4.3 | ND | 304 B | ND | 46.9 | 118.0 |
| SED07 | 14.1 | 7,080 | 311 | .040 B | .56 B | 29.5 | 1,240 | 3.7 | ND | 533 B | ND | 47.4 | 115.0 |
| SED08 | 12.5 | 6,100 | 318 | .041 B | .55 B | 26.1 | 1,110 | 3.2 | ND | 411 B | ND | 42.8 | 89.5 |
| SED09 | 12.7 | 6,690 | 311 | .050 B | .63 B | 26.9 | 1,310 | 1.50 B | .68 B | ND | ND | 41.4 | 128.0 |
| SED10 | 12 | 6,370 | 352 | .066 B | ND | 27.1 | 1,060 | 4.9 | ND | 633 B | 1.2 B | 40.5 | 97.8 |
| SED11 | 12.4 | 6,160 | 398 | .033 B | .28 B | 25.5 | 1,140 | 3.4 | .17 B | 429 B | ND | 39.0 | 87.6 |
| SED12 | 17.2 | 7,620 | 459 | .074 B | .53 B | 34.9 | 1,490 | 4.5 | ND | 507 B | ND | 54.5 | 129.0 |
| SED13 | 59.4 | 6,000 | 270 | .055 B | .98 B | 25.6 | 941 | 3.1 | .14 B | 893 B | ND | 34.2 | 562.0 |
| SED14 | 56.5 | 4,910 | 173 | .041 B | .30 B | 19.6 | 761 | 2.7 | .13 B | 684 B | ND | 30.2 | 57.4 |
| SED15 | 14.4 | 6,560 | 284 | .065 | .30 B | 26.1 | 996 | 3.2 | .18 B | 902 | ND | 44.2 | 78.5 |
| SED16 | 16 | 6,850 | 360 | .068 | .60 B | 29.0 | 1,290 | 3.7 | .16 B | ND | ND | 47.5 | 92.1 |
| SED17 | 14.9 | 6,750 | 453 | .068 B | 1.10 B | 31.8 | 1,580 | ND | .33 B | 911 B | ND | 54.2 | 133.0 |
| SED18 | 17.7 | 7,380 | 338 | .062 | .57 B | 31.9 | 1,420 | 4.8 | .28 B | 574 B | ND | 52.6 | 122.0 |
| SED19 | 11.3 | 4,770 | 301 | .080 B | .58 B | 22.7 | 1,030 | 2.40 B | ND | ND | 1.2 B | 37.5 | 87.0 |
| SED20 | 1,490 | 5,690 | 259 | .065 | .68 B | 22.7 | 971 | ND | .69 B | ND | ND | 36.8 | 90.1 |
| SED21 | 13.7 | 5,660 | 344 | .060 B | .91 B | 28.5 | 1,330 | 1.90 B | ND | ND | ND | 46.1 | 142.0 |
| SED22 | 4.9 | 3,530 | 188 | .015 B | .22 B | 14.3 | 619 | 1.20 B | ND | ND | ND | 26.3 | 33.9 |
| SED23 | 8.3 | 4,470 | 292 | .046 B | .42 B | 19.7 | 1,010 | 1.30 B | ND | ND | ND | 35.6 | 57.1 |
| **Summary Statistics**[1] | | | | | | | | | | | | | |
| Count[2] | 23 | 23 | 23 | n<20 | n<20 | 23 | 23 | n<20 | n<20 | n<20 | n<20 | 23 | 23 |
| Maximum | 1,490 | 7,620 | 459 | | | 34.9 | 1,580 | | | | | 54.5 | 562 |
| Minimum | 4.9 | 3,530 | 173 | | | 14.3 | 619 | | | | | 26.3 | 33.9 |
| Range | 1,485.1 | 4,090 | 286 | | | 20.6 | 961 | | | | | 28.2 | 528.1 |
| Mean | 81.4 | 6,041 | 319 | | | 25.9 | 1,137 | | | | | 41.9 | 121.8 |
| Stdev | 307.4 | 941 | 67 | | | 4.4 | 225 | | | | | 7.0 | 101.7 |
| TRMmean | 17.9 | 6,085 | 319 | | | 26.1 | 1,140 | | | | | 42.1 | 105.0 |
| TRMstdev | 13.6 | 730 | 53 | | | 3.2 | 180 | | | | | 5.8 | 31.8 |
| **Median** | **13.7** | **6,130** | **316** | | | **26.1** | **1,110** | | | | | **41.4** | **97.8** |

[1]Summary statistics calculated for trace elements with count (*n*) greater than or equal to 20.
[2]Count does not include values that are below the minimum reporting limit, designated with "B"annotation.

DRAFT

**Table 9.** Concentrations of semivolatile organic compounds and carbon in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002

[**NWIS,** U.S. Geological Survey National Water Information System. **Abbreviations**: µg/kg, micrograms per kilogram, dry weight; <, less than; E, estimated; M-D, method deleted]

| Semivolatile organic compound | NWIS code | Method detection level (µg/kg) | Concentration (µg/kg) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SED01 | SED01R | SED03 | SED05 | SED07 | SED09 |
| Hexachlorobenzene | 49343 | 50 | <70 | E4 | <70 | <70 | <80 | <70 |
| Dibutylphthalate[1] | 49381 | 50 | E30 | E43 | E27 | E26 | E33 | E28 |
| Dioctylphthalate[1] | 49382 | 50 | E36 | E42 | 130 | 95 | E59 | E44 |
| Diethylphthalate[1] | 49383 | 50 | E11 | E13 | E8 | E8 | E9 | E9 |
| Dimethylphthalate | 49384 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Pyrene | 49387 | 50 | E15 | E21 | E25 | E26 | E38 | E21 |
| 1-Methylpyrene | 49388 | 50 | <70 | <100 | E16 | <70 | <80 | E15 |
| Benzo[*a*]pyrene | 49389 | 50 | <70 | <100 | <70 | <70 | <80 | E19 |
| 1-Methyl-indeno[*1,2,3-cd*]pyrene | 49390 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 2,2'-Biquinoline | 49391 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Quinoline | 49392 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Phenanthridine | 49393 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Isoquinoline | 49394 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 2,4-Dinitrotoluene | 49395 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 2,6-Dinitrotoluene | 49396 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Benzo[*k*]fluoranthene | 49397 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 1-Methyl 9H-fluorene | 49398 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 9H-Fluorene | 49399 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Isophorone | 49400 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *bis*(2-chloroethoxy)methane | 49401 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Naphthalene | 49402 | 50 | <70 | <100 | E10 | E10 | <80 | E10 |
| 1,2-Dimethylnaphthalene | 49403 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 1,6-Dimethylnaphthalene | 49404 | 50 | <70 | E15 | E22 | E12 | E13 | E11 |
| 2,3,6-Trimethylnaphthalene | 49405 | 50 | <70 | <100 | E10 | E7 | <80 | <70 |
| 2,6-Dimethylnaphthalene | 49406 | 50 | E12 | E34 | E29 | E29 | E37 | E34 |
| 2-Chloronaphthalene | 49407 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Benzo[*g,h,i*]perylene | 49408 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Phenanthrene | 49409 | 50 | E8 | E12 | E13 | E18 | E22 | E13 |
| 1-Methylphenanthrene | 49410 | 50 | <70 | <100 | E9 | E10 | E10 | E8 |
| 4H-Cyclopenta[*def*]phenanthrene | 49411 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Phenol[1] | 49413 | 50 | <70 | <100 | <70 | E42 | <80 | E38 |
| 2,4,6-Trichlorophenol | 49415 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| Mesitol | 49416 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 2,4-Dichlorophenol | 49417 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 2,4-Dinitrophenol | 49418 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 2-Methyl-4,6-phenol | 49419 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| *o*-Nitrophenol | 49420 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 3,5-Xylenol | 49421 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 4-Chloro-*m*-cresol | 49422 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *m*-Nitrophenol | 49423 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| C8-Alkylphenol | 49424 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Pentachlorophenol | 49425 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| *bis*(2-ethylhexyl)phthalate[1] | 49426 | 50 | 110 | E95 | 610 | 560 | 480 | 200 |
| Butylbenzylphthalate[1] | 49427 | 50 | 79 | 110 | 76 | E65 | 91 | 79 |
| Acenaphthylene | 49428 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Acenaphthene | 49429 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Acridine | 49430 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |

DRAFT

**Table 9.** Concentrations of semivolatile organic compounds and carbon in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002–*Continued*

[**NWIS,** U.S. Geological Survey National Water Information System. **Abbreviations**: µg/kg, micrograms per kilogram, dry weight; <, less than; E, estimated; M-D, method deleted]

| Semivolatile organic compound | NWIS code | Method detection level (µg/kg) | Concentration (µg/kg) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SED01 | SED01R | SED03 | SED05 | SED07 | SED09 |
| *n*-Nitrosodipropylamine | 49431 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *n*-Nitrosodiphenylamine | 49433 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Anthracene | 49434 | 50 | <70 | <100 | <70 | E15 | E20 | E15 |
| 2-Methylanthracene | 49435 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Benzo[*a*]anthracene | 49436 | 50 | <70 | <100 | E12 | E13 | E15 | E13 |
| 9,10-Anthraquinone | 49437 | 50 | <70 | <100 | <70 | <70 | E41 | <70 |
| 1,2,4-Trichlorobenzene | 49438 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *o*-Dichlorobenzene | 49439 | 50 | <70 | <100 | <70 | <70 | <80 | E13 |
| *m*-Dichlorobenzene | 49441 | 50 | <70 | <100 | <70 | <70 | <80 | E23 |
| *p*-Dichlorobenzene | 49442 | 50 | <70 | <100 | <70 | <70 | <80 | E19 |
| Azobenzene | 49443 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Nitrobenzene | 49444 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Pentachlorobenzene | 49446 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Hexachlorobutadiene | 49448 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| Carbazole | 49449 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Chrysene | 49450 | 50 | <70 | <100 | E19 | E19 | E26 | E13 |
| *p*-Cresol | 49451 | 50 | E36 | E62 | E40 | E53 | 170 | E66 |
| Thiophene | 49452 | 50 | <70 | <100 | E12 | E12 | E15 | E12 |
| Hexachloroethane | 49453 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 4-Bromophenylphenylether | 49454 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| 4-Chlorophenylphenylether | 49455 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *bis*(2-chloroethyl)ether | 49456 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| *bis*(2-chloro-1-methylethyl)ether | 49457 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| Benzo[*b*]fluoranthene | 49458 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Pentachloroanisole | 49460 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Dibenz[*a,h*]anthracene | 49461 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Fluoranthene | 49466 | 50 | E13 | E19 | E18 | E23 | E34 | E19 |
| *o*-Chlorophenol | 49467 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Benzo[*c*]cinnoline | 49468 | 50 | <70 | <100 | <70 | <70 | <80 | <70 |
| Hexachlorocyclopentadiene | 49489 | 50 | M-D | M-D | M-D | M-D | M-D | M-D |
| 2-Ethylnaphthalene | 49948 | 50 | <70 | <100 | E11 | <70 | <80 | <70 |
| | | | | | | | | |
| Inorganic carbon | 49270 | | .22 | .29 | .26 | .33 | .25 | .3 |
| Organic carbon | 49271 | | 25 | 24 | 21 | 20 | 31 | 24 |

DRAFT

**Table 9.** Concentrations of semivolatile organic compounds and carbon in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002—*Continued*

[**NWIS,** U.S. Geological Survey National Water Information System. **Abbreviations**: µg/kg, micrograms per kilogram, dry weight; <, less than; E, estimated; M-D, method deleted]

| Semivolatile organic compound | NWIS code | Concentration (µg/kg) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | SED11 | SED13 | SED15 | SED17 | SED19 | SED21 | SED23 |
| Hexachlorobenzene | 49343 | <70 | E46 | <80 | <70 | <80 | <100 | <50 |
| Dibutylphthalate[1] | 49381 | E29 | E79 | E38 | E31 | E37 | E37 | E32 |
| Dioctylphthalate[1] | 49382 | E42 | 530 | <80 | E37 | <80 | <100 | <50 |
| Diethylphthalate[1] | 49383 | E14 | E29 | E2 | E2 | E2 | E12 | <50 |
| Dimethylphthalate | 49384 | <70 | E10 | <80 | <70 | <80 | <100 | <50 |
| Pyrene | 49387 | E19 | 300 | E21 | E16 | E15 | E47 | 220 |
| 1-Methylpyrene | 49388 | <70 | E64 | <80 | E9 | <80 | <100 | E17 |
| Benzo[*a*]pyrene | 49389 | <70 | E120 | <80 | <70 | <80 | E27 | E35 |
| 1-Methyl-indeno[*1,2,3-cd*]pyrene | 49390 | <70 | E140 | <80 | <70 | <80 | <100 | <50 |
| 2,2'-Biquinoline | 49391 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Quinoline | 49392 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Phenanthridine | 49393 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Isoquinoline | 49394 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| 2,4-Dinitrotoluene | 49395 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| 2,6-Dinitrotoluene | 49396 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Benzo[*k*]fluoranthene | 49397 | <70 | E89 | E12 | <70 | <80 | E5 | E29 |
| 1-Methyl 9H-fluorene | 49398 | <70 | E46 | <80 | <70 | <80 | <100 | <50 |
| 9H-Fluorene | 49399 | <70 | E40 | <80 | E6 | <80 | <100 | E69 |
| Isophorone | 49400 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *bis*(2-chloroethoxy)methane | 49401 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Naphthalene | 49402 | E10 | E30 | E10 | <70 | E10 | E20 | E60 |
| 1,2-Dimethylnaphthalene | 49403 | <70 | <150 | <80 | <70 | <80 | <100 | E9 |
| 1,6-Dimethylnaphthalene | 49404 | E11 | E24 | E15 | E12 | E12 | E19 | E29 |
| 2,3,6-Trimethylnaphthalene | 49405 | <70 | E16 | <80 | <70 | <80 | E7 | E9 |
| 2,6-Dimethylnaphthalene | 49406 | E43 | E57 | E35 | E42 | E27 | E80 | 96 |
| 2-Chloronaphthalene | 49407 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Benzo[*g,h,i*]perylene | 49408 | <70 | E110 | <80 | <70 | <80 | <100 | <50 |
| Phenanthrene | 49409 | E12 | 160 | E22 | E17 | E15 | E34 | 200 |
| 1-Methylphenanthrene | 49410 | <70 | E46 | <80 | E14 | E14 | E12 | E27 |
| 4H-Cyclopenta[*def*]phenanthrene | 49411 | <70 | E36 | <80 | <70 | <80 | E10 | E29 |
| Phenol[1] | 49413 | E38 | E110 | <80 | <70 | <80 | <100 | <50 |
| 2,4,6-Trichlorophenol | 49415 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| Mesitol | 49416 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 2,4-Dichlorophenol | 49417 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 2,4-Dinitrophenol | 49418 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 2-Methyl-4,6-phenol | 49419 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| *o*-Nitrophenol | 49420 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 3,5-Xylenol | 49421 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| 4-Chloro-*m*-cresol | 49422 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *m*-Nitrophenol | 49423 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| C8-Alkylphenol | 49424 | <70 | <150 | <80 | <70 | E37 | <100 | <50 |
| Pentachlorophenol | 49425 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| *bis*(2-ethylhexyl)phthalate[1] | 49426 | 210 | 2,600 | 210 | 130 | 190 | 130 | 130 |
| Butylbenzylphthalate[1] | 49427 | 79 | 170 | E73 | 81 | 86 | E81 | E57 |
| Acenaphthylene | 49428 | <70 | E31 | <80 | <70 | <80 | <100 | <50 |
| Acenaphthene | 49429 | <70 | <150 | <80 | <70 | <80 | <100 | 85 |
| Acridine | 49430 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |

DRAFT

**Table 9.** Concentrations of semivolatile organic compounds and carbon in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002—*Continued*

[**NWIS,** U.S. Geological Survey National Water Information System. **Abbreviations**: µg/kg, micrograms per kilogram, dry weight; <, less than; E, estimated; M-D, method deleted]

| Semivolatile organic compound | NWIS code | Concentration (µg/kg) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | SED11 | SED13 | SED15 | SED17 | SED19 | SED21 | SED23 |
| *n*-Nitrosodipropylamine | 49431 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *n*-Nitrosodiphenylamine | 49433 | <70 | E45 | <80 | <70 | <80 | <100 | <50 |
| Anthracene | 49434 | <70 | E54 | E15 | E12 | E13 | E24 | E41 |
| 2-Methylanthracene | 49435 | <70 | <150 | E24 | <70 | <80 | <100 | E23 |
| Benzo[*a*]anthracene | 49436 | <70 | E94 | E10 | E9 | <80 | E21 | E48 |
| 9,10-Anthraquinone | 49437 | <70 | E110 | <80 | <70 | <80 | <100 | E43 |
| 1,2,4-Trichlorobenzene | 49438 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *o*-Dichlorobenzene | 49439 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *m*-Dichlorobenzene | 49441 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *p*-Dichlorobenzene | 49442 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Azobenzene | 49443 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Nitrobenzene | 49444 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Pentachlorobenzene | 49446 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Hexachlorobutadiene | 49448 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| Carbazole | 49449 | <70 | E39 | <80 | <70 | <80 | <100 | E30 |
| Chrysene | 49450 | <70 | 230 | E11 | E8 | <80 | E27 | E66 |
| *p*-Cresol | 49451 | E51 | 200 | E150 | E66 | E70 | E86 | E99 |
| Thiophene | 49452 | <70 | E41 | <80 | <70 | <80 | E17 | E15 |
| Hexachloroethane | 49453 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 4-Bromophenylphenylether | 49454 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| 4-Chlorophenylphenylether | 49455 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *bis*(2-chloroethyl)ether | 49456 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| *bis*(2-chloro-1-methylethyl)ether | 49457 | M-D | M-D | M-D | M-D | M-D | M-D | |
| Benzo[*b*]fluoranthene | 49458 | <70 | 200 | E15 | <70 | <80 | E19 | E44 |
| Pentachloroanisole | 49460 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Dibenz[*a,h*]anthracene | 49461 | <70 | E100 | <80 | <70 | <80 | <100 | <50 |
| Fluoranthene | 49466 | E18 | 330 | E25 | E19 | E18 | E52 | 240 |
| *o*-Chlorophenol | 49467 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Benzo[*c*]cinnoline | 49468 | <70 | <150 | <80 | <70 | <80 | <100 | <50 |
| Hexachlorocyclopentadiene | 49489 | M-D | M-D | M-D | M-D | M-D | M-D | M-D |
| 2-Ethylnaphthalene | 49948 | <70 | <150 | <80 | <70 | <80 | <100 | E14 |
| Inorganic carbon | 49270 | .42 | .44 | .68 | .43 | .51 | .69 | .82 |
| Organic carbon | 49271 | 28 | 38 | 31 | 31 | 32 | 31 | 22 |

[1]Reported value for this analyte includes contamination in laboratory blank at measurable concentrations (less than 34.1 µg/kg).

DRAFT

**Table 11.** Concentrations of organochlorine pesticides and polychlorinated biphenyls in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002

[**Abbreviations:** PCB, polychlorinated biphenyl; NWIS, U.S. Geological Survey National Water Information System; µg/kg, micrograms per kilogram, dry weight; E, estimated; <, less than]

| Compound category/name organochlorine pesticide and PCB | NWIS code | Method detection level (µg/kg) | Concentration (µg/kg) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | SED01 | SED01R | SED03 | SED05 | SED07 | SED09 |
| *cis*-Nonachlor | 49316 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *trans*-Nonachlor | 49317 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Oxychlordane | 49318 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Aldrin | 49319 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *cis*-Chlordane | 49320 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *trans*-Chlordane | 49321 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chloroneb | 49322 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| DCPA | 49324 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| *o,p'*-DDD | 49325 | 1 | E.21 | E.64 | E.10 | E.42 | E.24 | E.22 |
| *p,p'*-DDD | 49326 | 1 | E1.1 | E2.4 | E.77 | E1.5 | E1.1 | E.80 |
| *o,p'*-DDE | 49327 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *p,p'*-DDE | 49328 | 1 | E.33 | E.63 | E.34 | E.41 | E.42 | E.39 |
| *o,p'*-DDT | 49329 | 2 | <2.0 | <4.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| *p,p'*-DDT | 49330 | 2 | E1.1 | E.73 | E.36 | E2.6 | E.26 | E.22 |
| Dieldrin | 49331 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Endosulfan I | 49332 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Endrin | 49335 | 2 | <2.0 | <4.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| *alpha*-BHC | 49338 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *beta*-BHC | 49339 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Heptachlor | 49341 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Heptachlor epoxide | 49342 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Hexachlorobenzene | 49343 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | 1.1 | <1.0 |
| Isodrin | 49344 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Lindane | 49345 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *p,p'*-Methoxychlor | 49346 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| *o,p'*-Methoxychlor | 49347 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| Mirex | 49348 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *cis*-Permethrin | 49349 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| *trans*-Permethrin | 49350 | 5 | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 |
| Toxaphene | 49351 | 200 | <200 | <400 | <200 | <200 | <200 | <200 |
| PCB | 49459 | 50 | <50 | <100 | E1.8 | E2.4 | E6.4 | E6.7 |
| Pentachloroanisole | 49460 | 1 | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 |

DRAFT

**Table 11.** Concentrations of organochlorine pesticides and polychlorinated biphenyls in samples of streambed sediments from Noyes Slough, Fairbanks, Alaska, October 2002—*Continued*

[**Abbreviations:** PCB, polychlorinated biphenyl; NWIS, U.S. Geological Survey National Water Information System; µg/kg, micrograms per kilogram, dry weight; E, estimated; <, less than]

| Compound category/name organochlorine pesticide and PCB | Concentration (µg/kg) | | | | | | |
|---|---|---|---|---|---|---|---|
| | SED11 | SED13 | SED15 | SED17 | SED19 | SED21 | SED23 |
| *cis*-Nonachlor | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *trans*-Nonachlor | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Oxychlordane | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Aldrin | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *cis*-Chlordane | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *trans*-Chlordane | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Chloroneb | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| DCPA | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| *o,p'*-DDD | E.44 | <2.0 | E.65 | E.62 | E.50 | E.49 | 2.6 |
| *p,p'*-DDD | E1.8 | E1.8 | E2.7 | E2.3 | E2.5 | E1.9 | E12 |
| *o,p'*-DDE | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *p,p'*-DDE | E.44 | E.64 | E.48 | E.38 | E.45 | E.56 | E.91 |
| *o,p'*-DDT | <2.0 | <4.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| *p,p'*-DDT | E.31 | <4.0 | E.78 | <2.0 | <2.0 | <2.0 | E1.8 |
| Dieldrin | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Endosulfan I | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Endrin | <2.0 | <4.0 | <2.0 | <2.0 | <2.0 | <2.0 | <2.0 |
| *alpha*-BHC | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *beta*-BHC | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Heptachlor | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Heptachlor epoxide | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Hexachlorobenzene | <1.0 | 46 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Isodrin | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| Lindane | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *p,p'*-Methoxychlor | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| *o,p'*-Methoxychlor | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Mirex | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |
| *cis*-Permethrin | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| *trans*-Permethrin | <5.0 | <10 | <5.0 | <5.0 | <5.0 | <5.0 | <5.0 |
| Toxaphene | <200 | <400 | <200 | <200 | <200 | <200 | <200 |
| PCB | E8.8 | E27 | E7.6 | E9.2 | E7.7 | E8.8 | E9.2 |
| Pentachloroanisole | <1.0 | <2.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 |

DRAFT

# APPENDIX D

## J. Ahern Interview with D. Jacoby on Past Dredging

- Page Intentionally Left Blank

# Past Dredging of Noyes Slough

Over the past 30 years, several dredging projects have been proposed in an attempt to improve flow through either all or selected reaches of Noyes Slough. However, only one documented project was located by OASIS in the data-review portion of this study (Kersten and others, 1989). The project was managed by the City of Fairbanks (COF) during the mid-1980s. To learn more about this project, Julie Ahern of OASIS met with the COF Director of Public Works, David Jacoby, who was an excavator on the project (Jacoby, 2007). This section provides a summary of information gathered during the meeting on June 4, 20007.

**Dredging Period and Equipment**

The COF dredging project occurred during the summers of 1984 and 1985. The slough was dredged late in the summer both years due to high water earlier in the season. Winter dredging was considered but not performed due to lack of availability of the staff, who were occupied with snow removal. Dredging was planned to continue in the summer of 1986; however, the project was halted due to equipment difficulties. In 1984-85, COF used an excavator referred to as the "spider backhoe" because of its shape and motion (i.e., it has a claw-like device that could extend up and down about 15 feet). In 1986, the Fairbanks North Star Borough (FNSB) took over management of the project and a different excavator was used. It was a large Caterpillar dozer known as a D-8. Dredging was unsuccessful because the D-8 became stuck in the slough bed. FNSB attempted to remove it using another dozer known as a D-9, but it too became stuck. Eventually both were removed from the slough. Dredging was not attempted by FNSB again. If future dredging were to occur in the slough, Mr. Jacoby recommended a hydraulic suction dredge, as it can reach deeper than a backhoe, access the slough bed more easily, and the dredged material can be piped easily off-site.

**Dredging Activities and Findings**

COF dredged the entire length of the slough over the life of the project. Excavation began at the inlet and ended at the mouth. Special attention was given to the inlet: COF constructed a diversion dam on the Chena near the slough inlet, and more of the bed than usual was dredged to increase flow.

The dredged sediment was composed of alluvial gravel overlain by silt. The amount of silt varied considerably, but Mr. Jacoby estimated an average thickness of approximately 3 feet. The dredged silt and gravel were piled on the banks of the slough. Some sediment was washed back into the slough during high-water periods in subsequent years, while some material remained on higher parts of the banks. Non-native material (e.g., debris from illegal dumping) was transported to the FNSB landfill. Additionally, several beaver dams were taken apart, though COF eventually stopped due to opposition by the Alaska Department of Fish & Game.

COF noted a couple particularly deep locations while dredging. These were found under the Minnie Street bridge and immediately upstream of the Aurora Street bridge. The spider backhoe uncovered the concrete encasement of a shallow utility crossing near the Alaska Railroad crossing on Illinois Street.

COF also uncovered a considerable amount of debris while dredging, including shopping carts, car batteries and other car parts, and bank stabilizers (e.g., metal rods). The debris was mostly found behind commercial businesses (e.g., Regency Court Mall, Washington Plaza) and older residences (e.g., Slaterville and Lemeta subdivisions). The most notable of these locations was behind the former Fred Meyer lot (Bentley Trust Property Tax Lot 221). Here the excavators discovered a large amount of shopping-related debris like carts and bags, and they observed a ramp leading into the slough that was used for snow dumping. A 500-gallon fuel tank was also found buried in the mud. It was approximately 100 gallons full and was not leaking. Another notable location was H&H Contractors at the west end of Phillips Field Rd. Here they removed about 10 truckloads of trees and other organic debris.

Regarding observable contamination, Mr. Jacoby detected petroleum-hydrocarbon sheen and odor in several locations along the slough.

COF did not monitor stream velocity or discharge before, during, or after dredging occurred, and so the impacts of dredging on the slough's flow regime were never quantified.