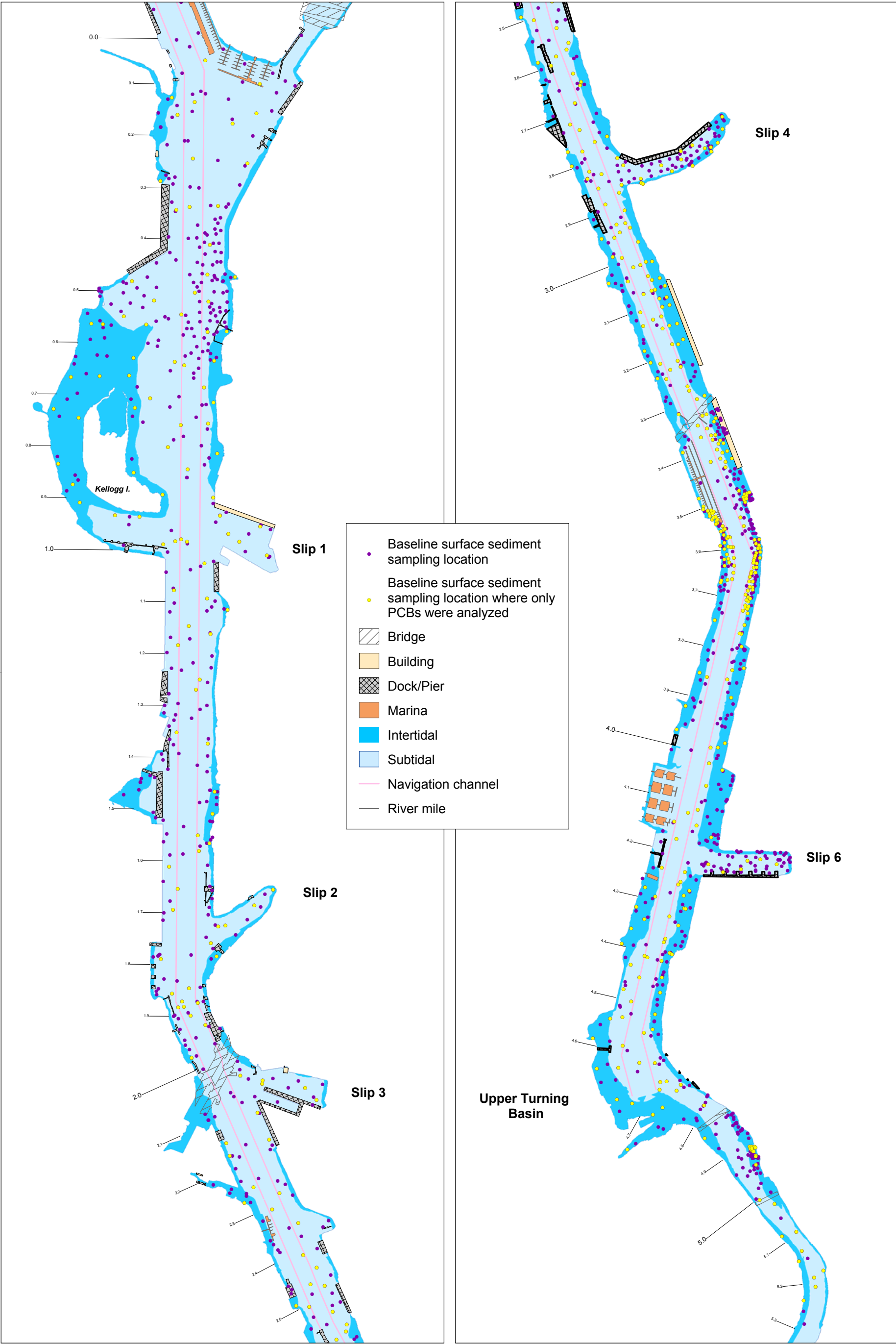
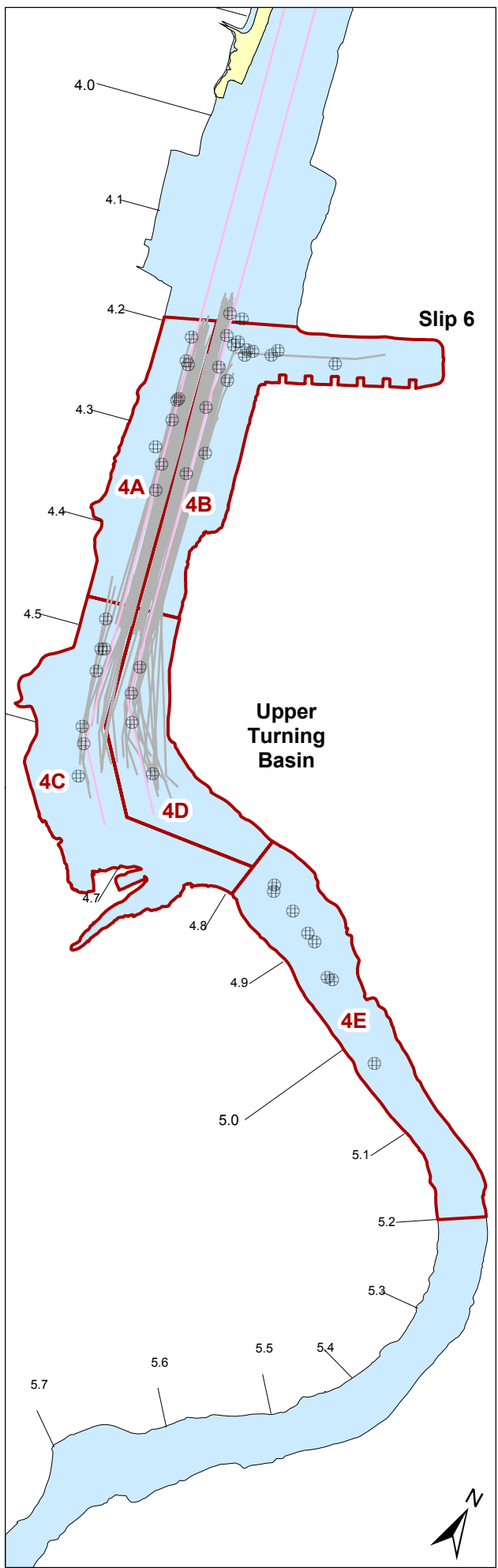
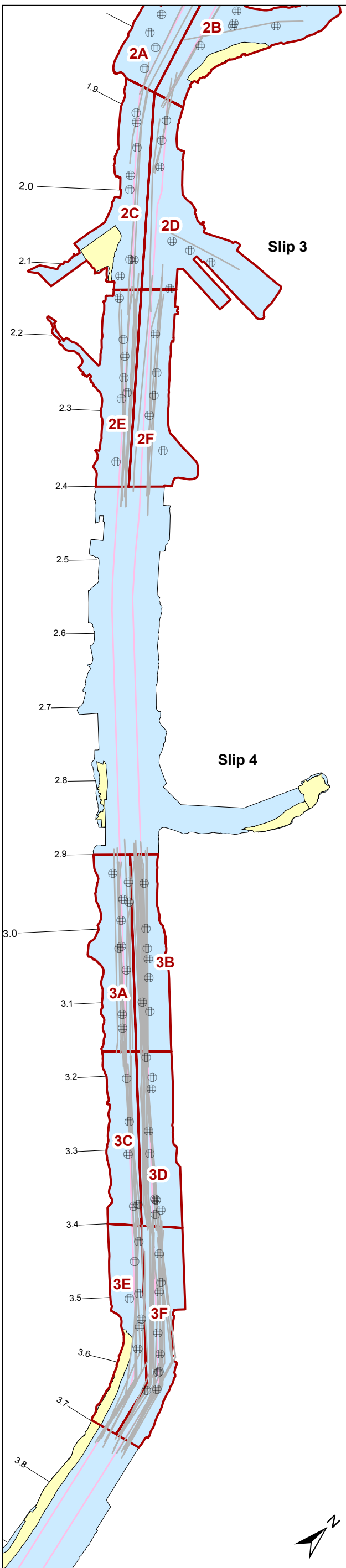
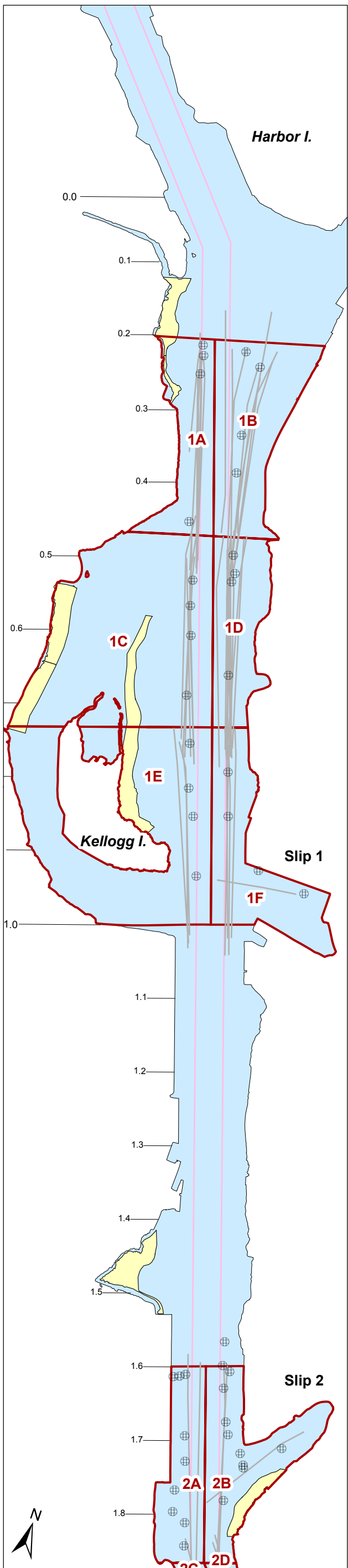


Map B.1-1. Lower Duwamish Waterway study area



Map B.2-1. LDW surface sediment sampling locations (subtidal and intertidal)

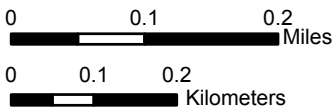


- ⊕ Crab trap location (2004 - 2005)
- Trawl line (2004 - 2005)
- Clam sampling area (2004)
- Tissue sampling area
- Navigation channel
- River mile

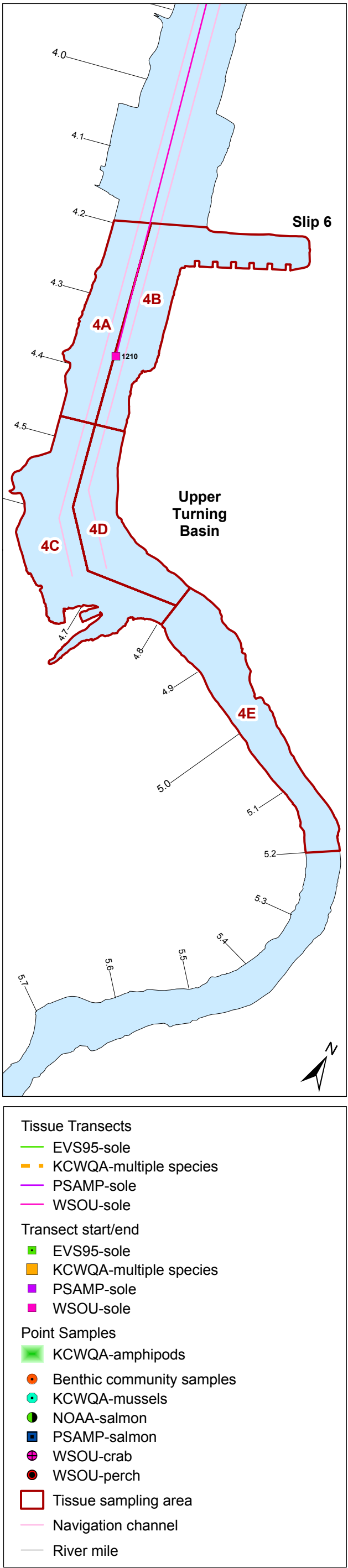
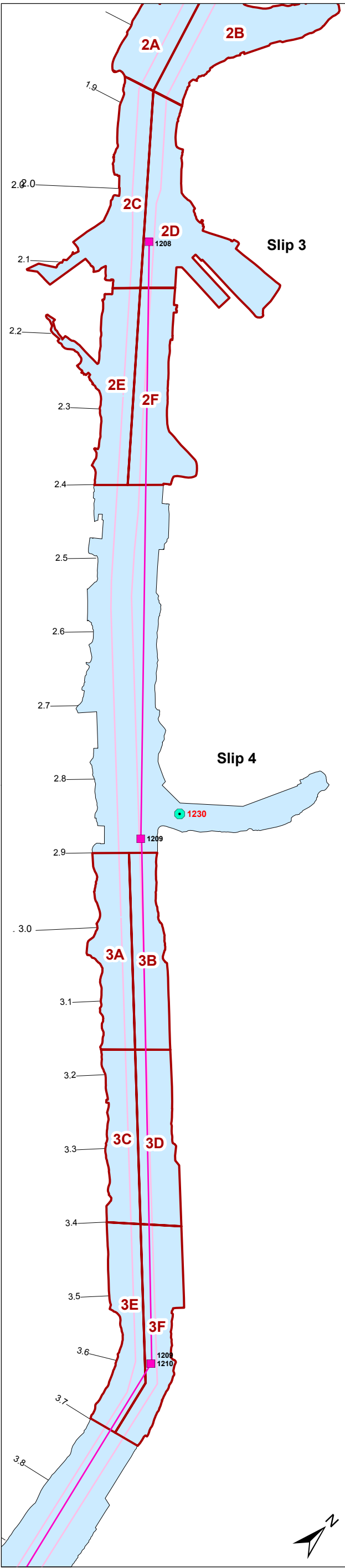
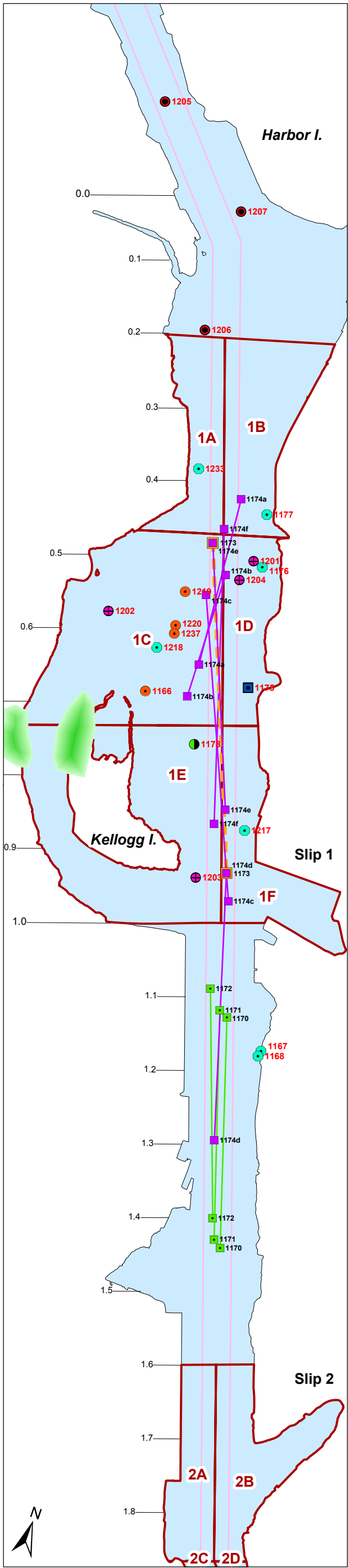
0 0.1 0.2 Miles
0 0.1 0.2 Kilometers

Scale is the same for each inset map

Map B.2-2a. LDW tissue sampling areas and subareas and individual locations where tissue samples were collected by LDWG in 2004-2005

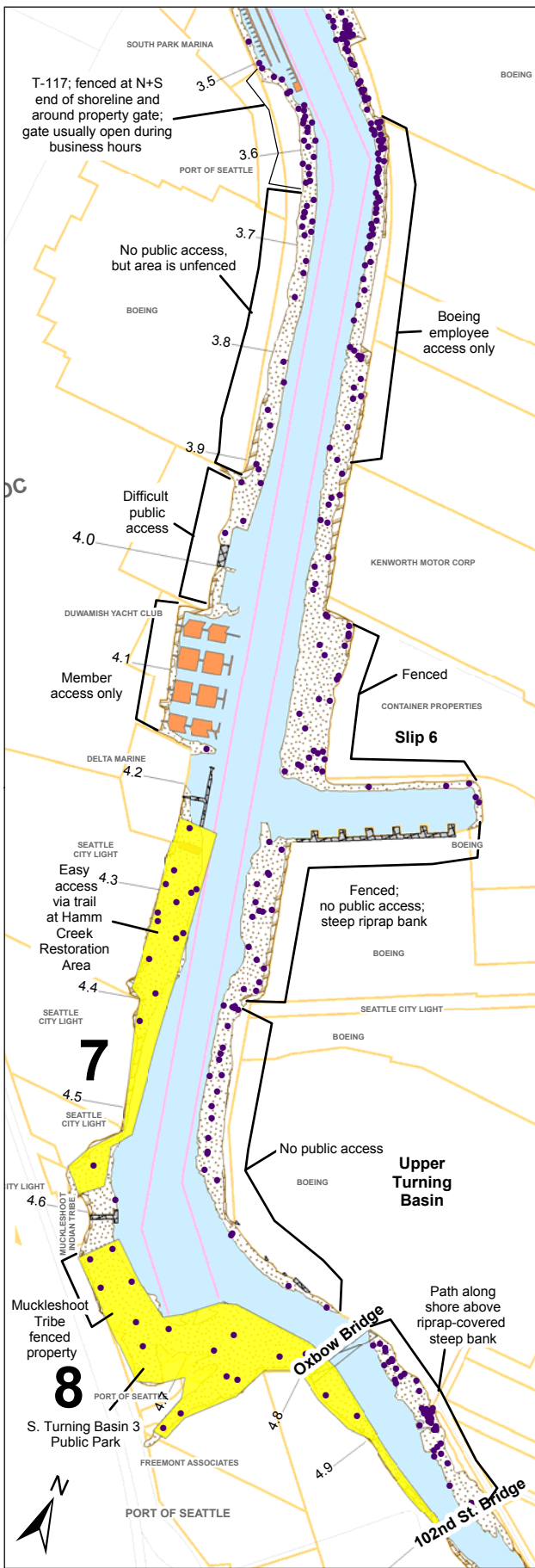
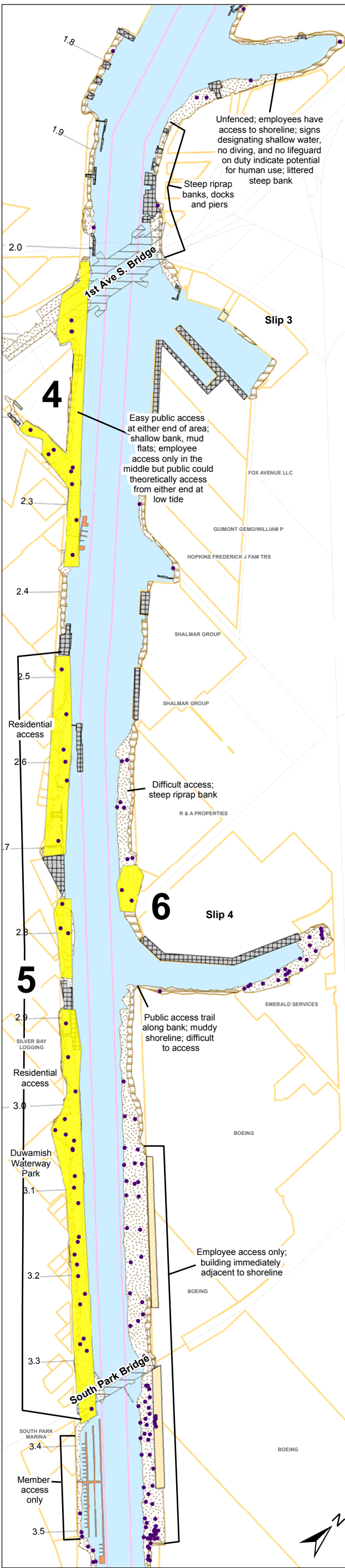
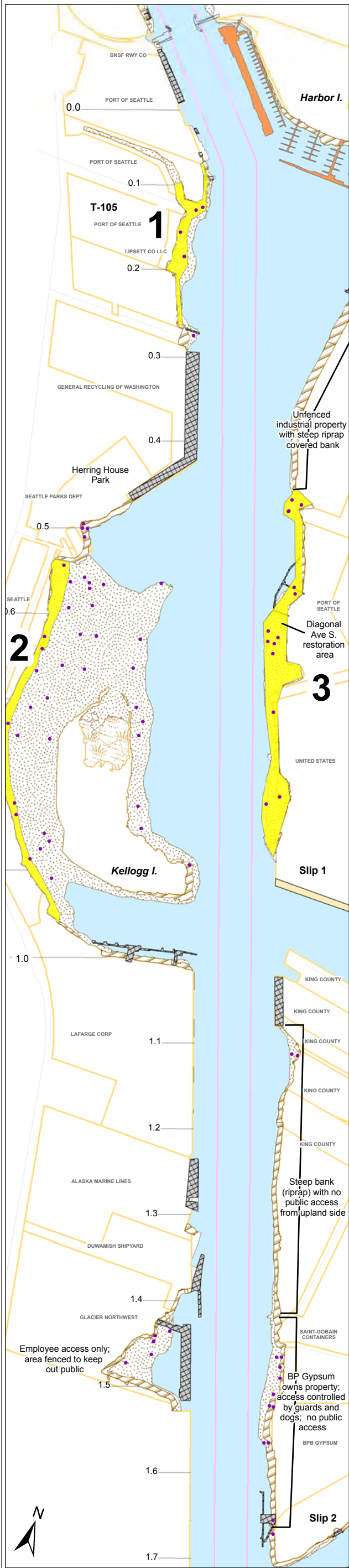


Scale is the same for each inset map



- Tissue Transects
- EVS95-sole
 - KCWQA-multiple species
 - PSAMP-sole
 - WSOU-sole
- Transect start/end
- EVS95-sole
 - KCWQA-multiple species
 - PSAMP-sole
 - WSOU-sole
- Point Samples
- KCWQA-amphipods
 - Benthic community samples
 - KCWQA-mussels
 - NOAA-salmon
 - PSAMP-salmon
 - WSOU-crab
 - WSOU-perch
- Tissue sampling area
- Navigation channel
- River mile

Map B.2-2b. LDW tissue sampling areas and subareas and individual locations where tissue samples were collected by non-LDWG parties prior to 2004



5 Beach play exposure area

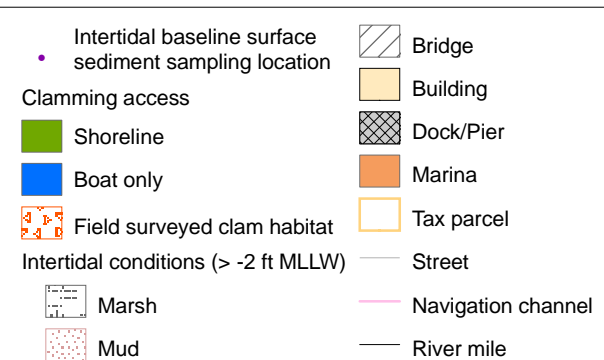
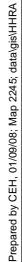
Intertidal baseline surface sediment sampling location

Intertidal conditions (> -2 ft MLLW)

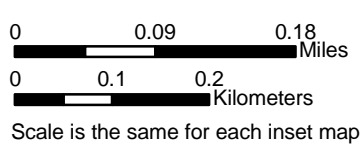
- Marsh
- Mud
- Riprap
- Subtidal (< -2 ft MLLW)
- Bridge
- Building
- Dock/Pier
- Marina
- Tax parcel
- Street
- Navigation channel
- River mile

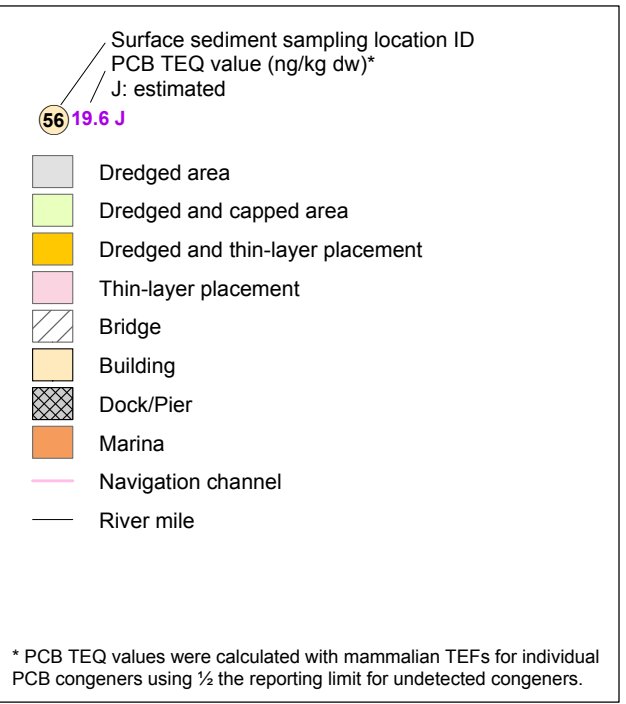
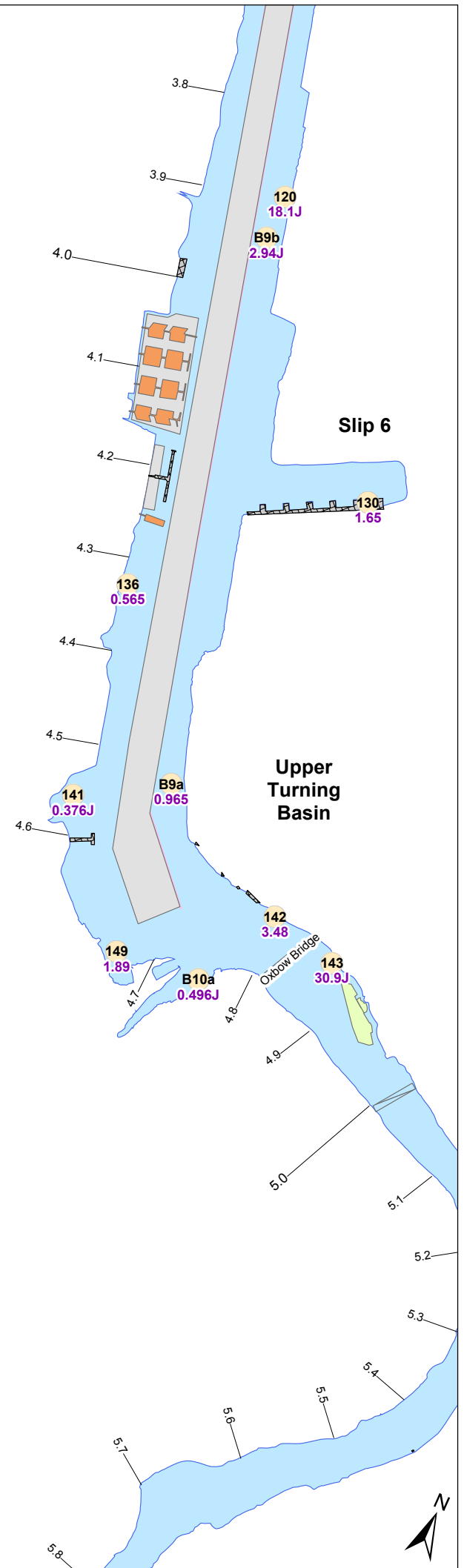
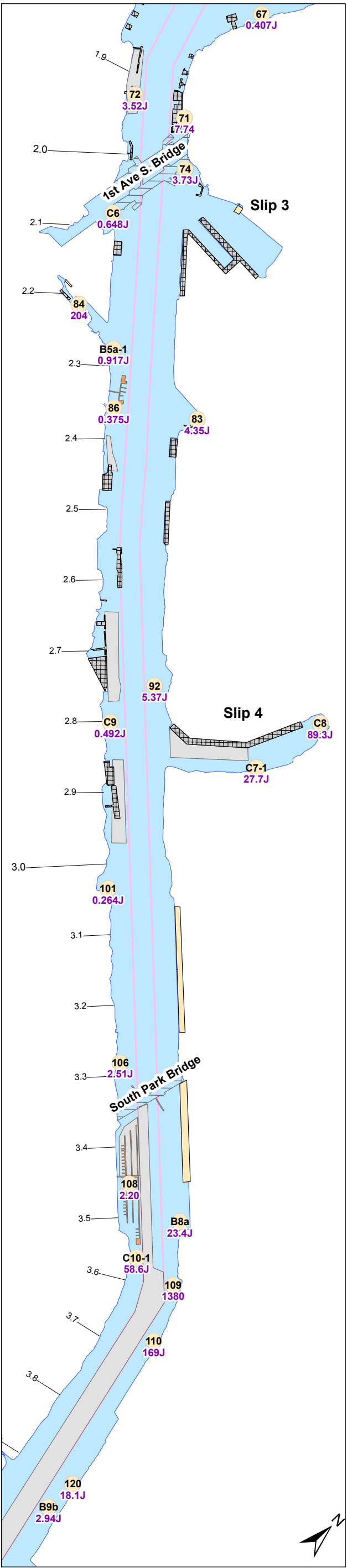
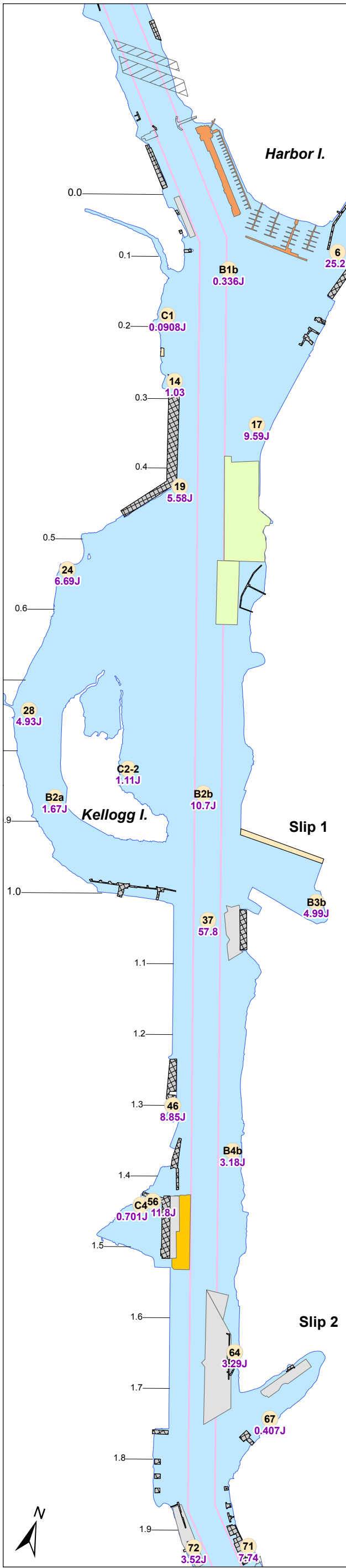
Map B.3-1. LDW intertidal areas included in the beach play sediment exposure scenarios

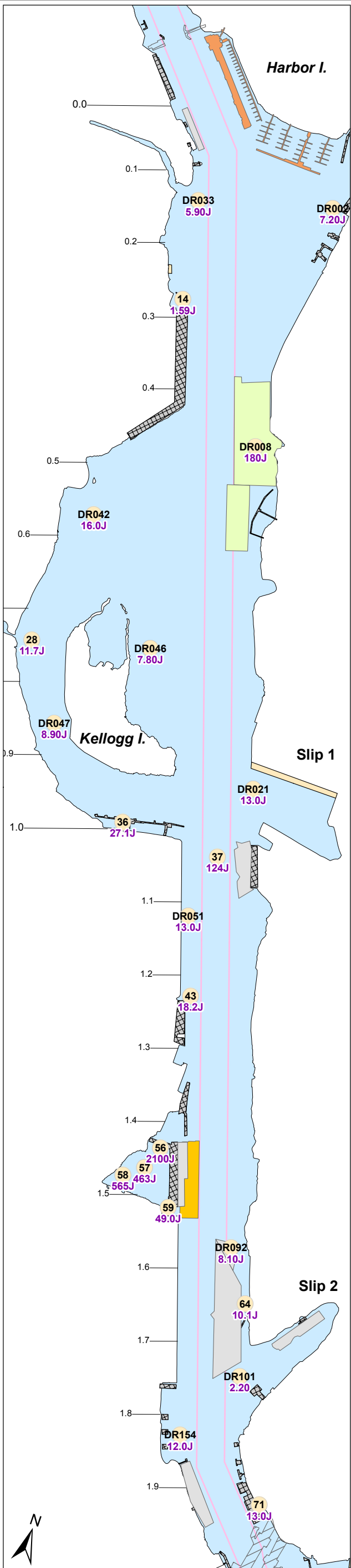
0 0.1 0.2 Miles
0 0.1 0.2 Kilometers
Scale is the same for each inset map

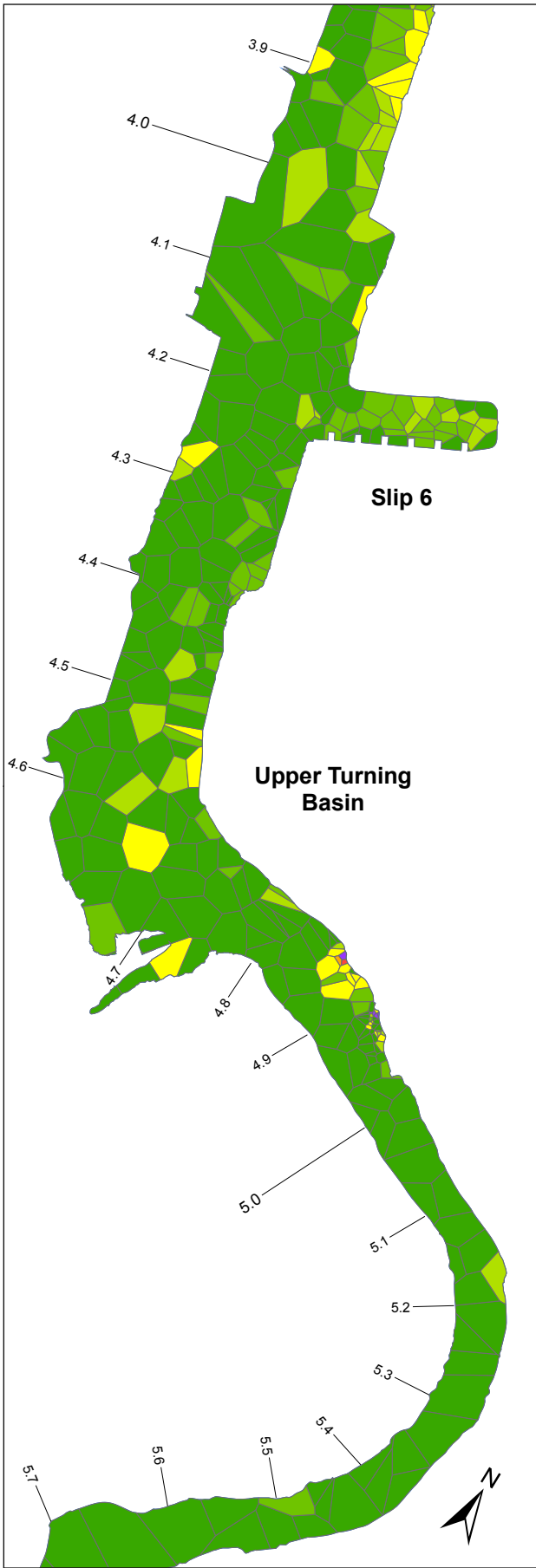
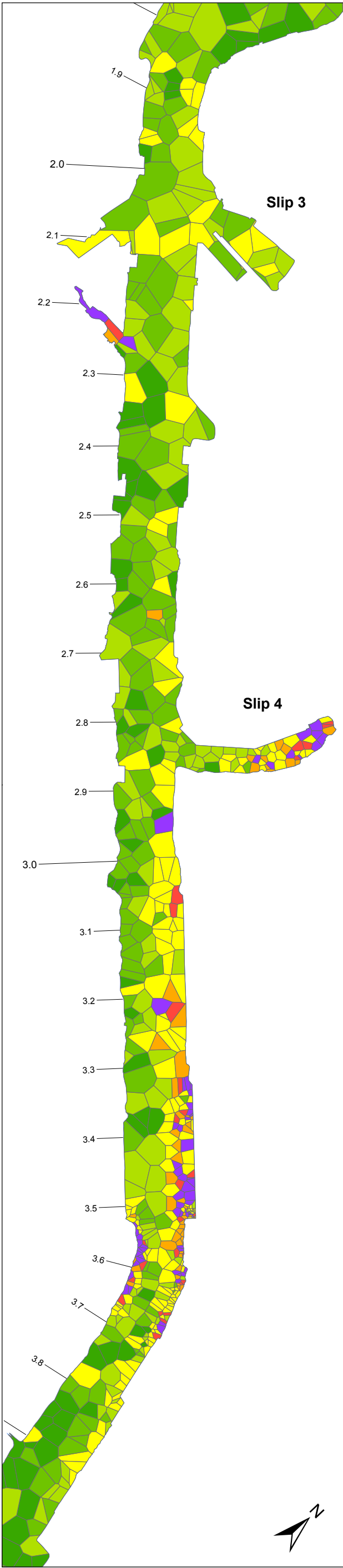
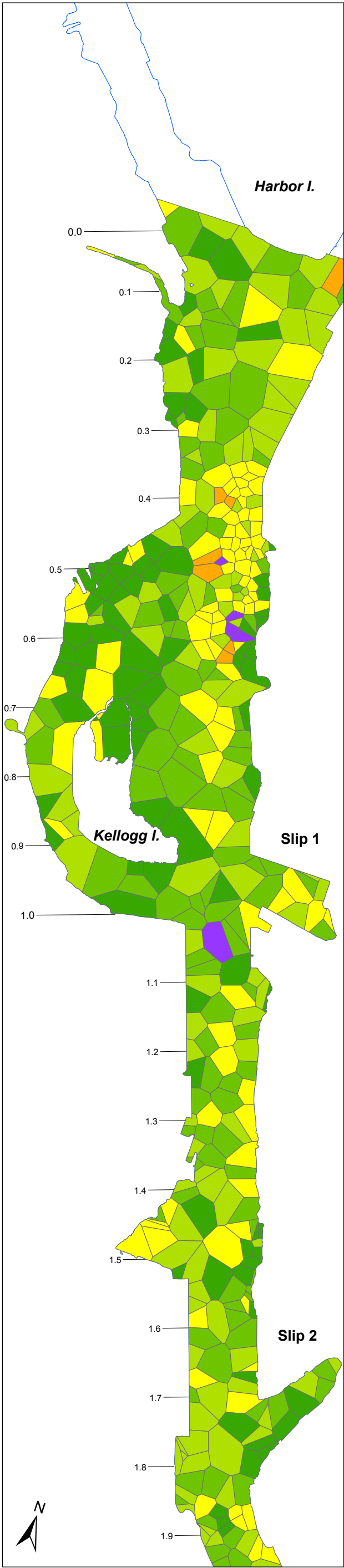


Windward_{environmental} LLC

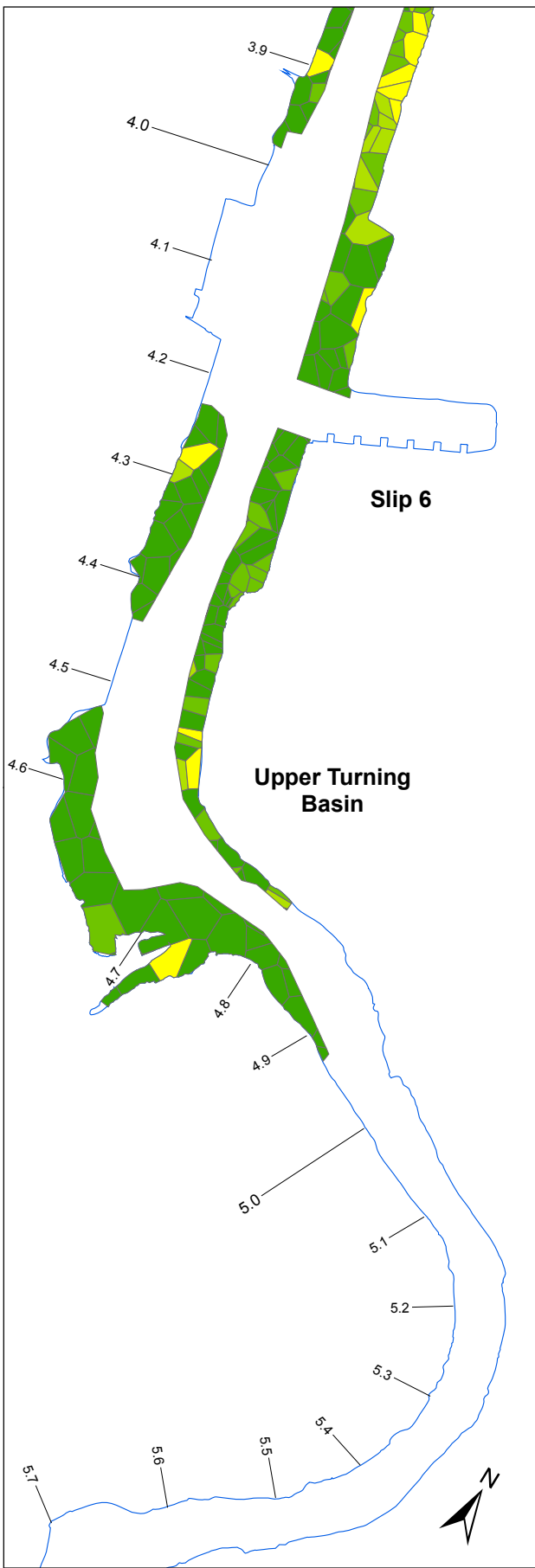
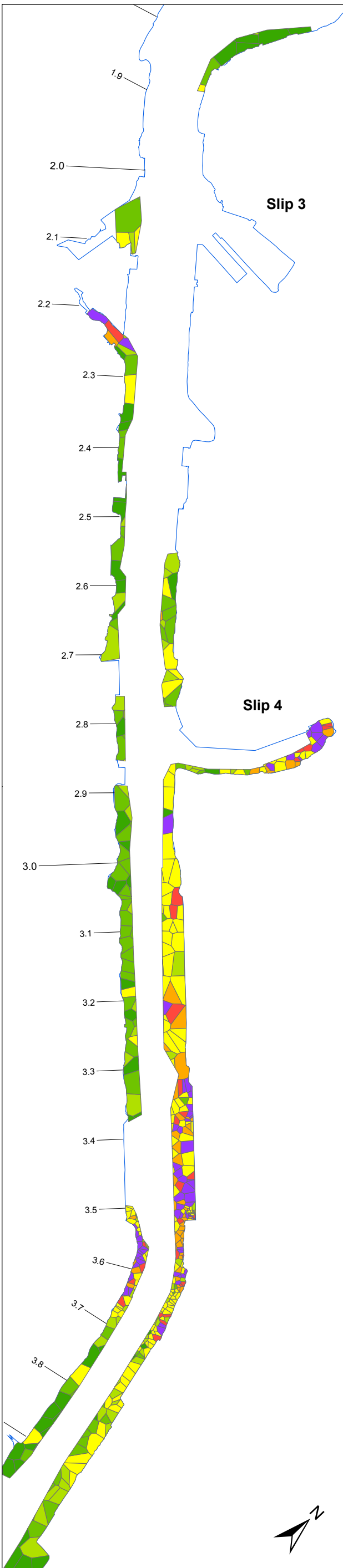
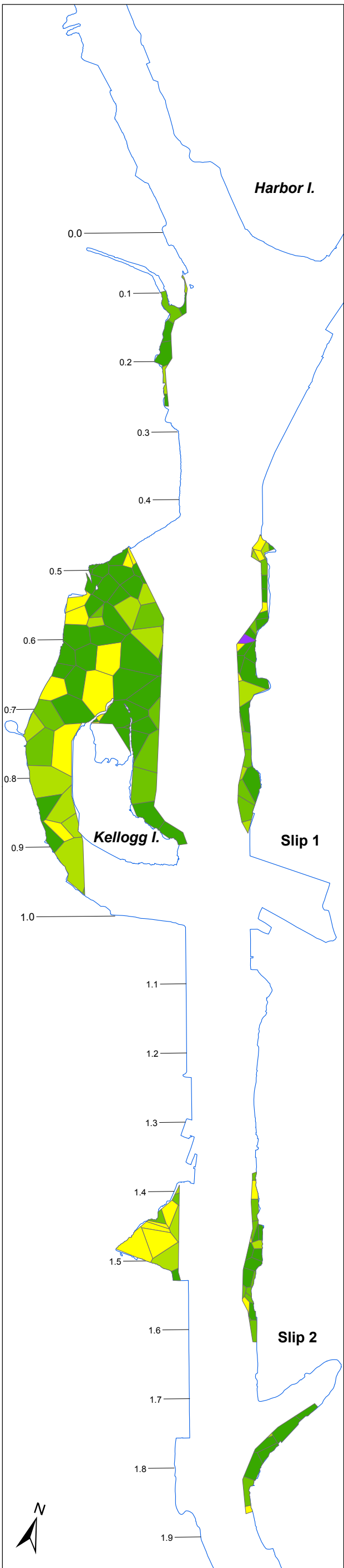








- Total PCBs ($\mu\text{g/kg dw}$)
- 0 - 60
 - 61 - 120
 - 121 - 240
 - 241 - 1,300
 - 1,301 - 2,600
 - 2,601 - 3,900
 - 3,901 - 22,0000
 - River mile



Total PCBs ($\mu\text{g/kg dw}$)

0 - 60

61 - 120

121 - 240

241 - 1,300

1,301 - 2,600

2,601 - 3,900

3,901 - 22,0000

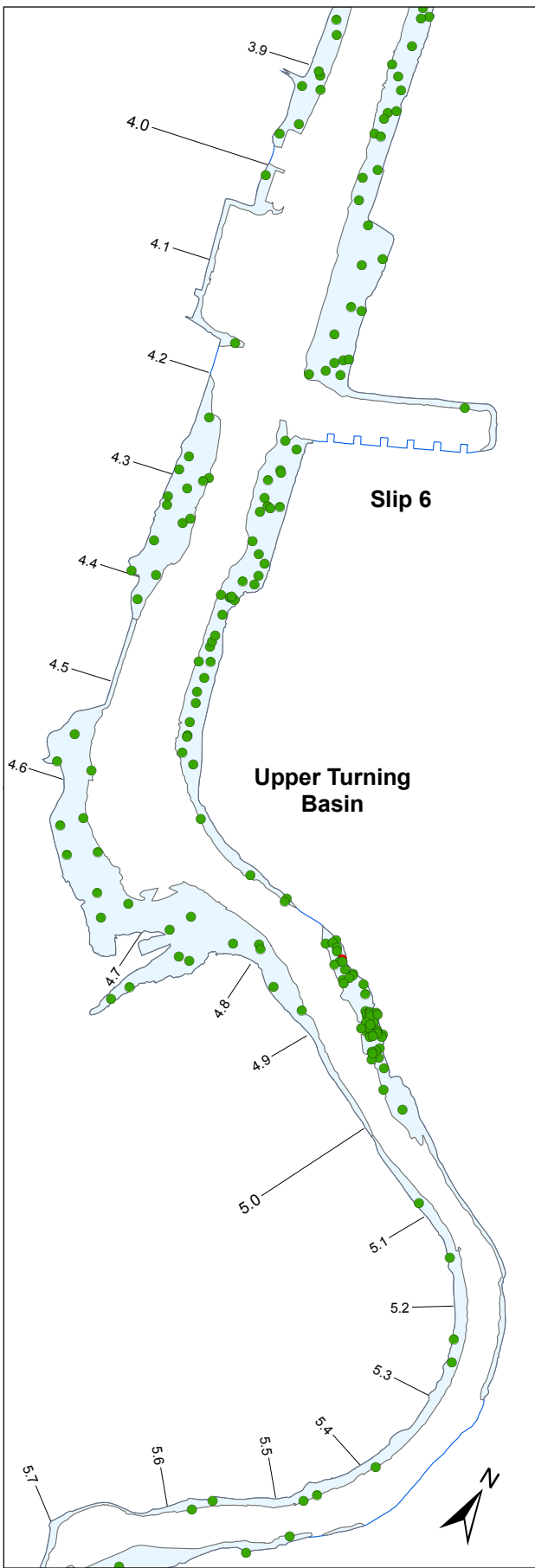
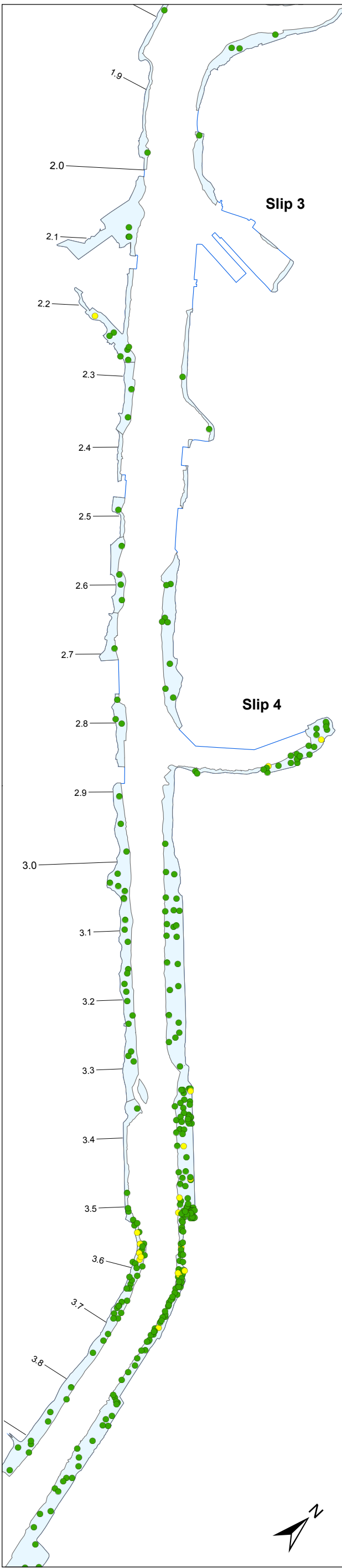
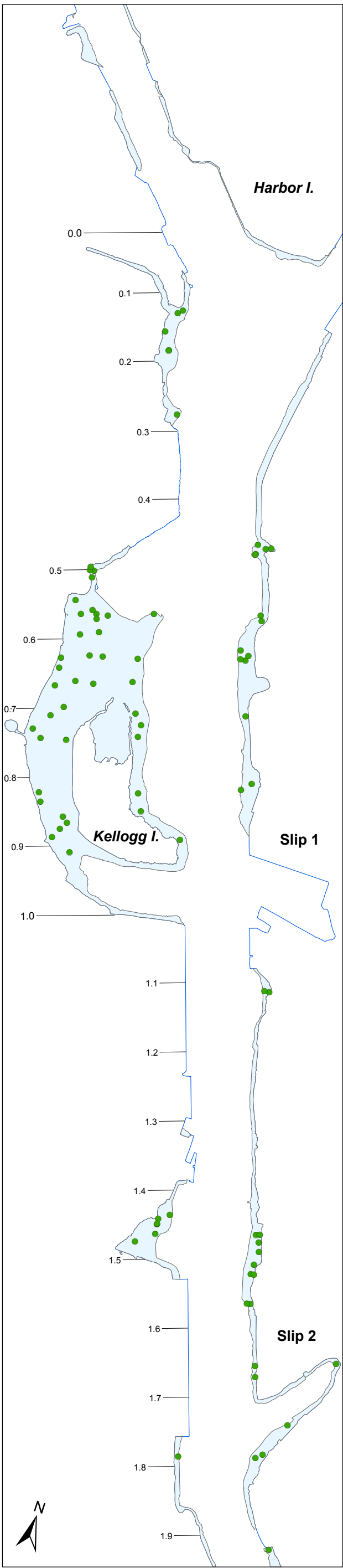
— River mile

0 0.1 0.2 Miles

0 0.1 0.2 Kilometers

Scale is the same for each inset map

Map B.6-2. Total PCBs as Thiessen polygons for the LDW tribal clamming exposure areas



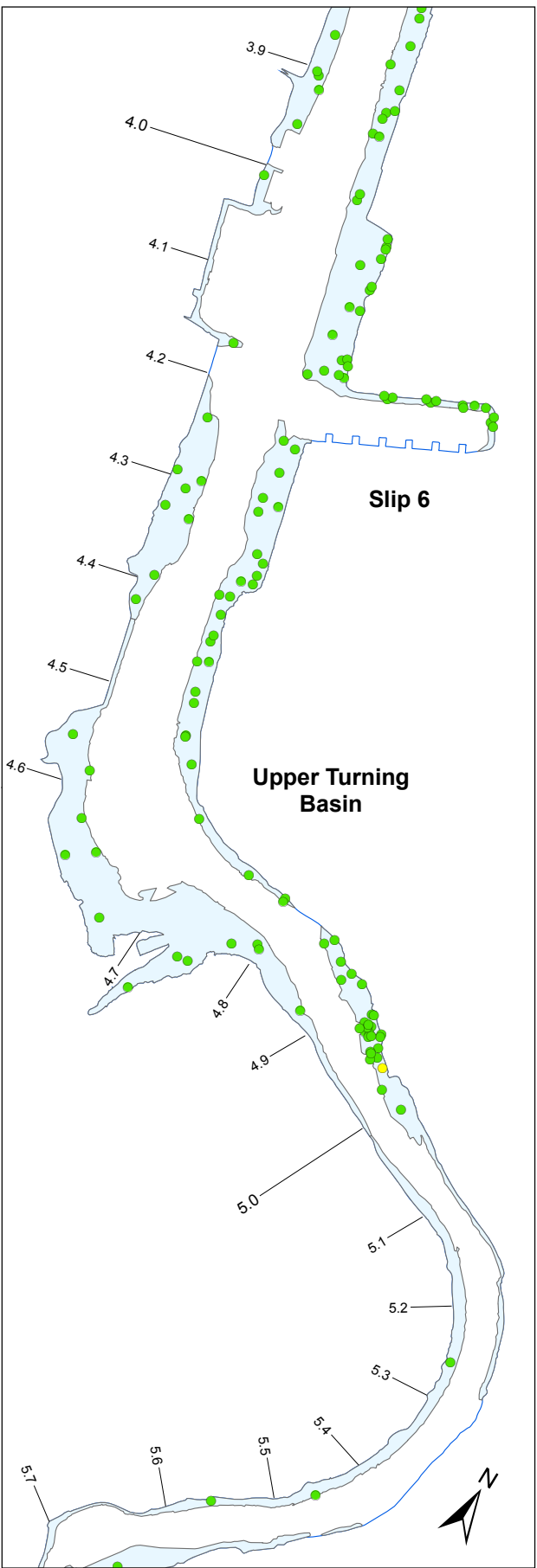
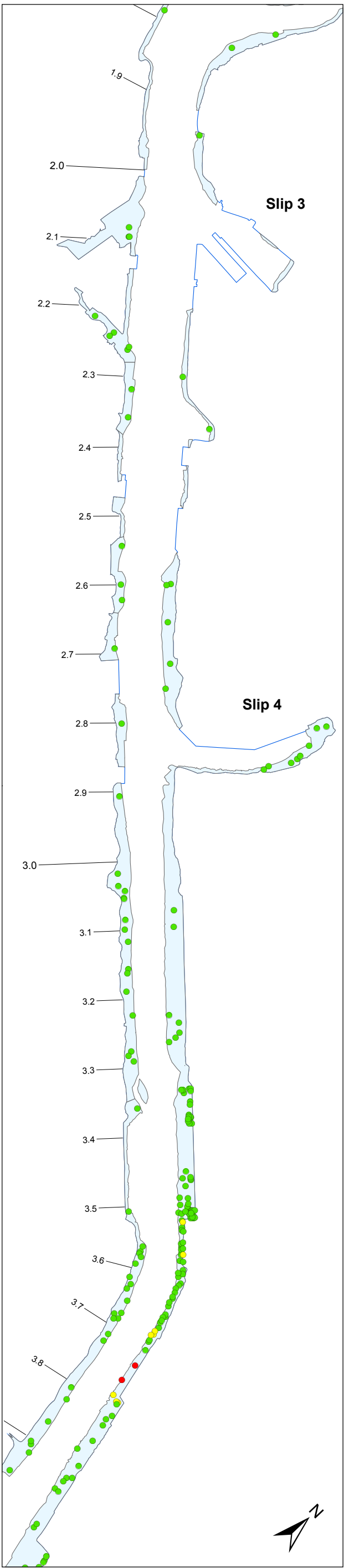
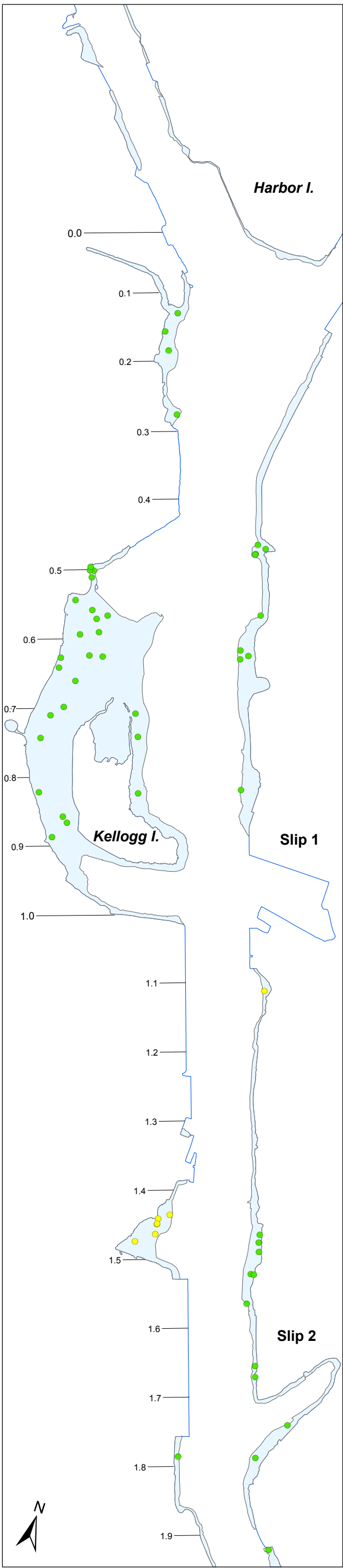
- Direct sediment contact risk*
- $\leq 10^{-6}$ (≤ 11 mg/kg dw)
 - $> 10^{-6}$ and $\leq 10^{-5}$ (> 11 and ≤ 110 mg/kg dw)
 - $> 10^{-5}$ and $\leq 10^{-4}$ (> 110 and $\leq 1,100$ mg/kg dw)
- Intertidal area
- River mile

* Each point represents the hypothetical excess cancer risk for a habitat biologist who works only at that specific location for 15 days/yr over a 20-yr period. Each risk estimate is based on the total PCB concentration at that specific location only, without consideration of data for any neighboring locations.



Scale is the same for each inset map

Map B.6-3. Risk-based concentration comparisons for total PCBs using the habitat biologist exposure scenario



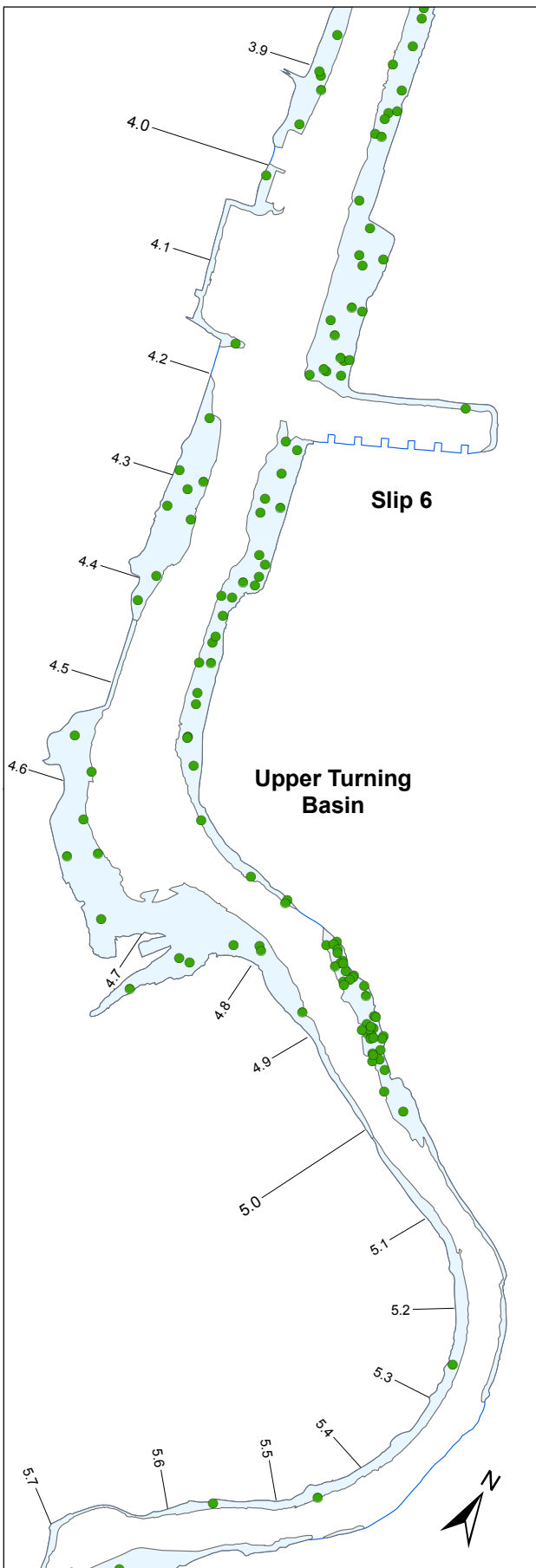
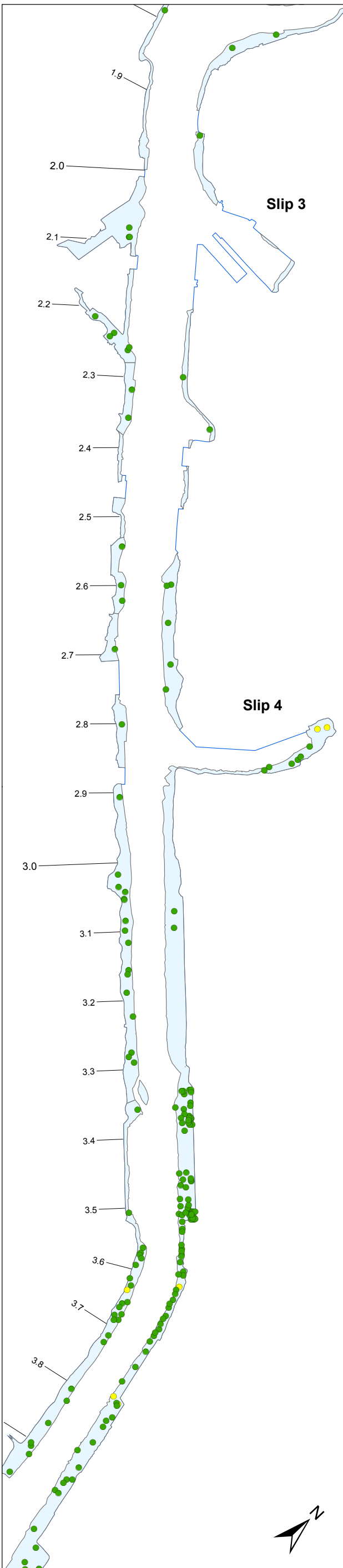
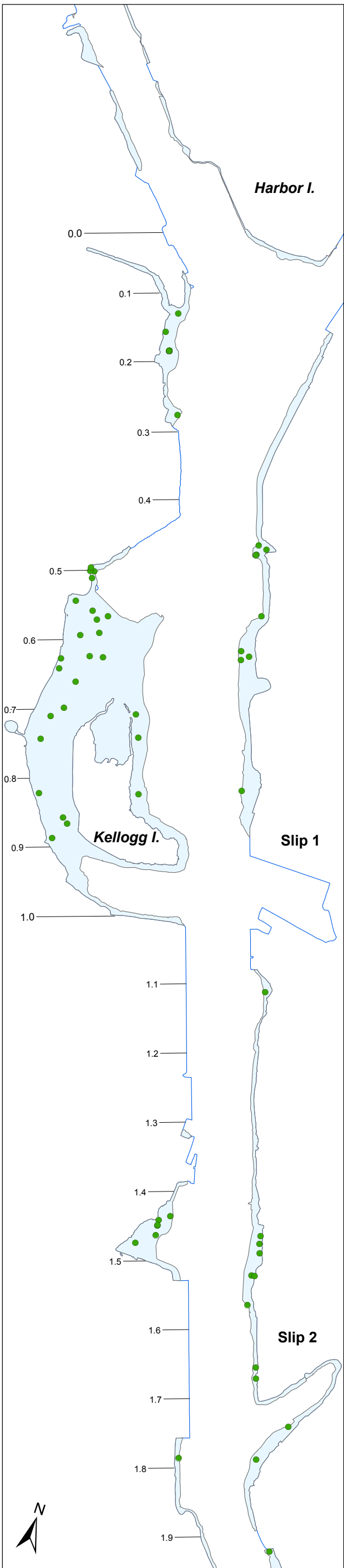
- Direct sediment contact risk*
- $\leq 10^{-6}$ (≤ 30 mg/kg dw)
 - $> 10^{-6}$ and $\leq 10^{-5}$ (> 30 and ≤ 300 mg/kg dw)
 - $> 10^{-5}$ and $\leq 10^{-4}$ (> 300 and $\leq 3,000$ mg/kg dw)
- Intertidal area
- River mile

* Each point represents the hypothetical excess cancer risk for a habitat biologist who works only at that specific location for 15 days/yr over a 20-yr period. Each risk estimate is based on the arsenic concentration at that specific location only, without consideration of data for any neighboring locations.



Scale is the same for each inset map

Map B.6-4. Risk-based concentration comparisons for arsenic using the habitat biologist exposure scenario



Direct sediment contact risk*

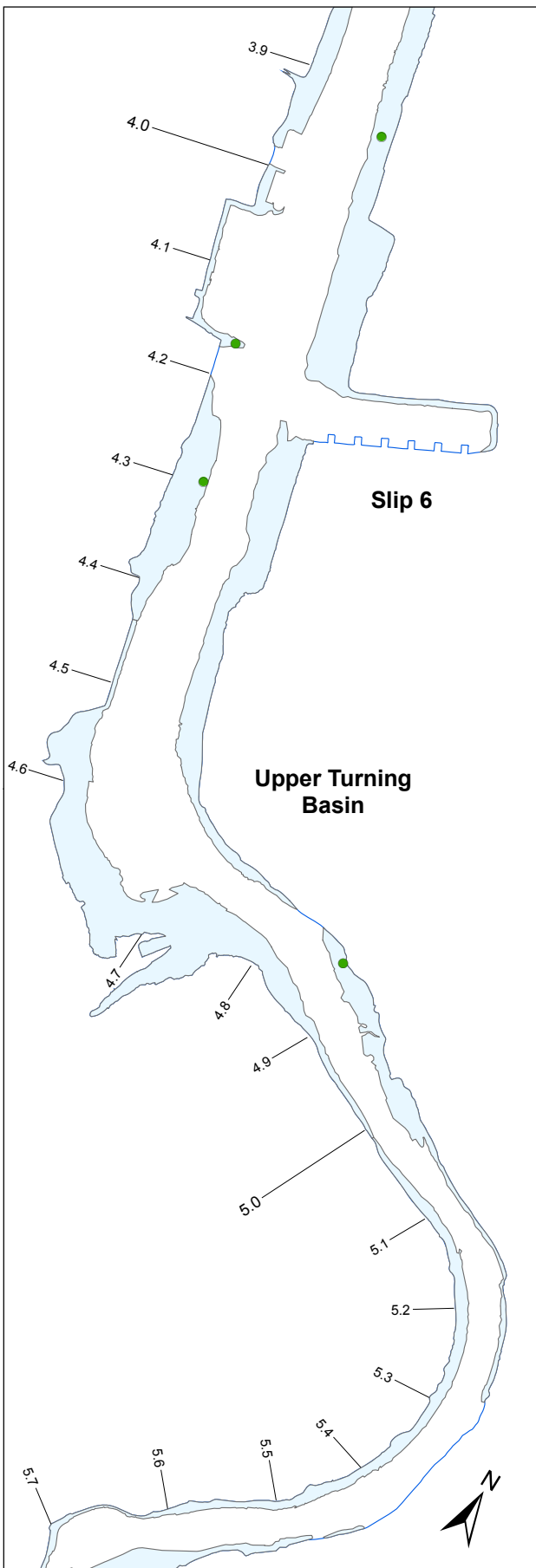
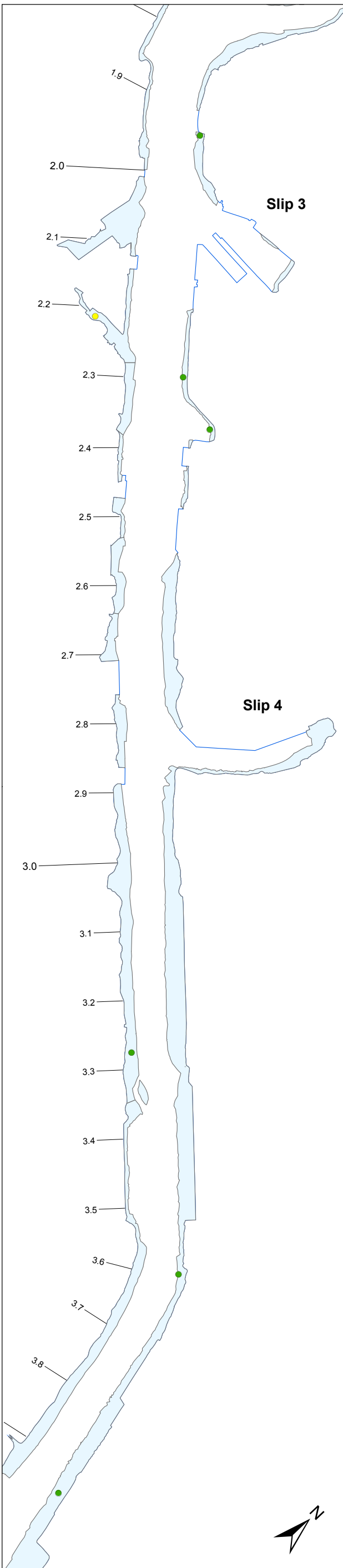
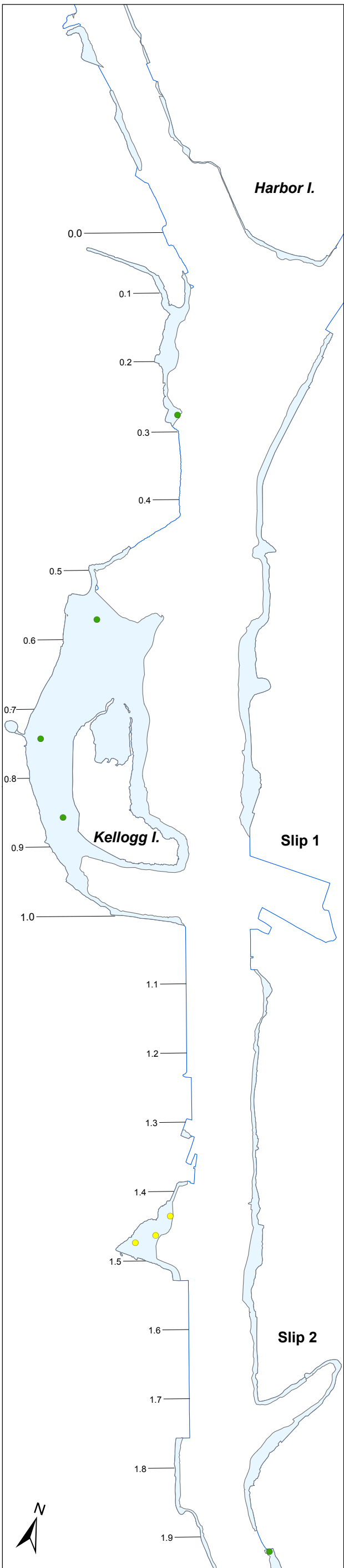
- $\leq 10^{-6}$ (≤ 3.3 mg/kg dw)
- $> 10^{-6}$ (> 3.3 and ≤ 33 mg/kg dw)
- $> 10^{-6}$ and $\leq 10^{-5}$ (> 33 and ≤ 330 mg/kg dw)

■ Intertidal area

— River mile

* Each point represents the hypothetical excess cancer risk for a habitat biologist who works only at that specific location for 15 days/yr over a 20-yr period. Each risk estimate is based on the cPAH concentration at that specific location only, without consideration of data for any neighboring locations.

Map B.6-5. Risk-based concentration comparisons for cPAHs using the habitat biologist exposure scenario



Direct sediment contact risk*

- $\leq 10^{-6}$ (≤ 299 ng/kg dw)
- $> 10^{-6}$ and $\leq 10^{-5}$ (> 299 and $\leq 2,990$ ng/kg dw)

Intertidal area

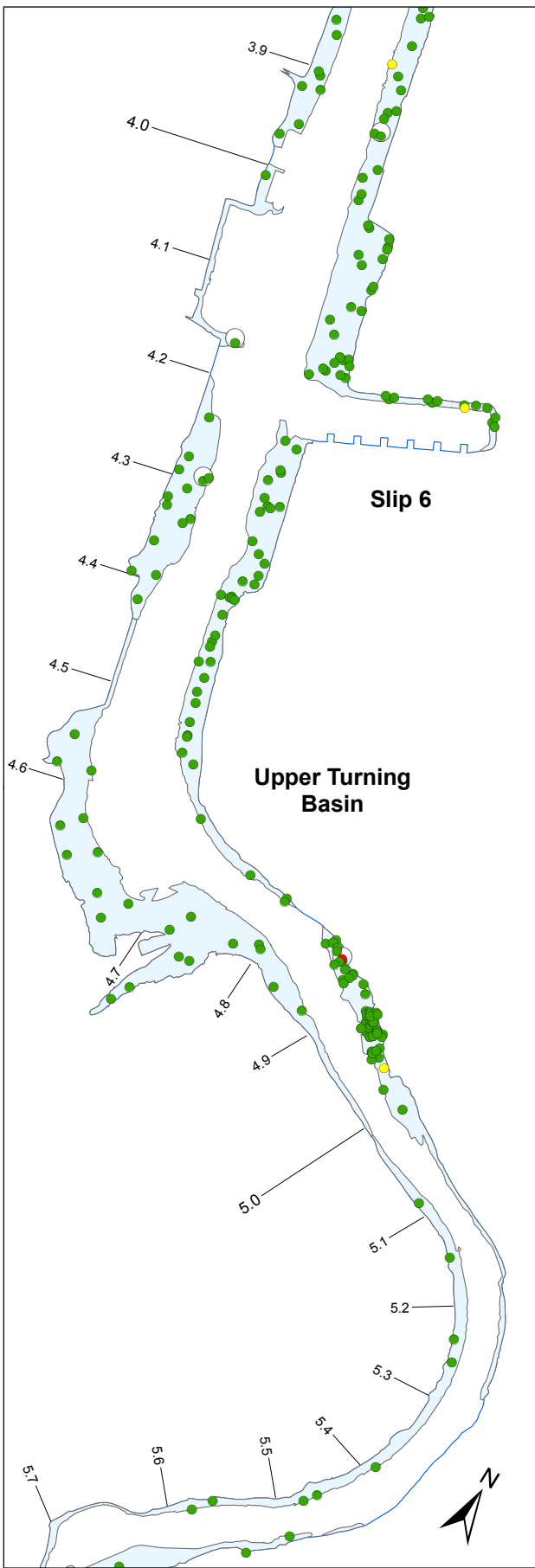
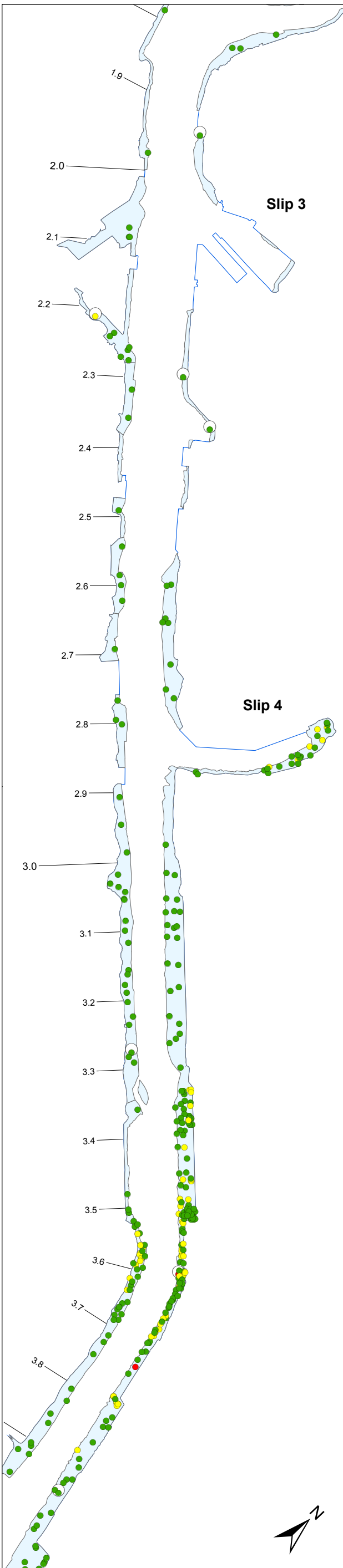
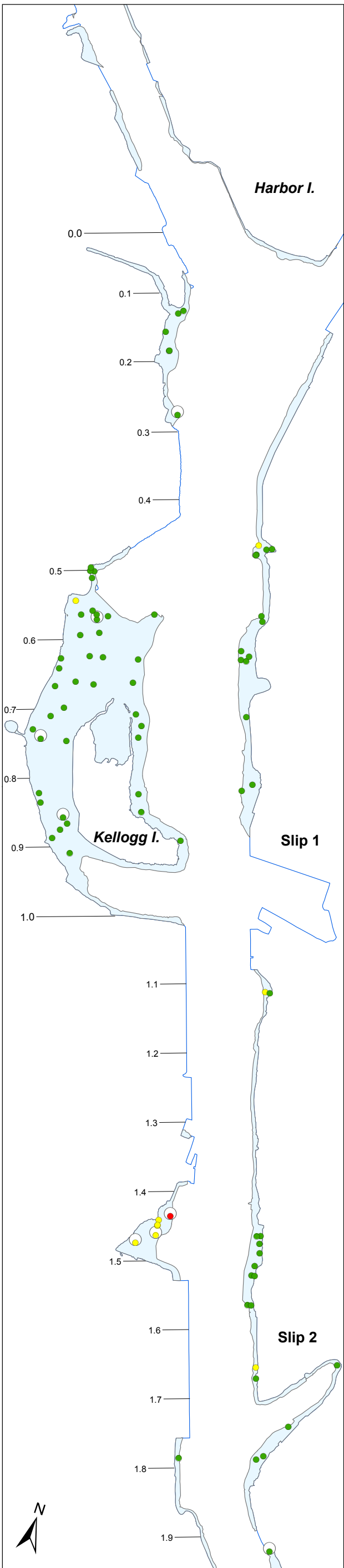
River mile

* Each point represents the hypothetical excess cancer risk for a habitat biologist who works only at that specific location for 15 days/yr over a 20-yr period. Each risk estimate is based on the dioxin/furan TEQ at that specific location only, without consideration of data for any neighboring locations.



Scale is the same for each inset map

Map B.6-6. Risk-based concentration comparisons for dioxins/furans using the habitat biologist exposure scenario



Direct sediment contact risk*

- $\leq 10^{-6}$
- $> 10^{-6}$ and $\leq 10^{-5}$
- $> 10^{-5}$ and $\leq 10^{-4}$
- Dioxin/Furan sample location
- Intertidal area
- River mile

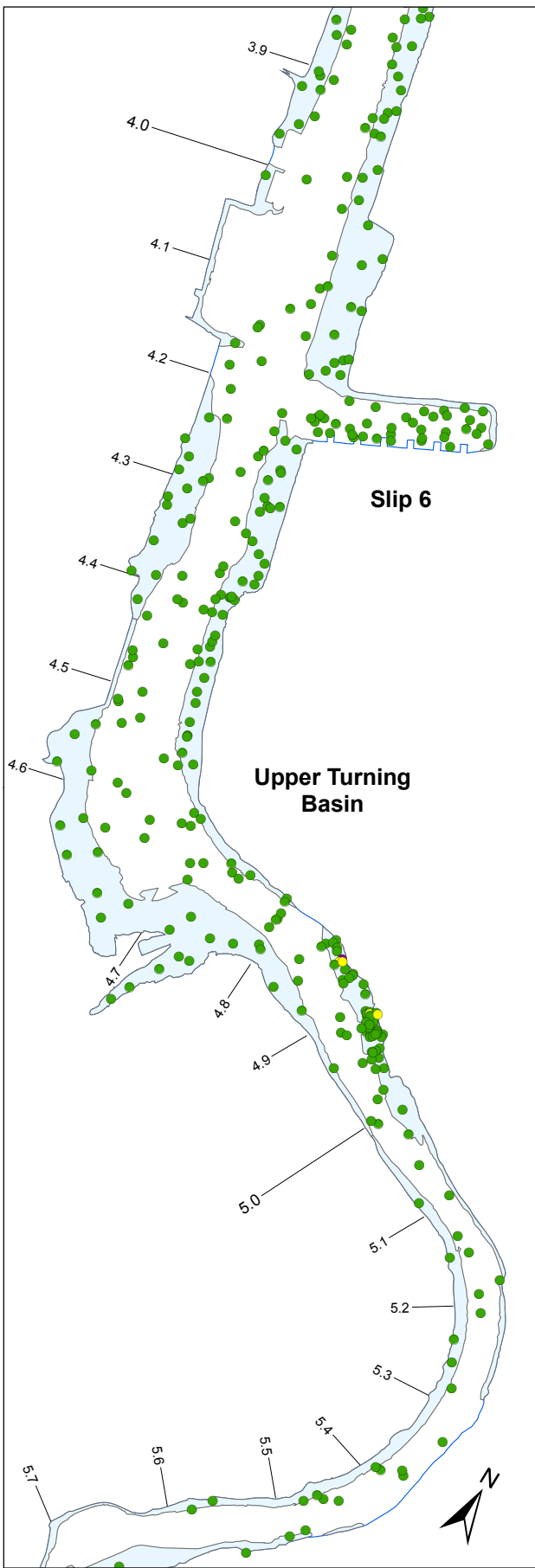
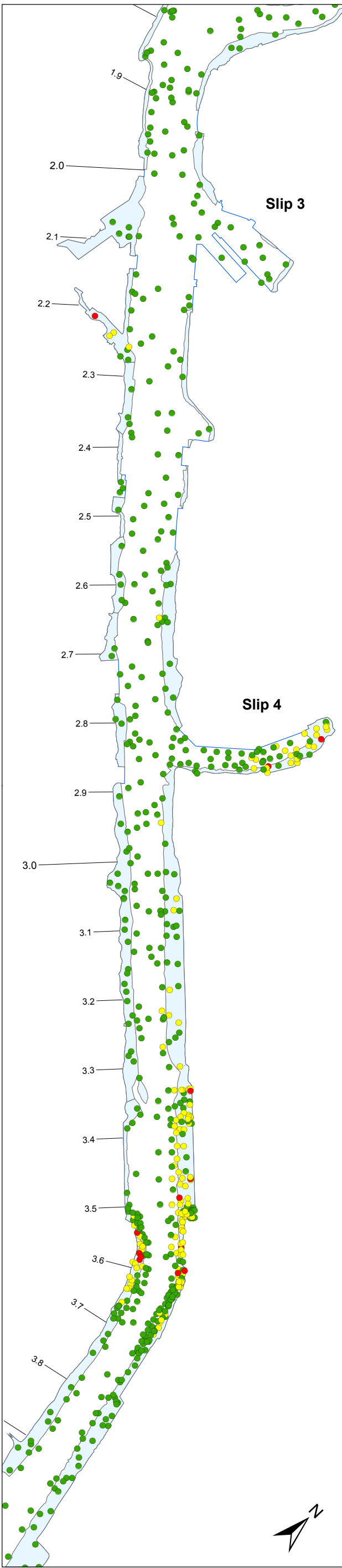
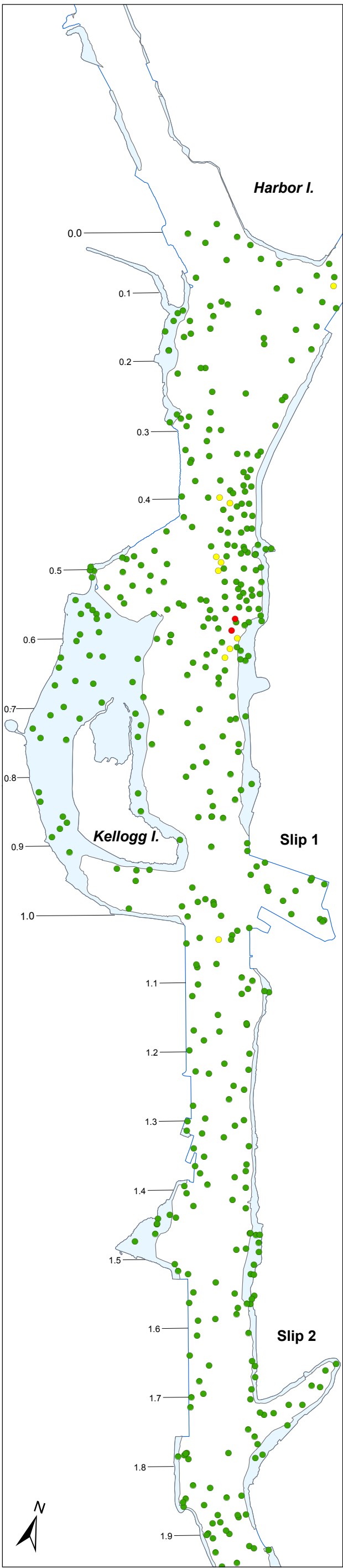
* Risks may be underestimated at some locations because not all chemicals were analyzed.

Each point represents the hypothetical excess cancer risk for a habitat biologist who works only at that specific location for 15 days/yr over a 20-yr period. Each risk estimate is based on the total PCB, arsenic, cPAH, and dioxin/furan TEQ (if available) concentrations at that specific location only, without consideration of data for any neighboring locations.

Map B.6-7. Combination of risks associated with total PCBs, arsenic, dioxins/furans, and cPAHs using the habitat biologist scenario



Scale is the same for each inset map



Direct sediment contact risk*

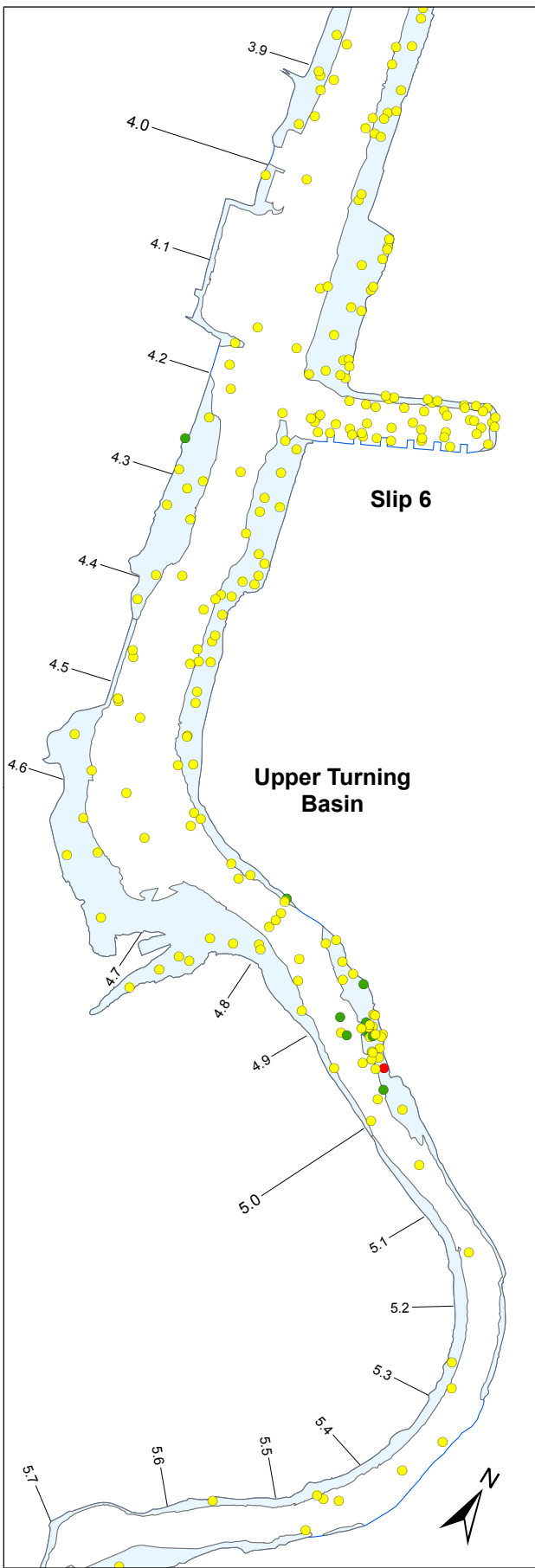
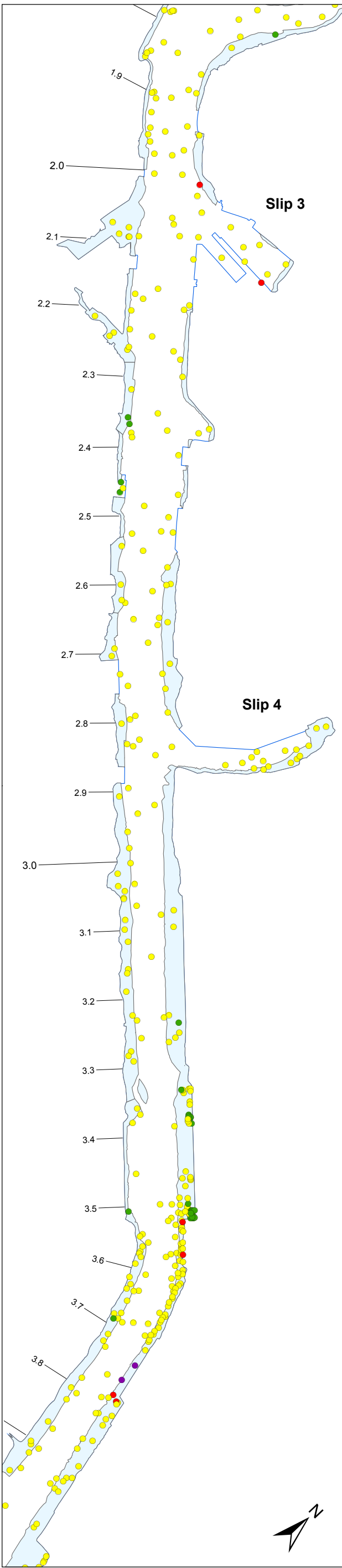
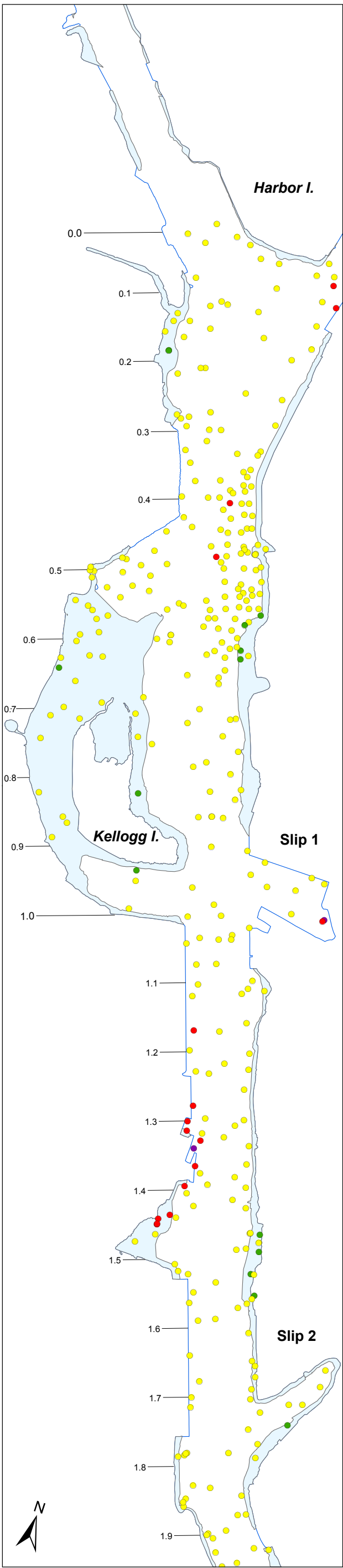
- $\leq 10^{-6}$ ($\leq 1,320$ $\mu\text{g/kg dw}$)
- $> 10^{-6}$ and $\leq 10^{-5}$ ($> 1,320$ and $\leq 13,200$ $\mu\text{g/kg dw}$)
- $> 10^{-5}$ and $\leq 10^{-4}$ ($> 13,200$ and $\leq 132,000$ $\mu\text{g/kg dw}$)
- $> 10^{-4}$ and $\leq 10^{-3}$ ($> 132,000$ and $\leq 1,320,000$ $\mu\text{g/kg dw}$)

Intertidal area

River mile

* Each point represents the hypothetical excess cancer risk for a netfisher who works only at that specific location for 119 days/yr over a 44-yr period (i.e., the assumptions from the netfishing RME scenario). Each risk estimate is based on a weighted mean of the total PCB concentration at that specific location only (25% of total) and the LDW-wide UCL on the spatially-weighted mean (470 $\mu\text{g/kg dw}$; 75% of the total). Mathematically, this is equivalent to assuming that netfishing occurs at a single location for 11 years and throughout the LDW for the other 33 years of the 44-yr exposure duration assumed for this scenario.

Map B.6-8. Risk-based concentration comparisons for total PCBs using the netfishing exposure scenario



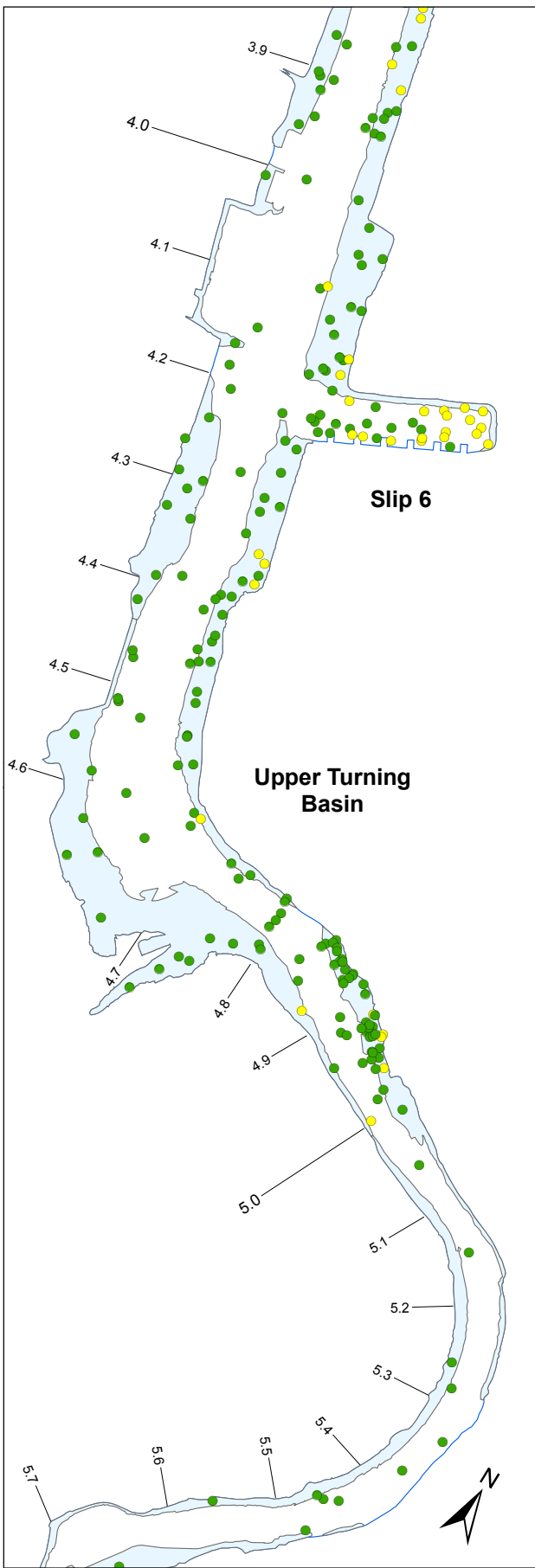
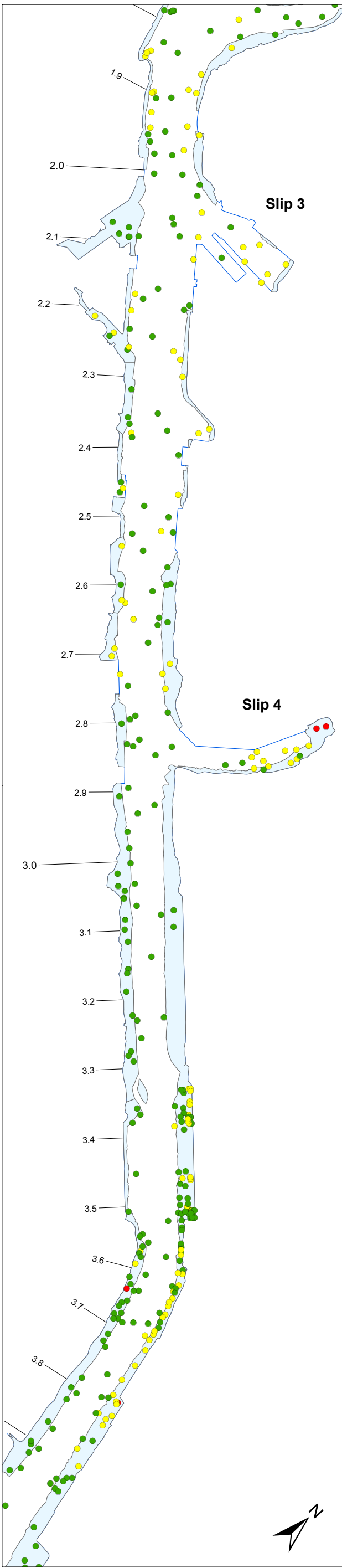
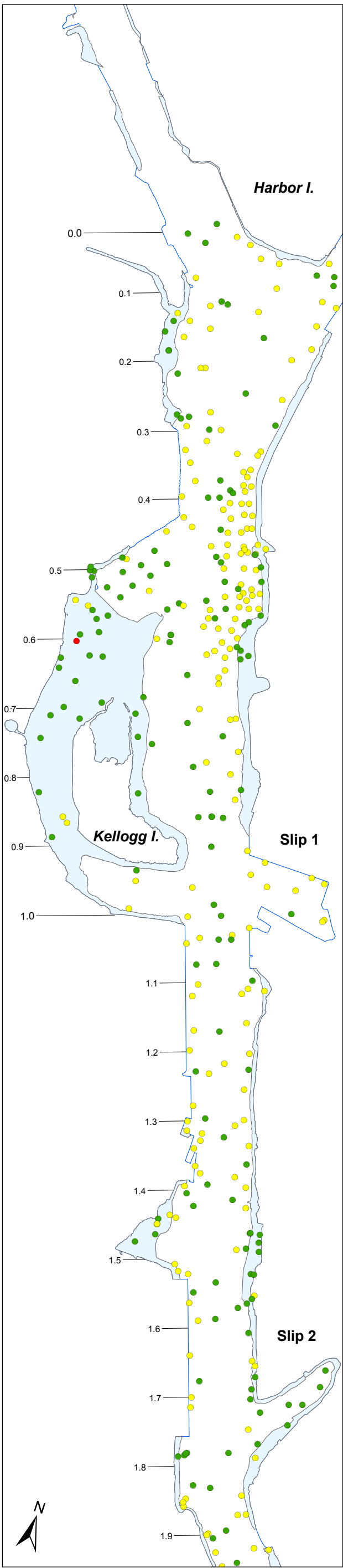
- Direct sediment contact risk*
- $\leq 10^{-6}$ (≤ 3.7 mg/kg dw)
 - $> 10^{-6}$ and $\leq 10^{-5}$ (> 3.7 and ≤ 37 mg/kg dw)
 - $> 10^{-5}$ and $\leq 10^{-4}$ (> 37 and ≤ 370 mg/kg dw)
 - $> 10^{-4}$ and $\leq 10^{-3}$ (> 370 and $\leq 3,700$ mg/kg dw)
- Intertidal area
- River mile

* Each point represents the hypothetical excess cancer risk for a netfisher who works only at that specific location for 119 days/yr over a 44-yr period (i.e., the assumptions from the netfishing RME scenario). Each risk estimate is based on a weighted mean of the arsenic concentration at that specific location only (25% of total) and the LDW-wide EPC (21 mg/kg dw; 75% of the total). Mathematically, this is equivalent to assuming that netfishing occurs at a single location for 11 years and throughout the LDW for the other 33 years of the 44-yr exposure duration assumed for this scenario.



Scale is the same for each inset map

Map B.6-9. Risk-based concentration comparisons for arsenic using the netfishing exposure scenario



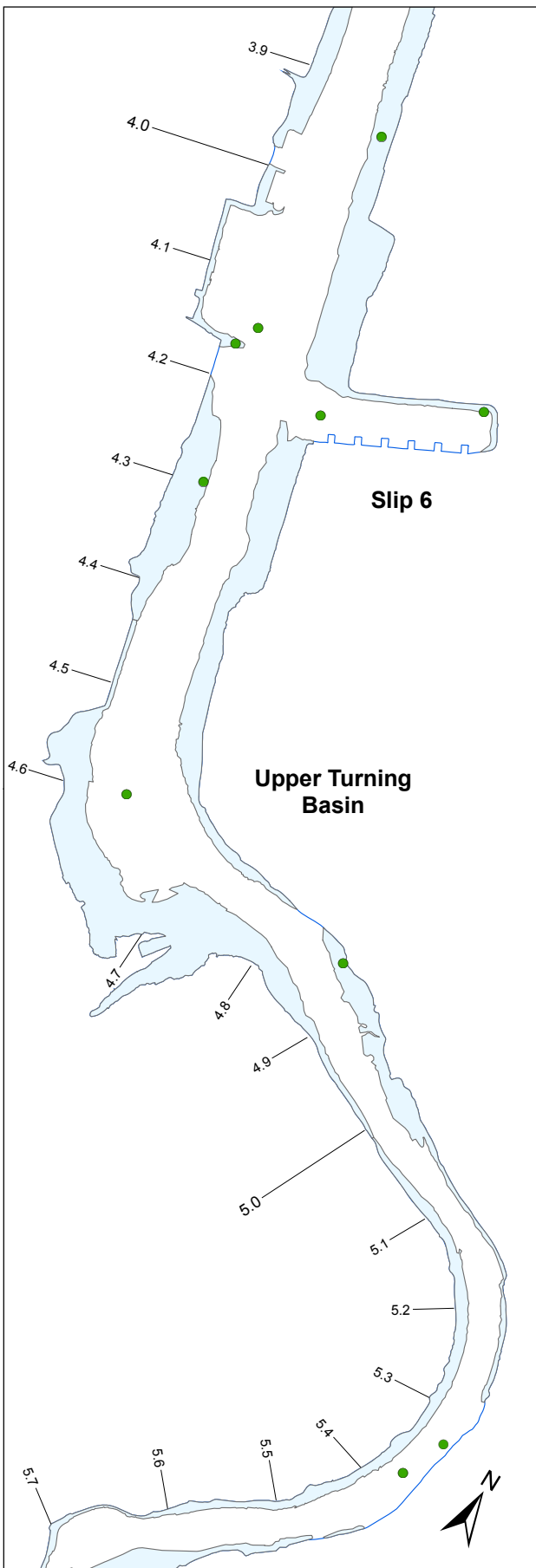
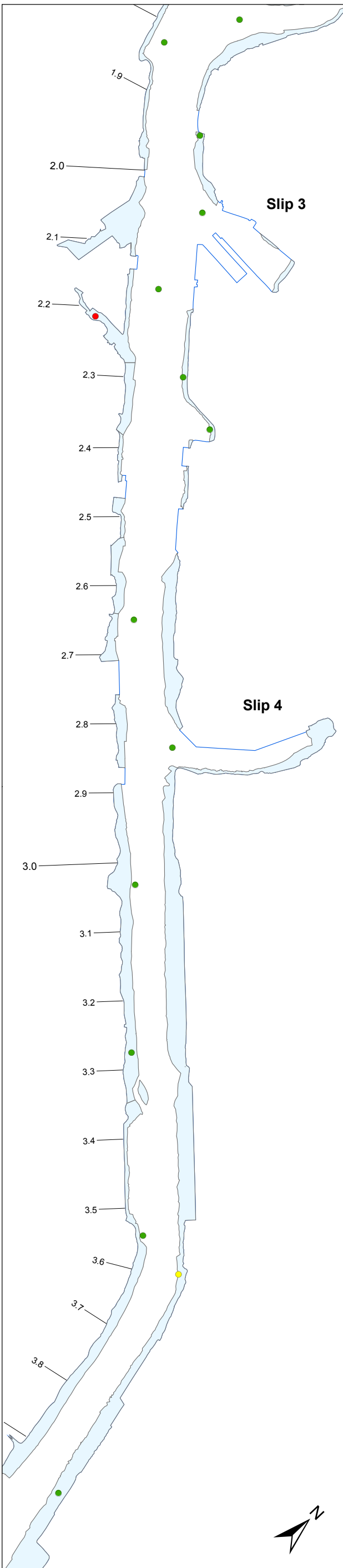
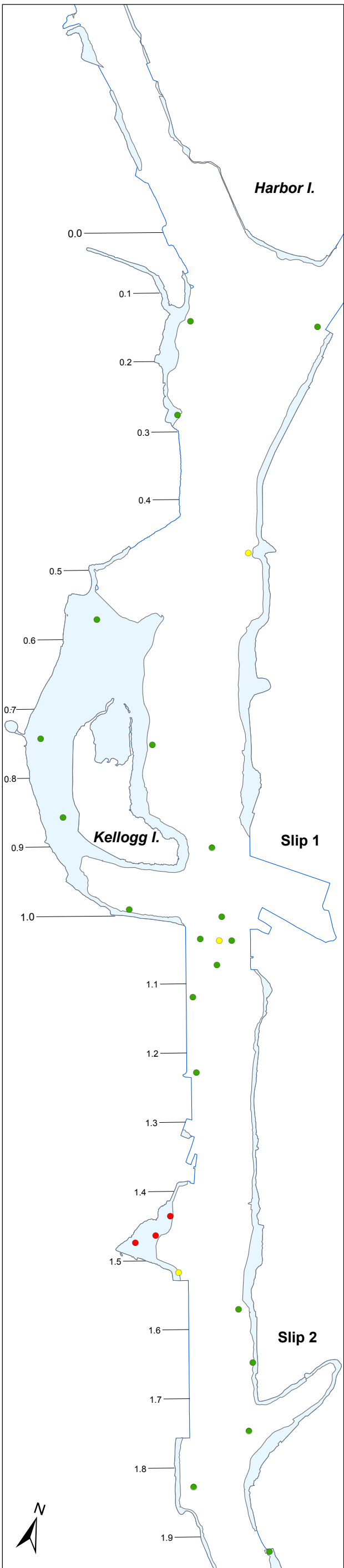
Direct sediment contact risk *

- $\leq 10^{-6}$ (380 $\mu\text{g/kg dw}$)
- $> 10^{-6}$ and $\leq 10^{-5}$ (> 380 and $\leq 3,800$ $\mu\text{g/kg dw}$)
- $> 10^{-5}$ and $\leq 10^{-4}$ ($> 3,800$ and $\leq 38,000$ $\mu\text{g/kg dw}$)

■ Intertidal area
— River mile

* Each point represents the hypothetical excess cancer risk for a netfisher who works only at that specific location for 119 days/yr over a 44-yr period (i.e., the assumptions from the netfishing RME scenario). Each risk estimate is based on a weighted mean of the cPAH concentration at that specific location only (25% of total) and the LDW-wide EPC (570 $\mu\text{g/kg dw}$; 75% of the total). Mathematically, this is equivalent to assuming that netfishing occurs at a single location for 11 years and throughout the LDW for the other 33 years of the 44-yr exposure duration assumed for this scenario.

Map B.6-10. Risk-based concentration comparisons for cPAHs using the netfishing exposure scenario



Direct sediment contact risk*

- $\leq 10^{-6}$ (≤ 37 ng/kg dw)
- $> 10^{-6}$ and $\leq 10^{-5}$ (> 37 and ≤ 370 ng/kg dw)
- $> 10^{-5}$ and $\leq 10^{-4}$ (> 370 and $\leq 3,700$ ng/kg dw)
- $> 10^{-4}$ and $\leq 10^{-3}$ ($> 3,700$ and $\leq 37,000$ ng/kg dw)

Intertidal area

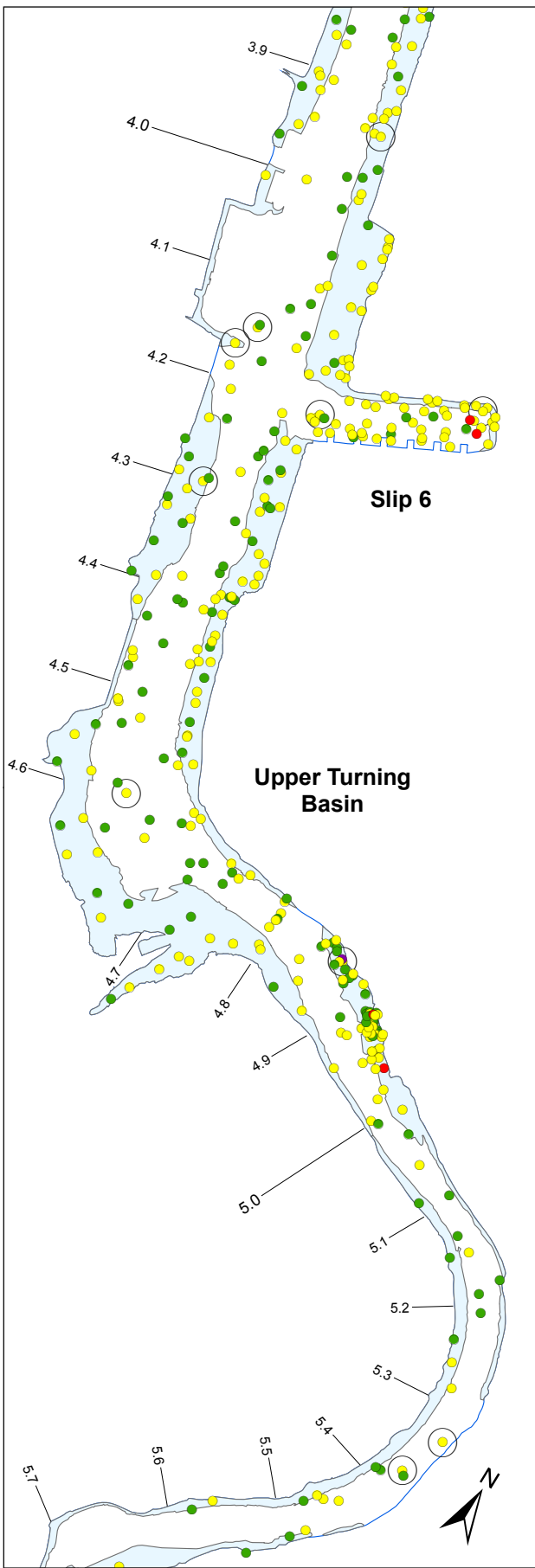
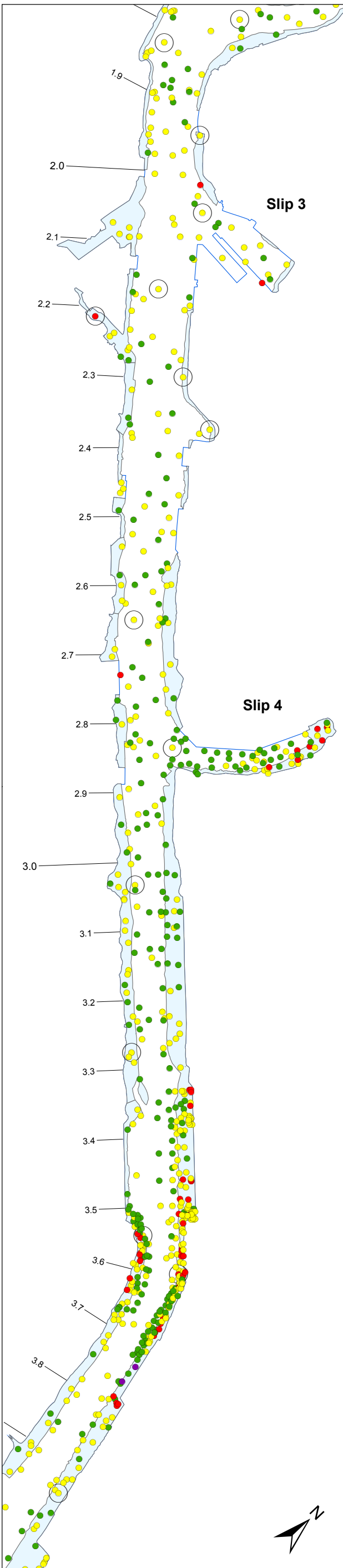
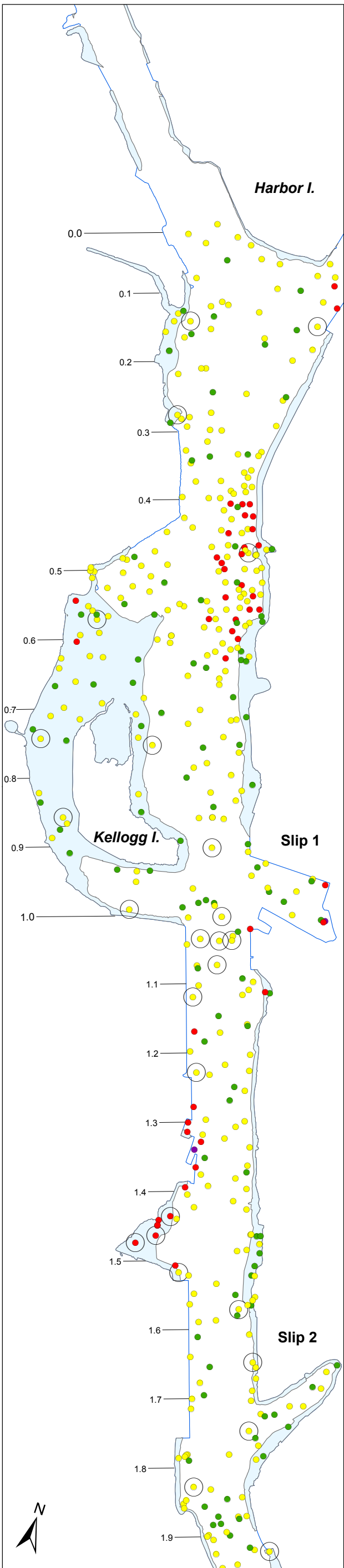
River mile

* Each point represents the hypothetical excess cancer risk for a netfisher who works only at that specific location for 119 days/yr over a 44-yr period (i.e., the assumptions from the netfishing RME scenario). Each risk estimate is based on a weighted mean of the dioxin/furan TEQ at that specific location only (25% of total) and the LDW-wide EPC (610 ng/kg dw; 75% of the total). Mathematically, this is equivalent to assuming that netfishing occurs at a single location for 11 years and throughout the LDW for the other 33 years of the 44-yr exposure duration assumed for this scenario.



Scale is the same for each inset map

Map B.6-11. Risk-based concentration comparisons for dioxins/furans using the netfishing exposure scenario

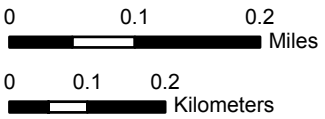


Direct sediment contact risk*

- $\leq 10^{-6}$
- $> 10^{-6}$ and $\leq 10^{-5}$
- $> 10^{-5}$ and $\leq 10^{-4}$
- $> 10^{-4}$ and $\leq 10^{-3}$
- Dioxin/Furan sample location
- River mile

* Risks may be underestimated at some locations because not all chemicals were analyzed.

Each point represents the hypothetical excess cancer risk for a netfisher who works only at that specific location for 119 days/yr over a 44-yr period (i.e., the assumptions from the netfishing RME scenario). Each risk estimate reflects the cumulative results from Maps B.6-6 to B.6-9 based on weighted concentrations of total PCBs, arsenic, cPAHs, and dioxin/furan TEQs. Mathematically, this is equivalent to assuming that netfishing occurs at a single location for 11 years and throughout the LDW for the other 33 years of the 44-yr exposure duration assumed for this scenario.



Scale is the same for each inset map

Map B.6-12. Combination of risks associated with total PCBs, arsenic, dioxins/furans, and cPAHs using the netfishing scenario

