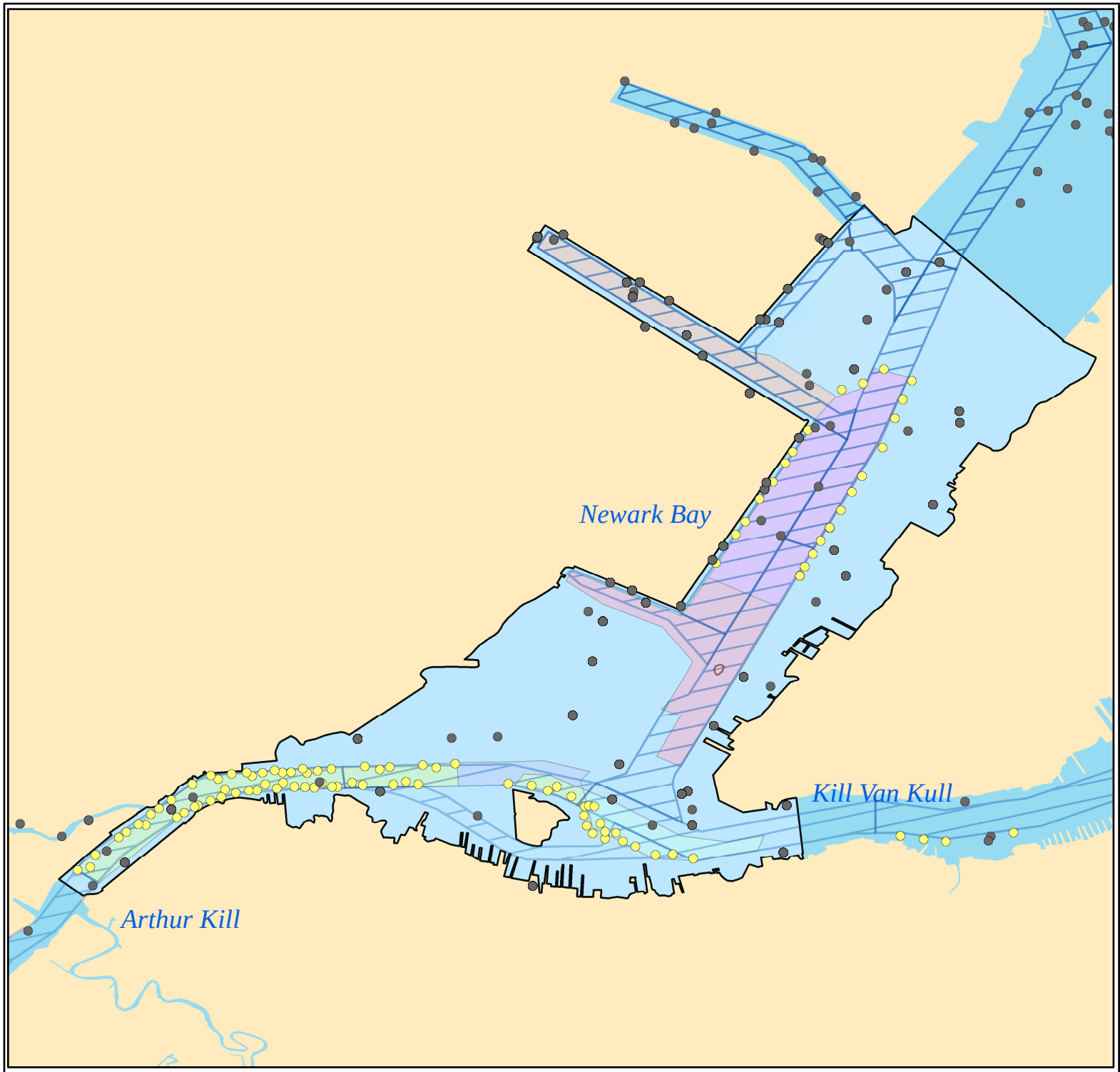

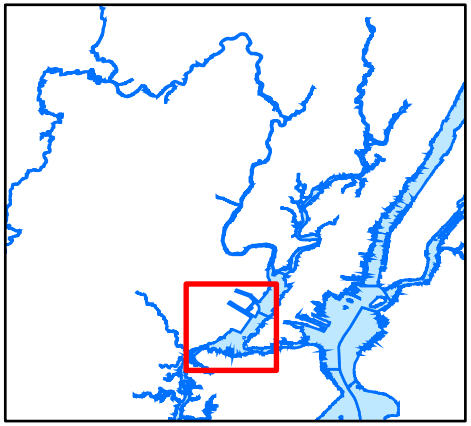

LOCATOR MAP OF THE NEW YORK/NEW JERSEY HARBOR

GRAPHIC SCALE

0 0.25 0.5 1 Miles

LEGEND

- USACE Composite Cores
- Historic Cores
- Navigation Channel
- Study Area
- Newark Bay Shoreline

Contract Areas (Dredge Dates)

- AK-1 41' (06/03 - 08/05)
- AK-2/3 41' (04/05 - 11/07)
- S-E-1 50' (01/11 - 01/12)
- S-KVK-2 50' (05/05 - 07/05)
- S-NB-1 50' (01/06 - 03/09)
- S-NB-2 50' (01/09 - 01/12)

Notes: (1) Data extend beyond frame of map.
(2) NOAA data includes sediment grabs and cores.
(3) The future 50-foot work in the Arthur Kill partially overlaps the AK 41-foot areas 1, 2 and 3 presented in the map. This area was excluded for clarity.

Figure 1a.
Historic Core Locations and
USACE Navigational Deepening Contracts

Data Sources: NOAA National Ocean Service Office of Response and Restoration/Toxic Chemicals in Coastal Environmentals - Watershed Tools (Databases & Mapping): http://response.restoration.noaa.gov/cpr/watershed/watershedtools.html
CARP - Contaminant Assessment & Reduction Program/Hudson River Foundation/New York-New Jersey Harbor: http://www.carpweb.org. REMAP 98/99 data not included in NOAA database.

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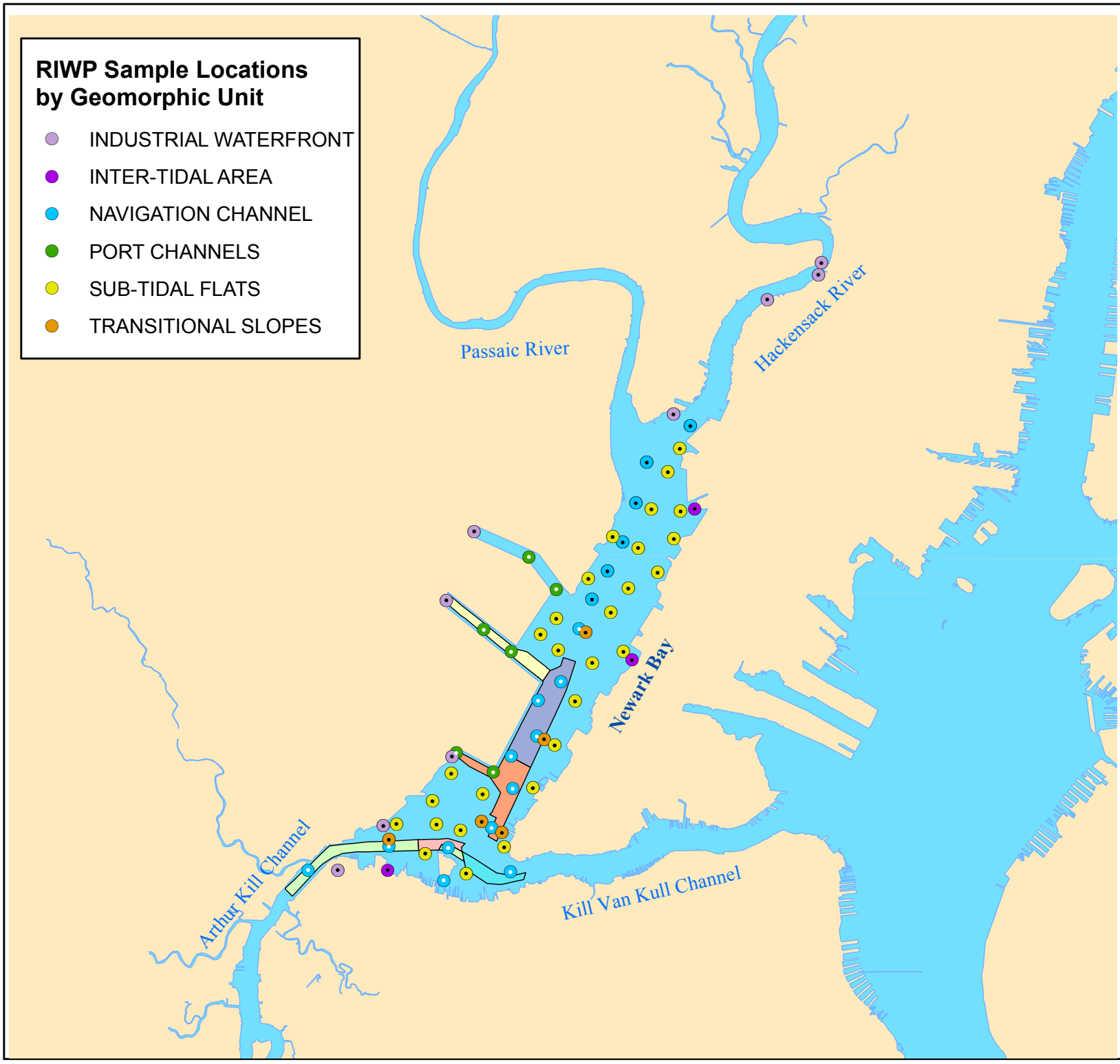
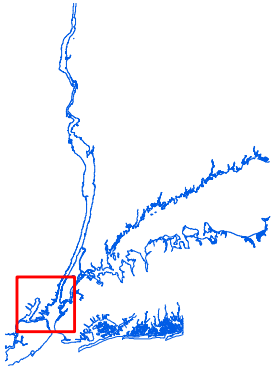
QEA Quantitative Environmental Analysis, LLC

November 2005





LOCATOR MAP OF THE NEW YORK/NEW JERSEY HARBOR

GRAPHIC SCALE

0 0.5 1 2 Miles

LEGEND

Contract Areas

- Arthur Kill 41' Area 1 (Jun 03 - Aug 05)
- Arthur Kill 41' Area 2/3 (Apr 05 - Nov 07)
- S-E-1 50' (Jan 11 - Jan 12)
- S-KVK-2 50' (May 05 - Jul 07)
- S-NB-1 50' (Jan 06 - Mar 09)
- S-NB-2 50' (Jan 09 - Jan 12)
- Shoreline and Bay Area
- • Chemical & Radiochemical Sampling
- ◦ Radiochemical Sampling Only

Note: The future 50-foot work in the Arthur Kill partially overlaps the AK 41-foot areas 1, 2 and 3 presented in the map. This area was excluded for clarity.

Figure 1b.

Newark Bay Study Area RIFS Workplan proposed 9/6/05 release sediment sampling locations and USACE Navigational Deepening Contracts

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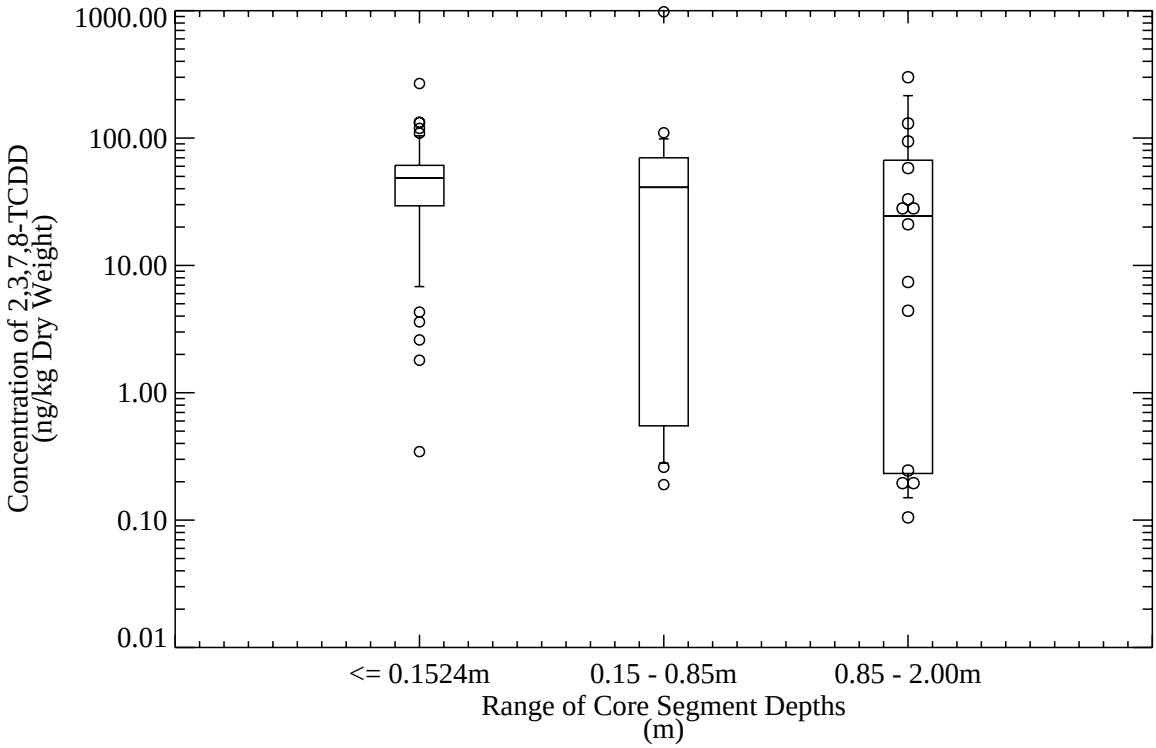


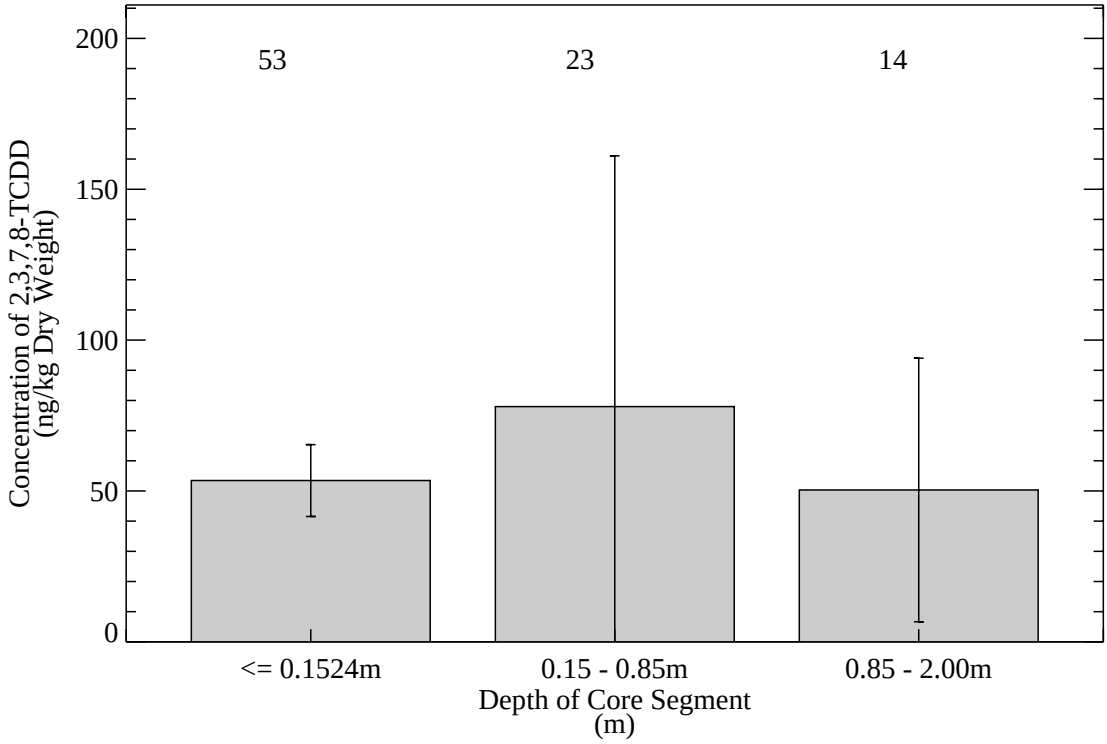
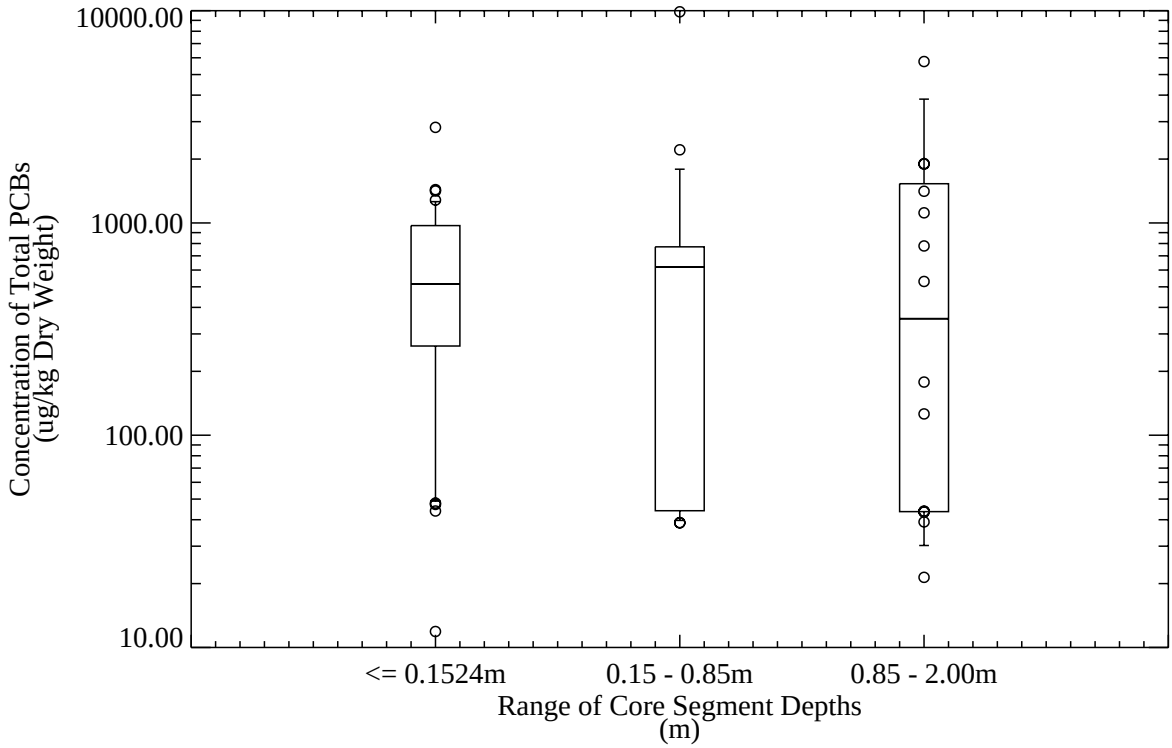


Figure 2a. Relationship between Contaminant Concentrations (ng/kg Dry Weight) and Core Segment Depths: 2,3,7,8-TCDD

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



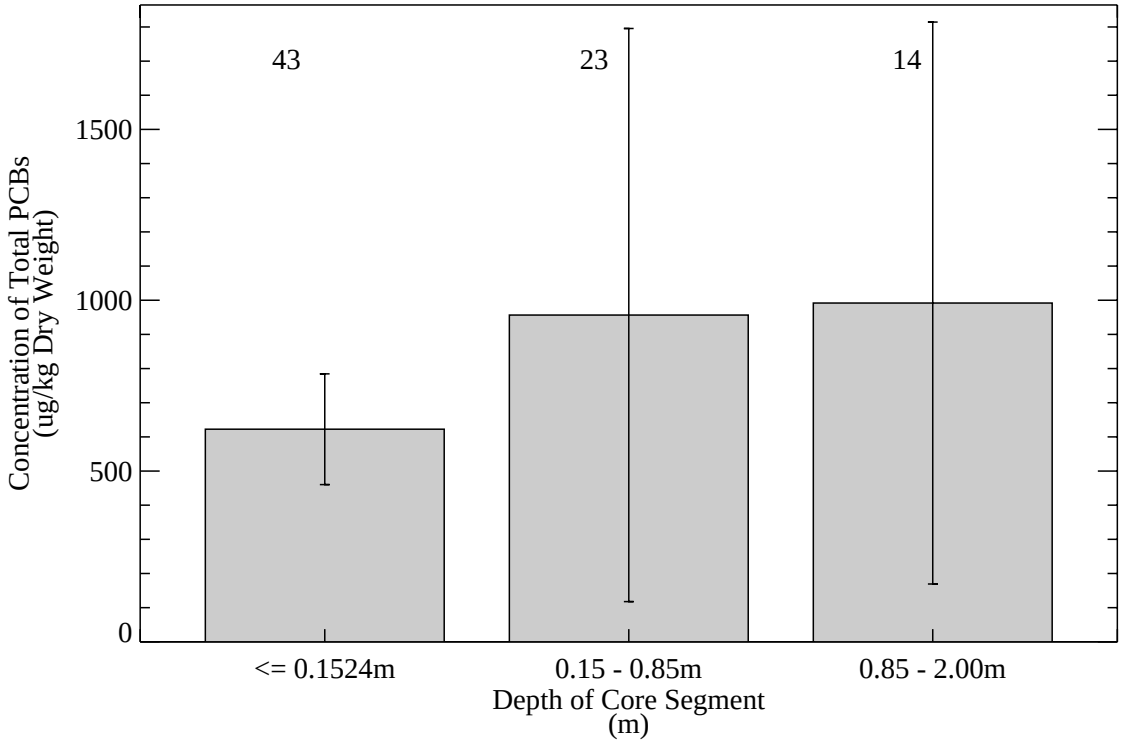
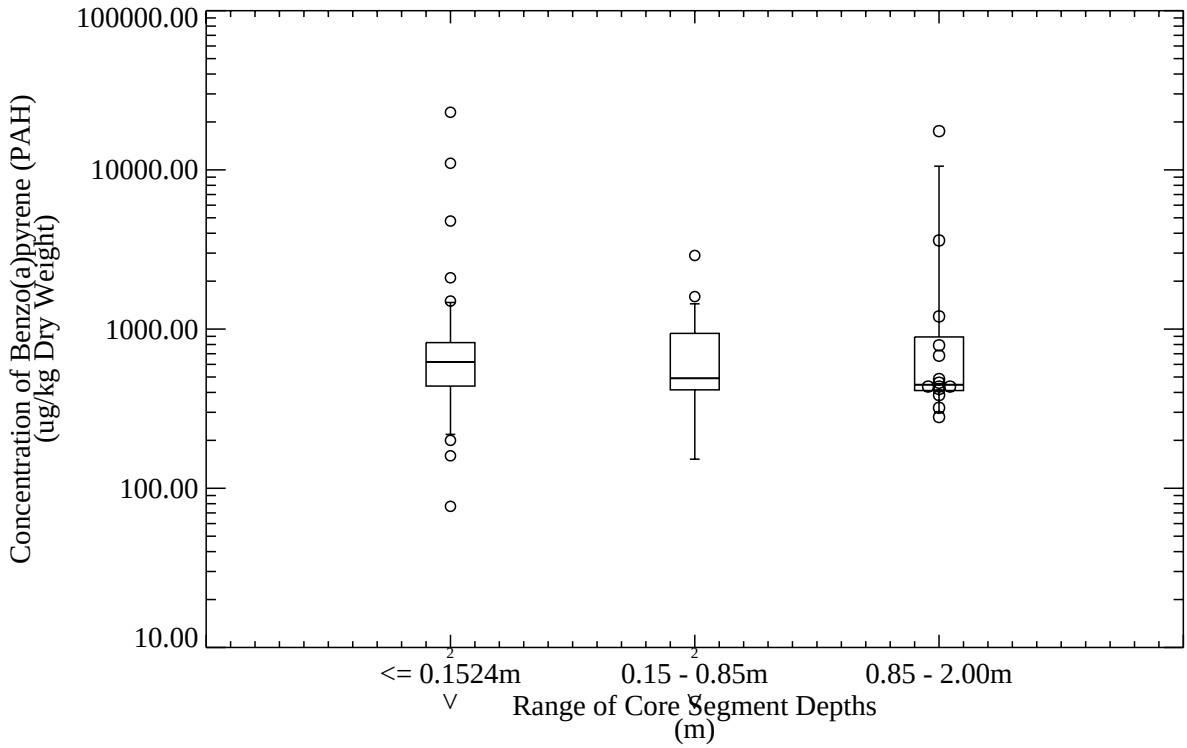


Figure 2b. Relationship between Contaminant Concentrations (ug/kg Dry Weight) and Core Segment Depths: Total PCBs

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



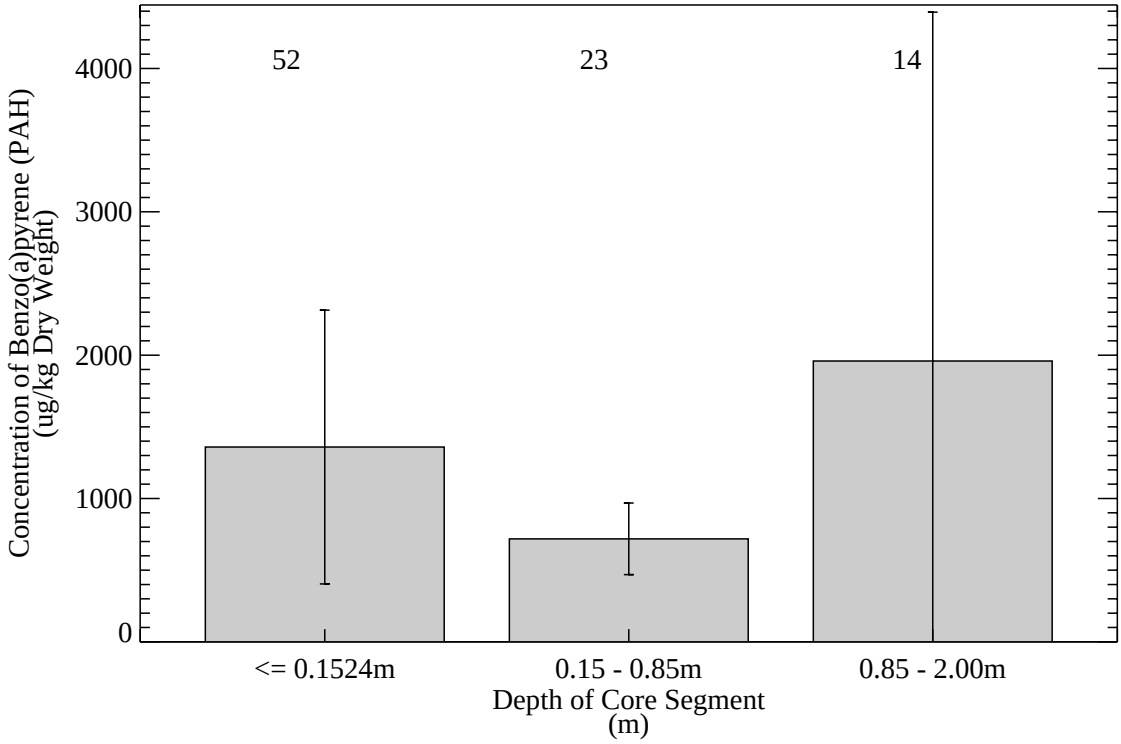
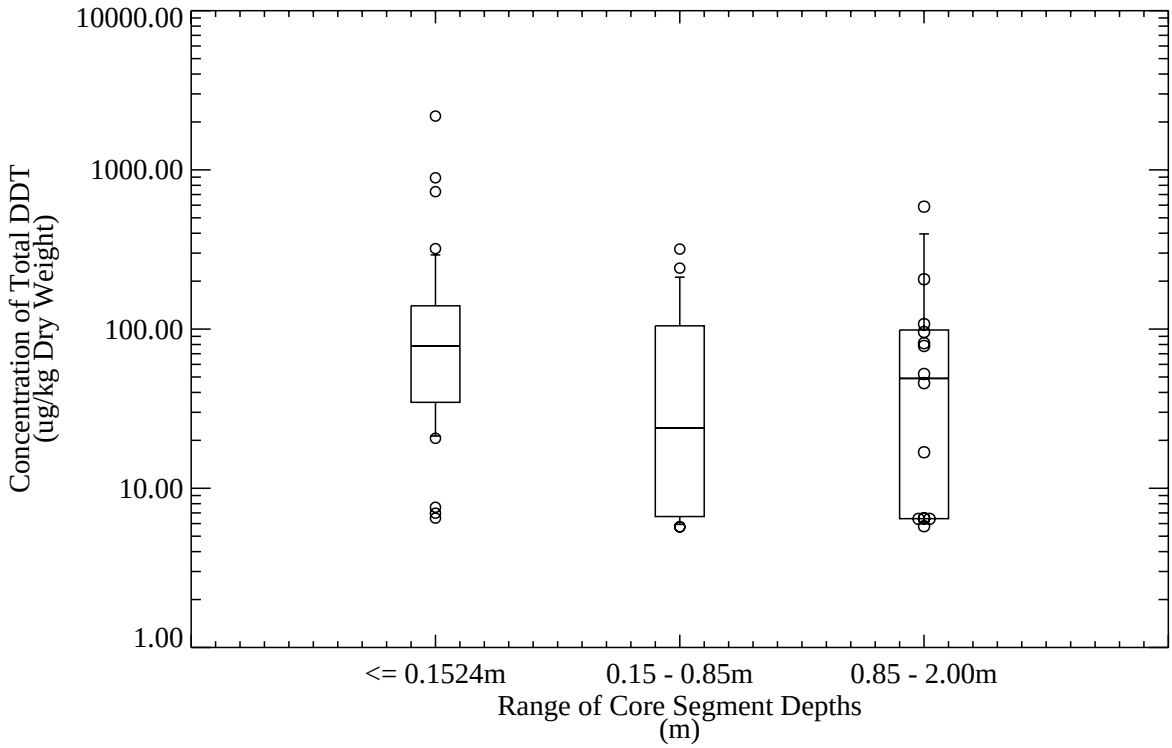


Figure 2c. Relationship between Contaminant Concentrations (ug/kg Dry Weight) and Core Segment Depths: Benzo(a)pyrene (PAH)

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



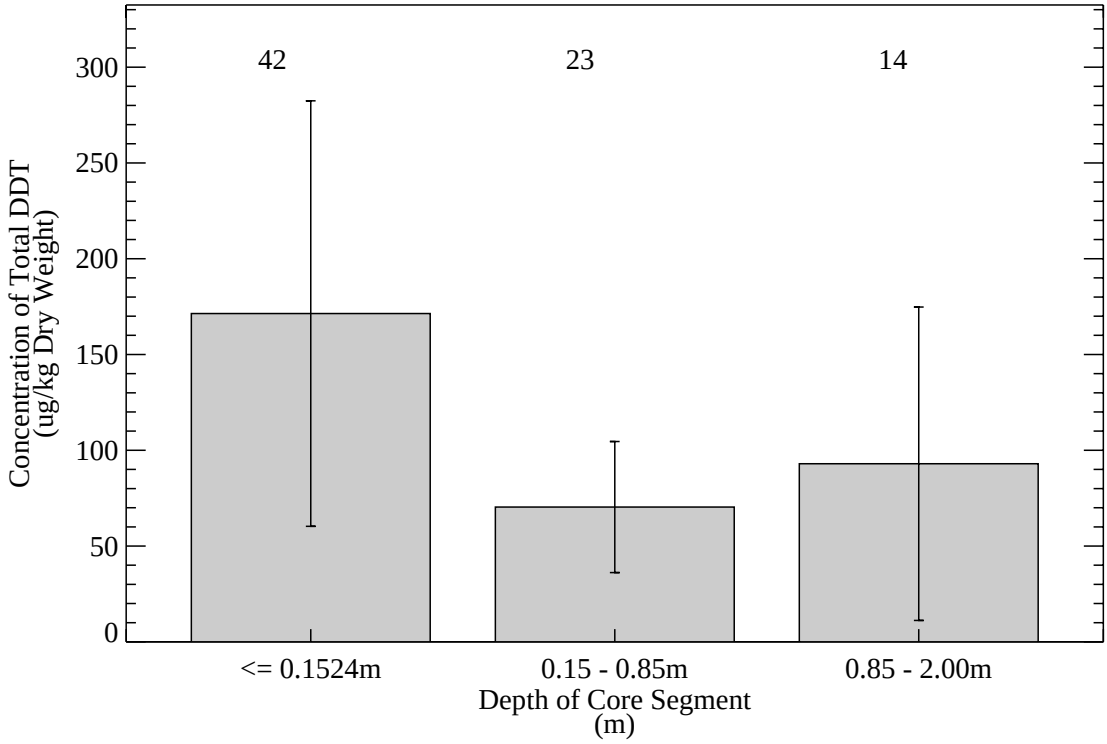
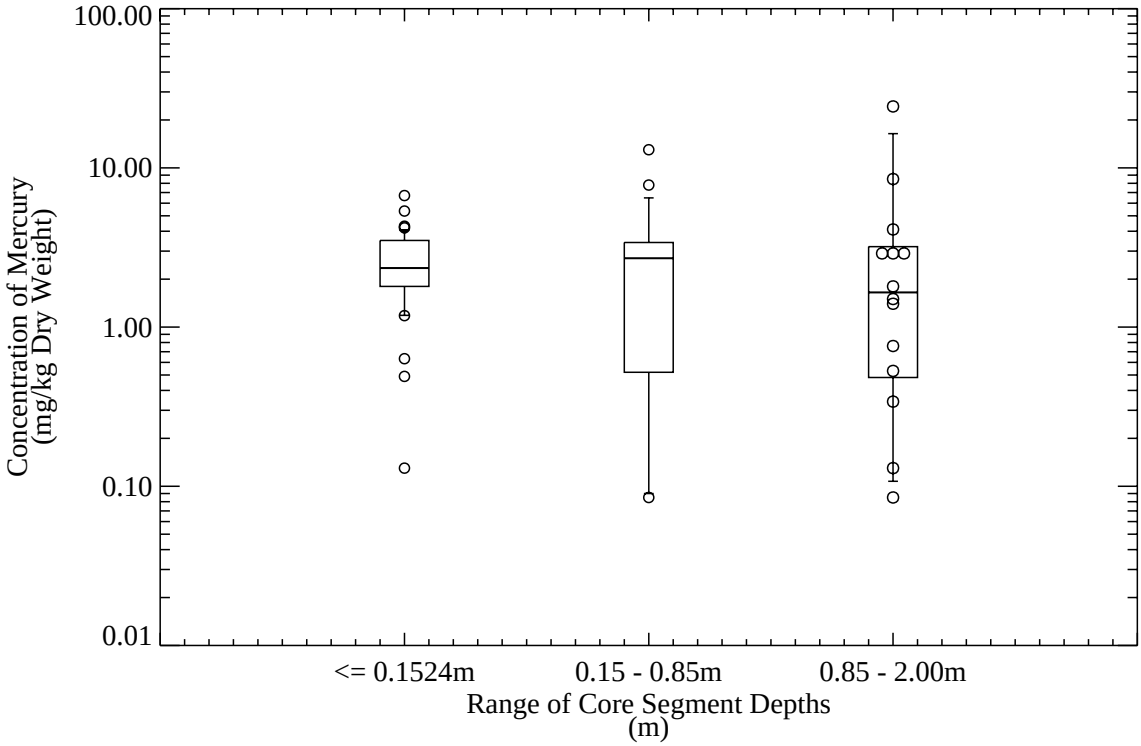


Figure 2d. Relationship between Contaminant Concentrations (ug/kg Dry Weight) and Core Segment Depths: Total DDT

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



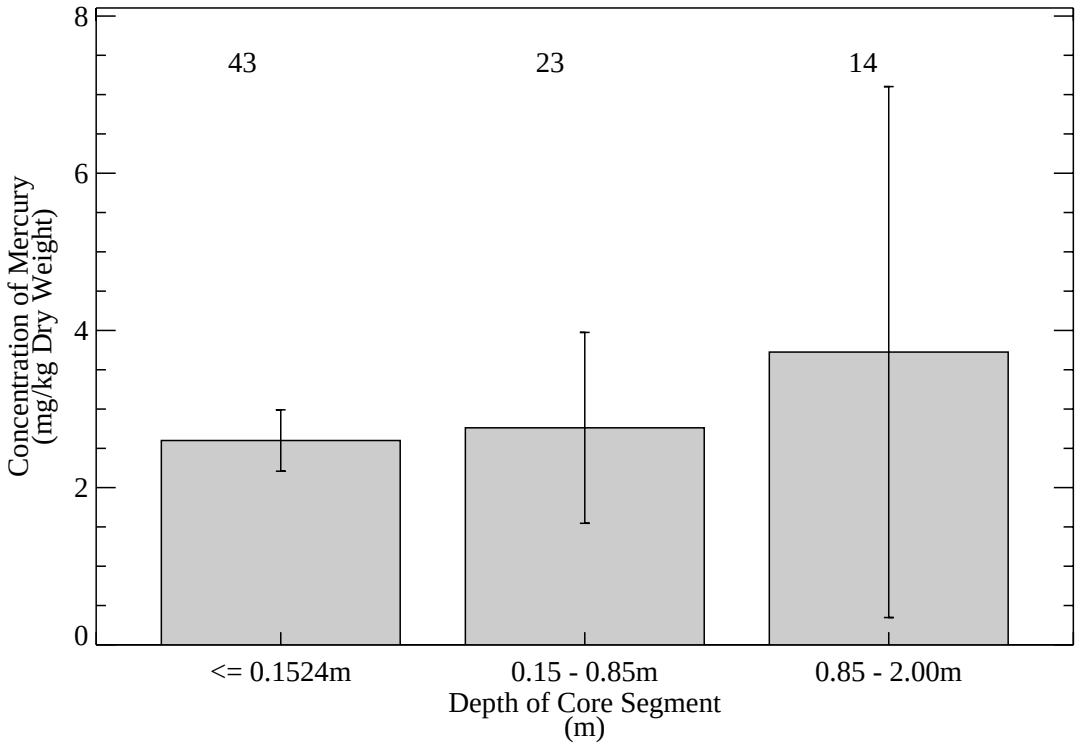
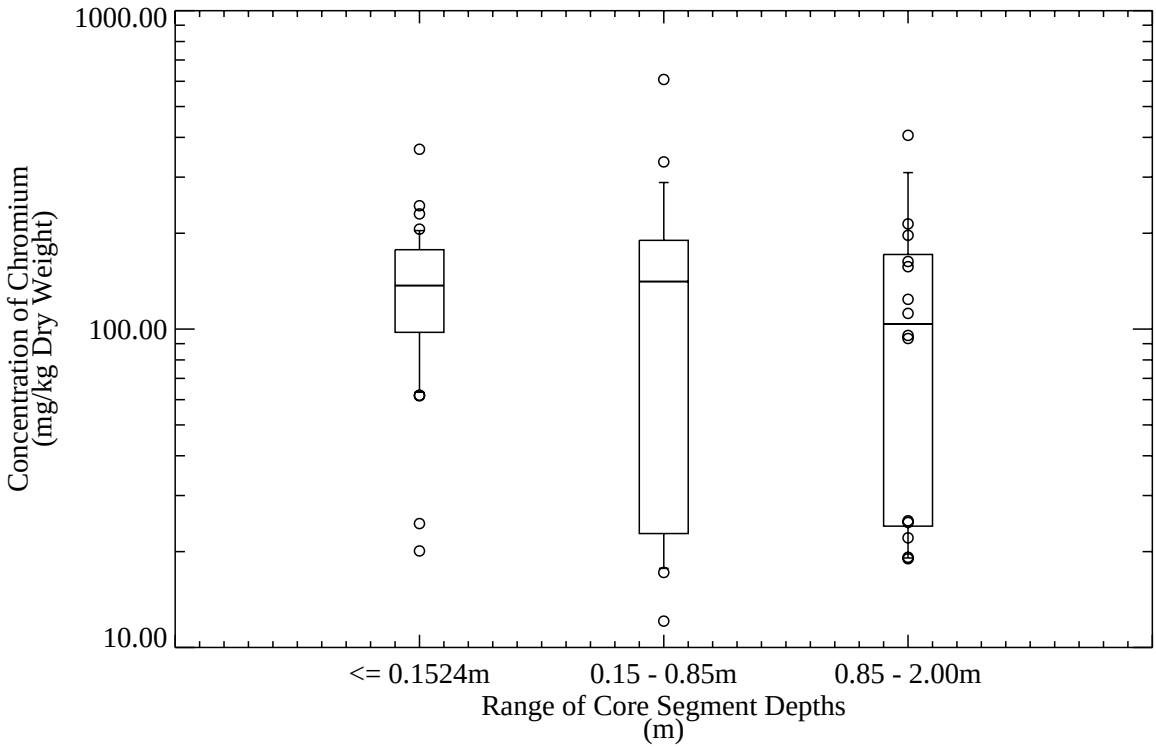


Figure 2e. Relationship between Contaminant Concentrations (mg/kg Dry Weight) and Core Segment Depths: Mercury

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



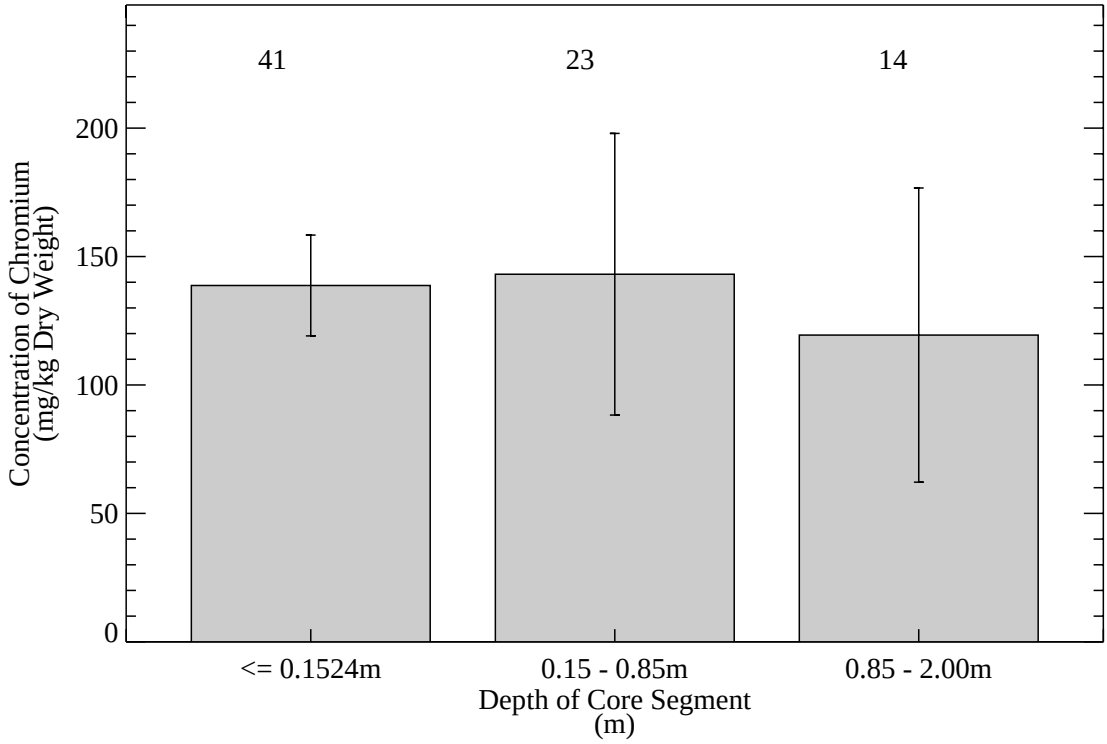


Figure 2f. Relationship between Contaminant Concentrations (mg/kg Dry Weight) and Core Segment Depths: Chromium

No data samples had a core depth greater than 2 m
All data values shown for sets with less than 15 samples. 10th and 90th percentiles shown for sets with more than 9 samples

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

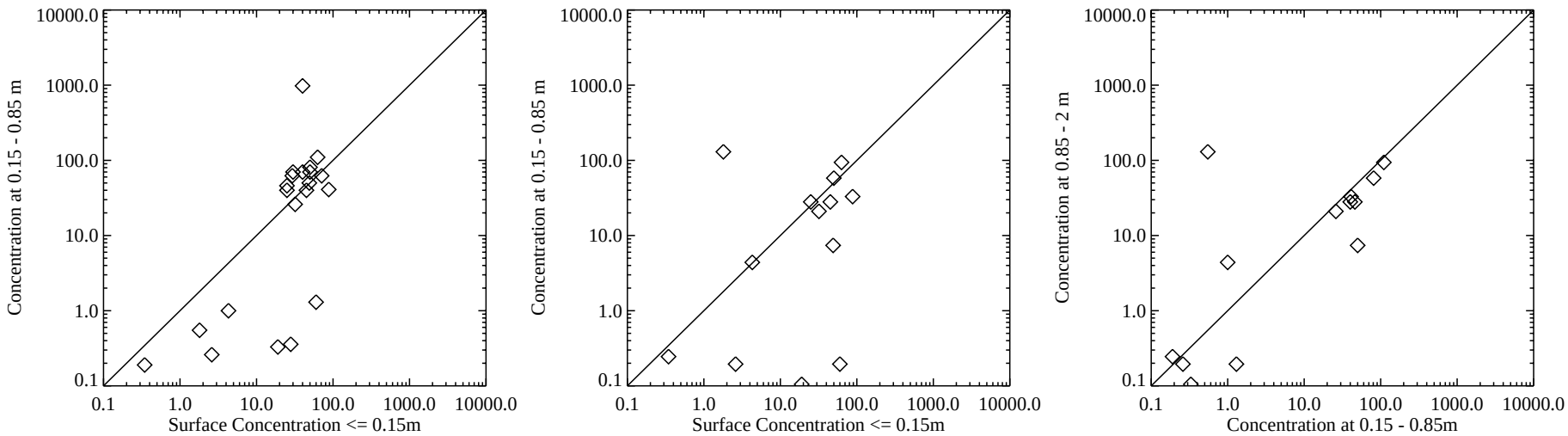


Figure 3a. Comparison of Contaminant Concentrations (ng/kg Dry Weight) in Paired Core Segments at Various Depths: 2,3,7,8-TCDD

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

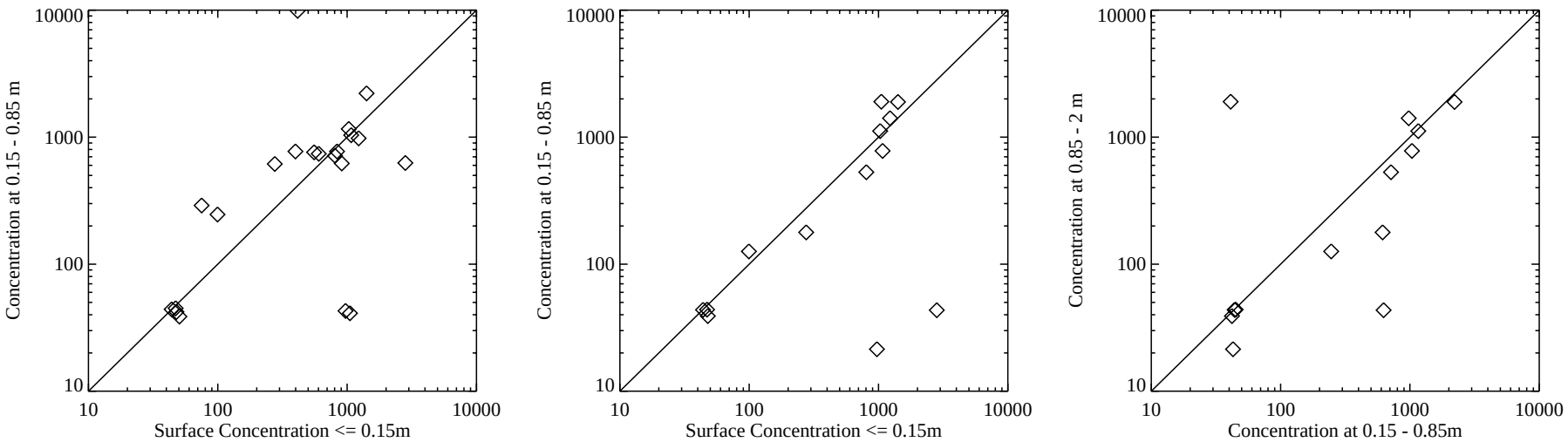


Figure 3b. Comparison of Contaminant Concentrations (ug/kg Dry Weight) in Paired Core Segments at Various Depths: Total PCBs

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

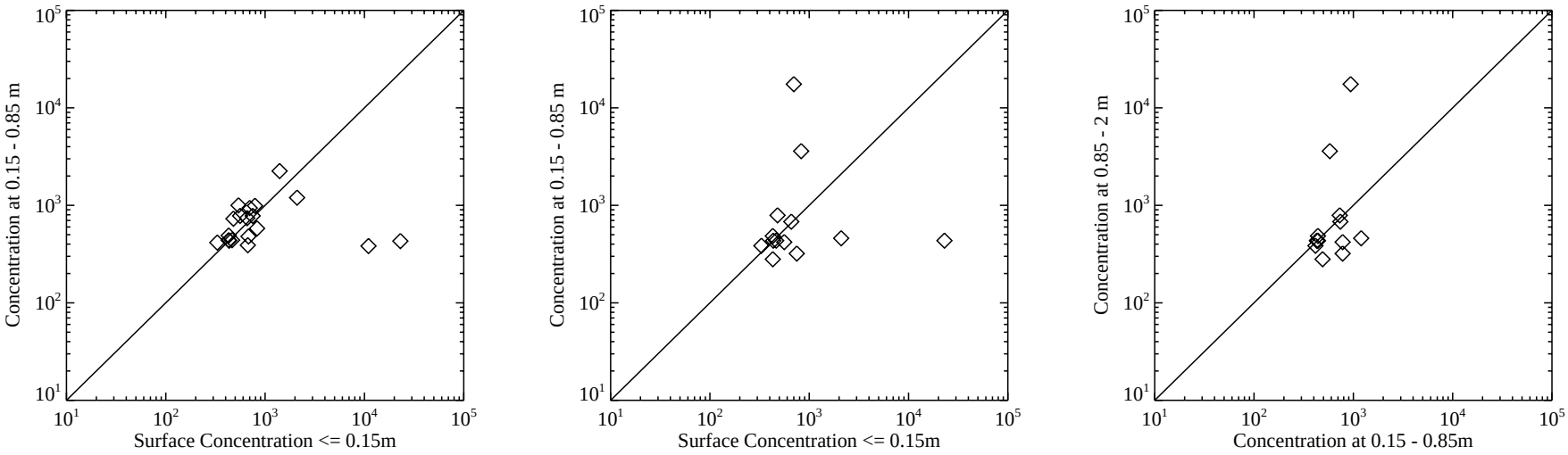


Figure 3c. Comparison of Contaminant Concentrations (ug/kg Dry Weight) in Paired Core Segments at Various Depths: Benzo(a)pyrene (PAH)

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

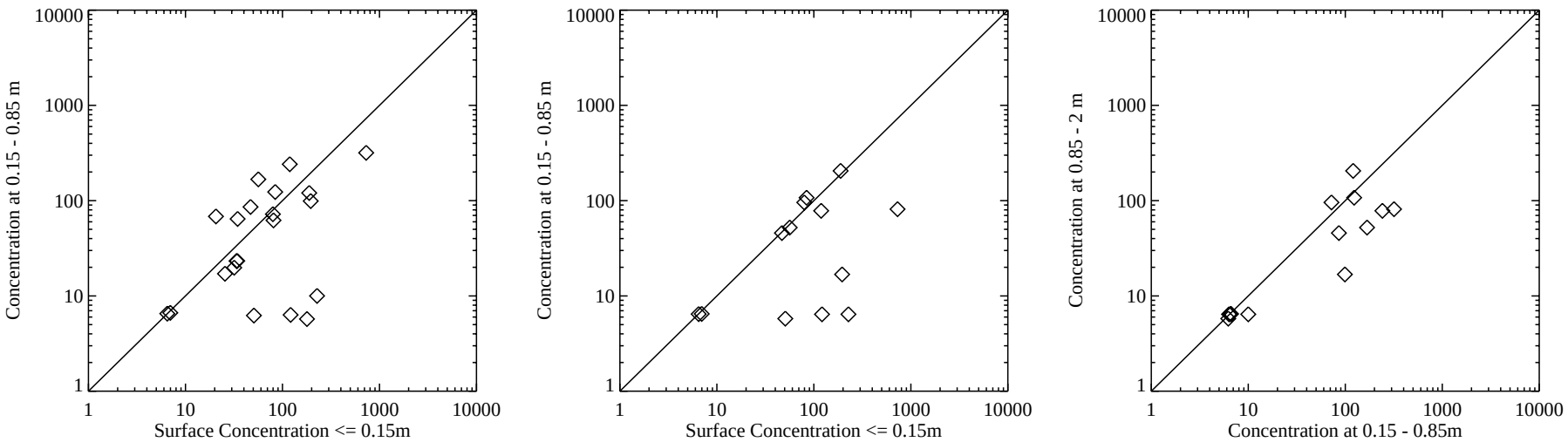


Figure 3d. Comparison of Contaminant Concentrations (ug/kg Dry Weight) in Paired Core Segments at Various Depths: Total DDT

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

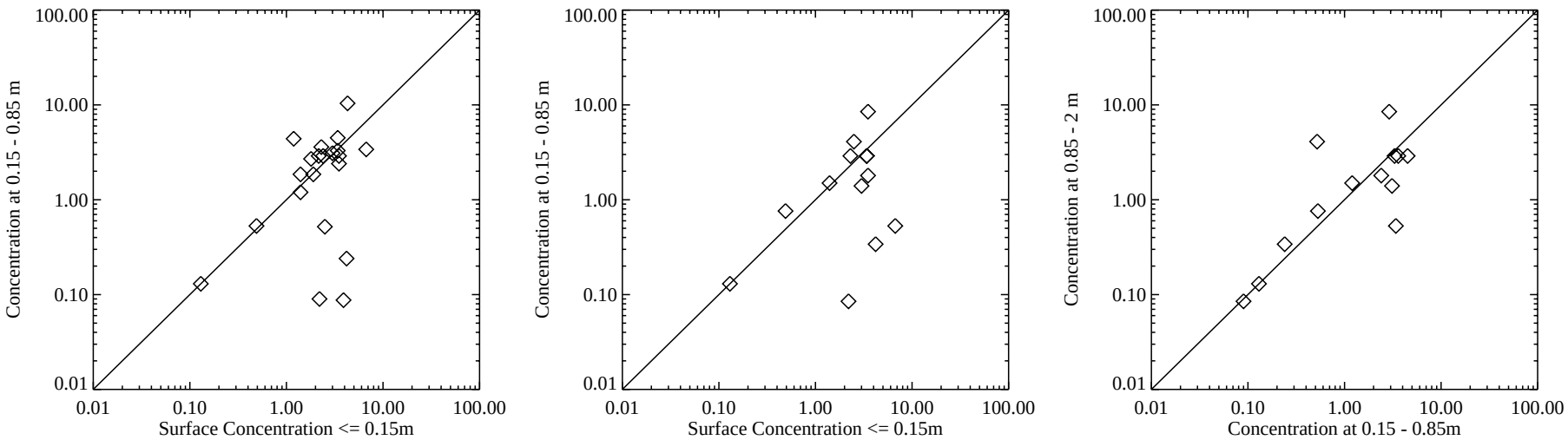


Figure 3e. Comparison of Contaminant Concentrations (mg/kg Dry Weight) in Paired Core Segments at Various Depths: Mercury

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP

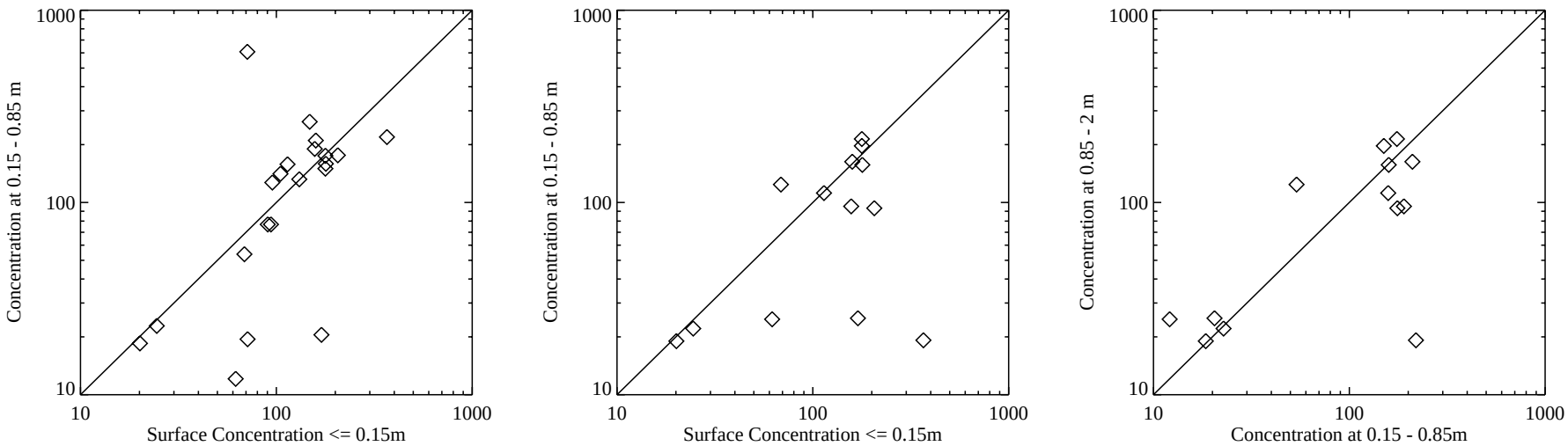
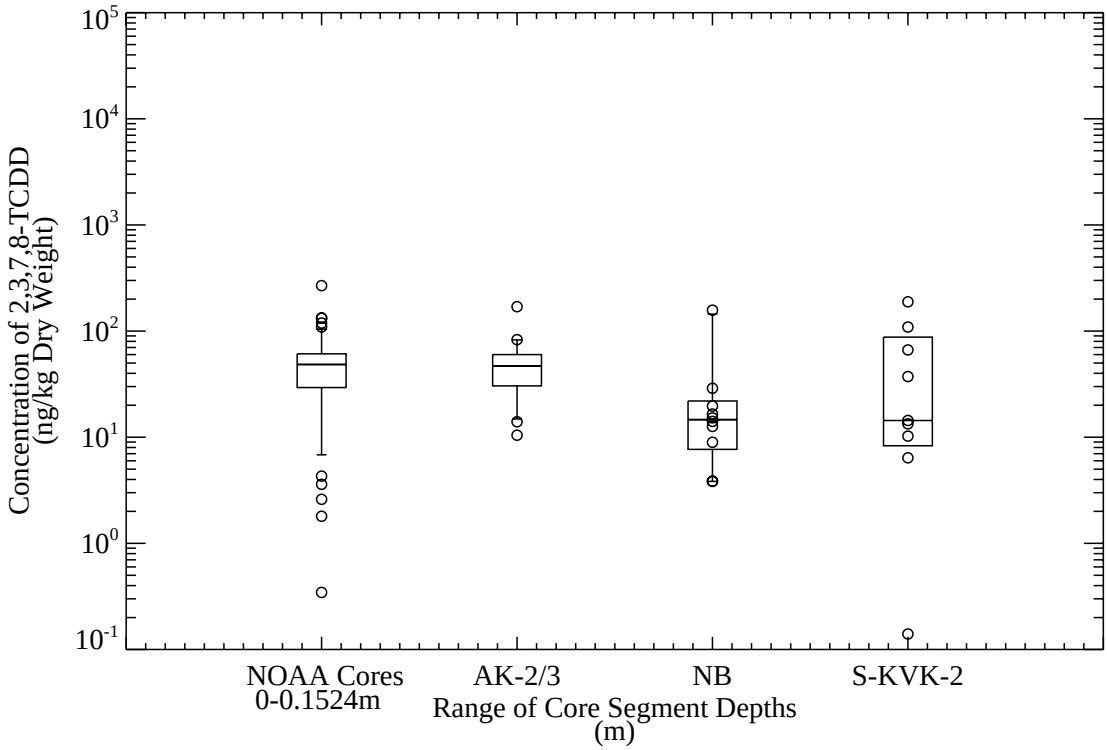


Figure 3f. Comparison of Contaminant Concentrations (mg/kg Dry Weight) in Paired Core Segments at Various Depths: Chromium

Note: Red points represents cores in the flats. Black points represent cores in the channels.
Solid line: 1-1 line

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



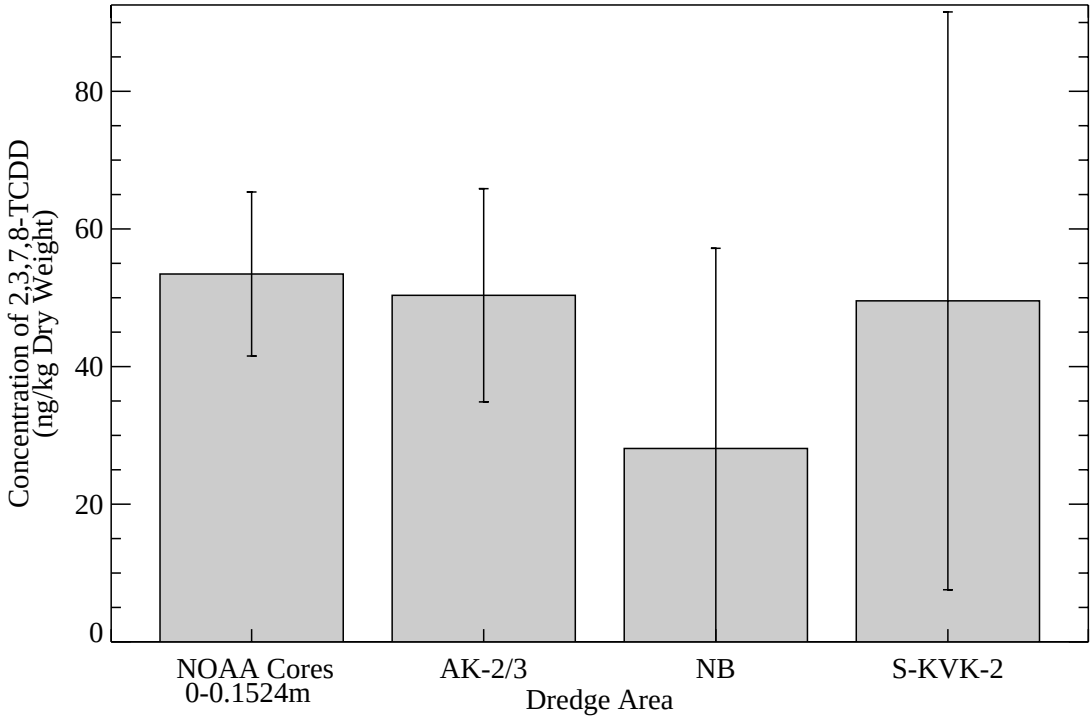
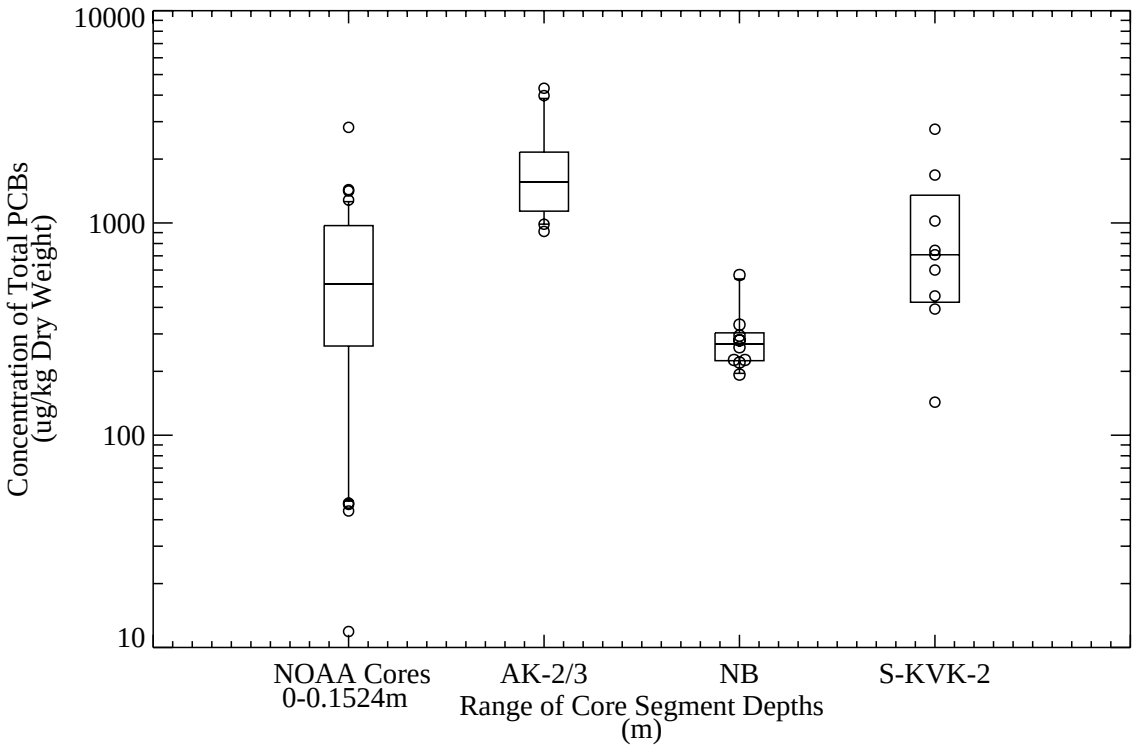


Figure 4a. Average Contaminant Concentrations (ng/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: 2,3,7,8-TCDD

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



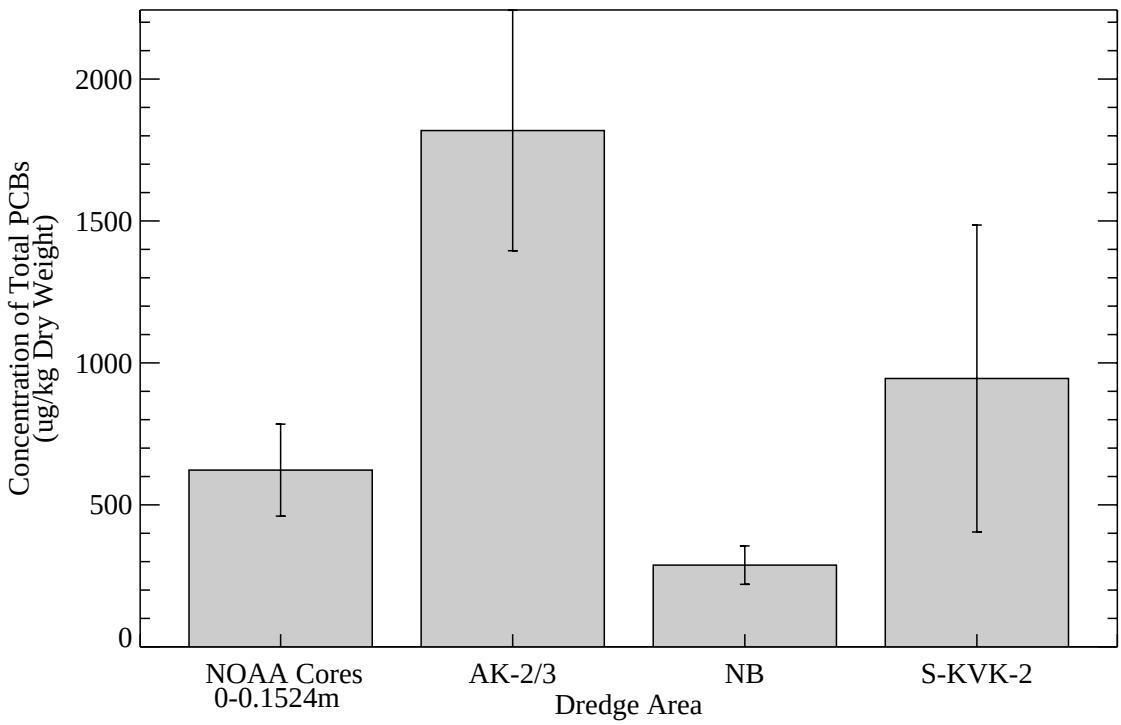
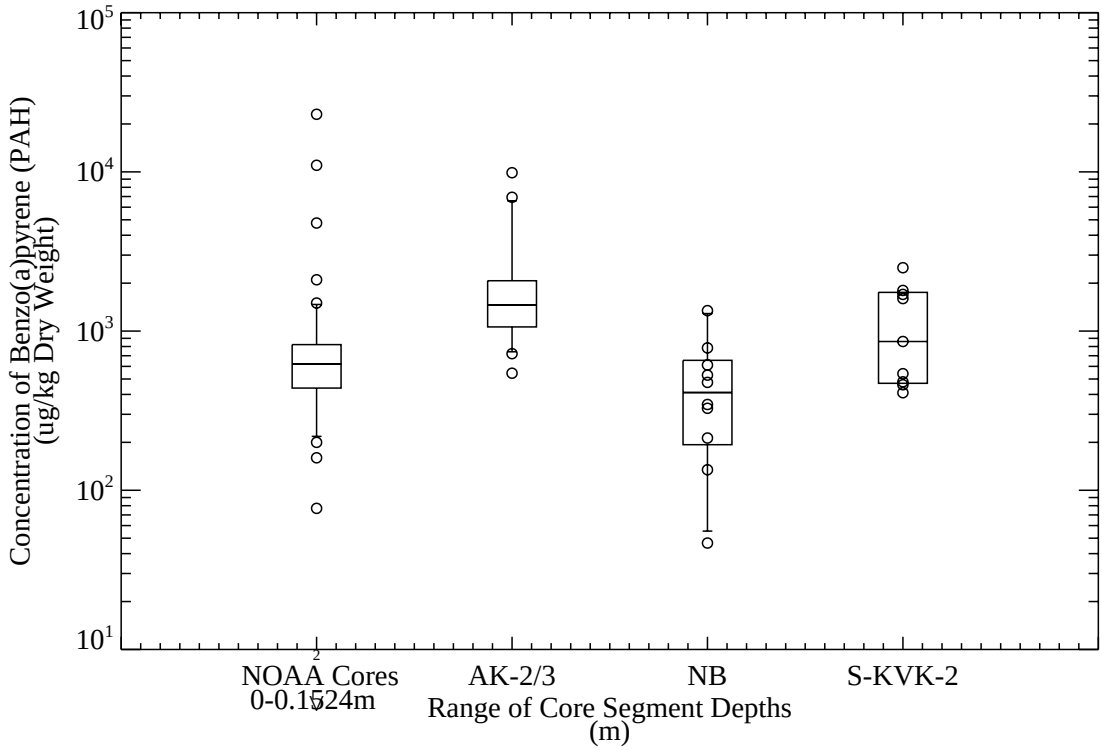


Figure 4b. Average Contaminant Concentrations (ug/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: Total PCBs

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



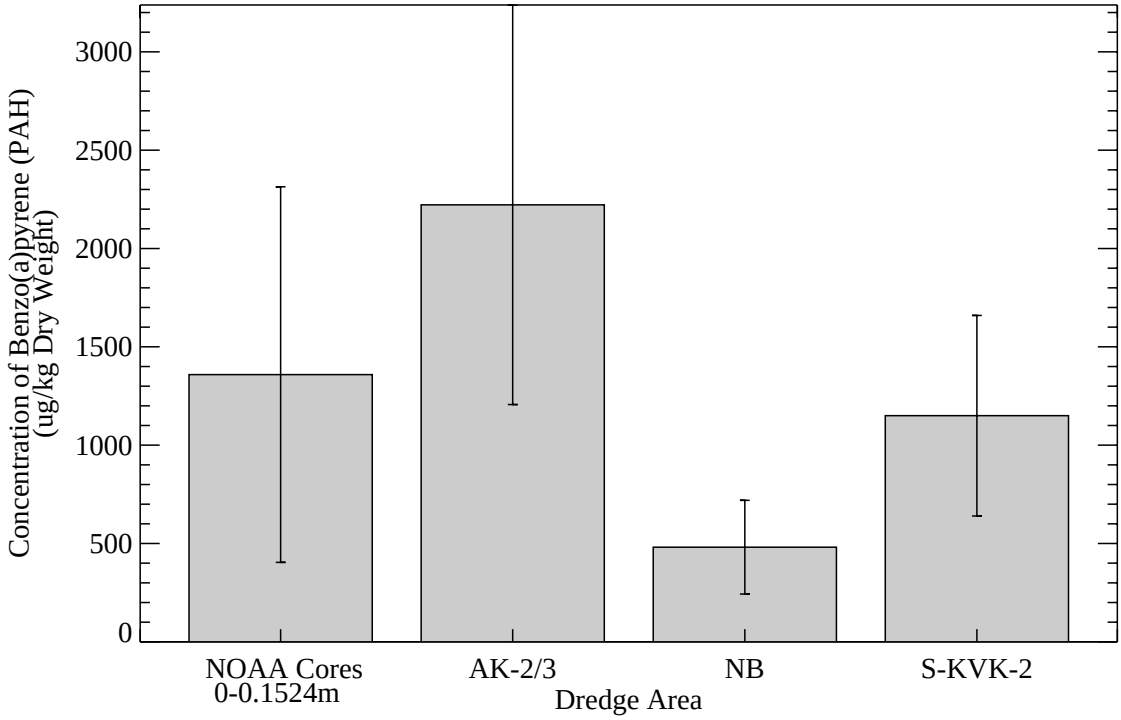
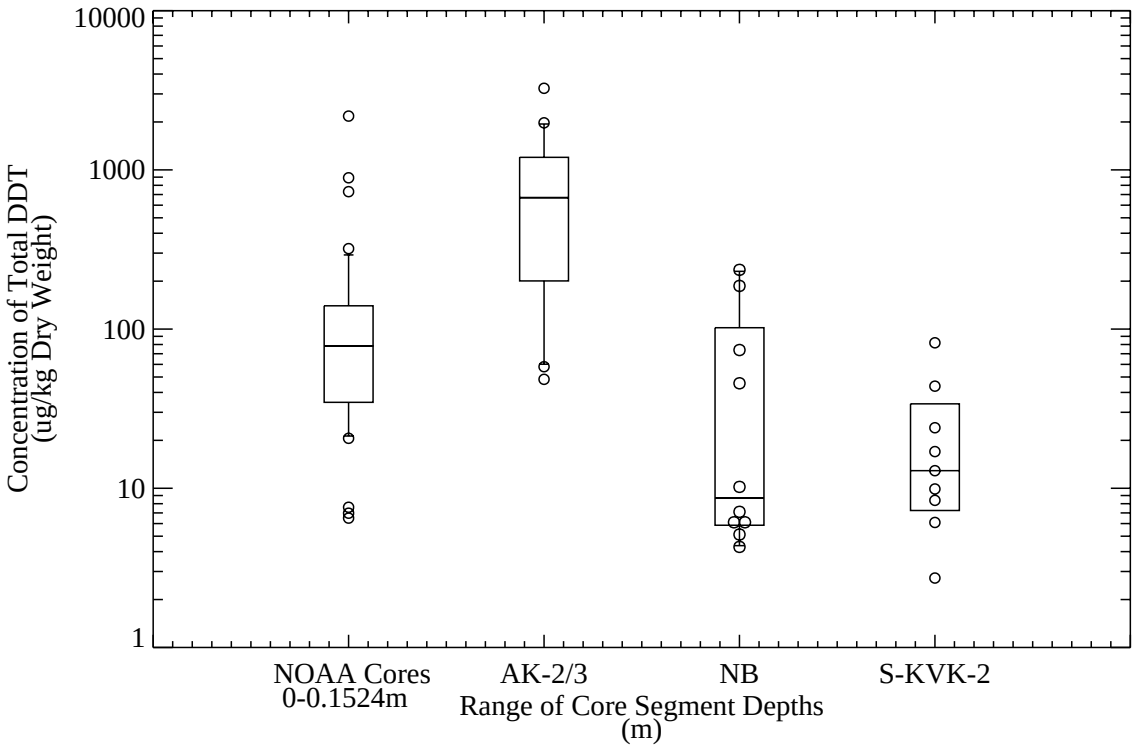


Figure 4c. Average Contaminant Concentrations (ug/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: Benzo(a)pyrene (PAH)

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



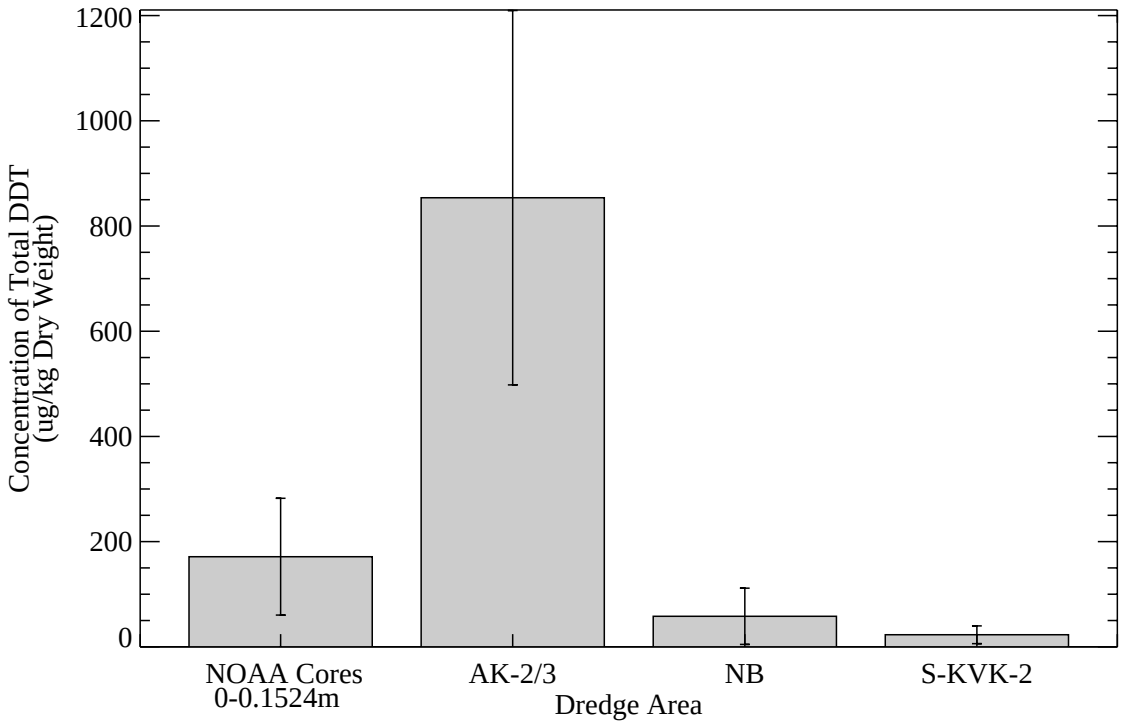
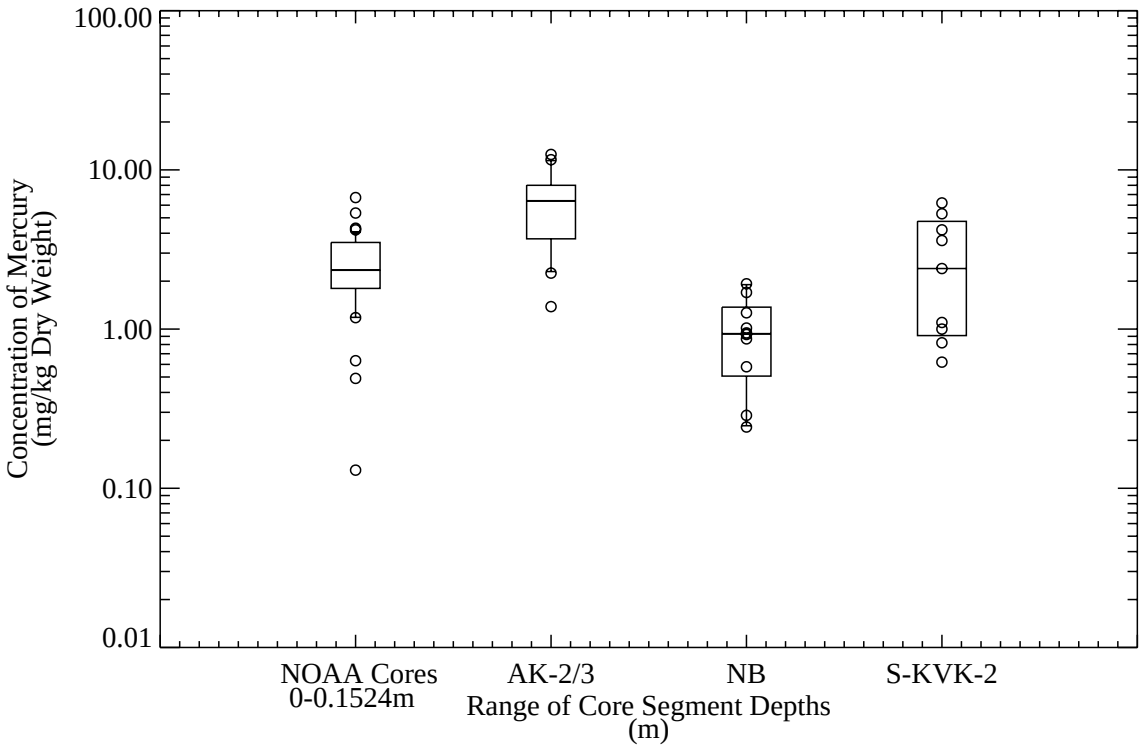


Figure 4d. Average Contaminant Concentrations (ug/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: Total DDT

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



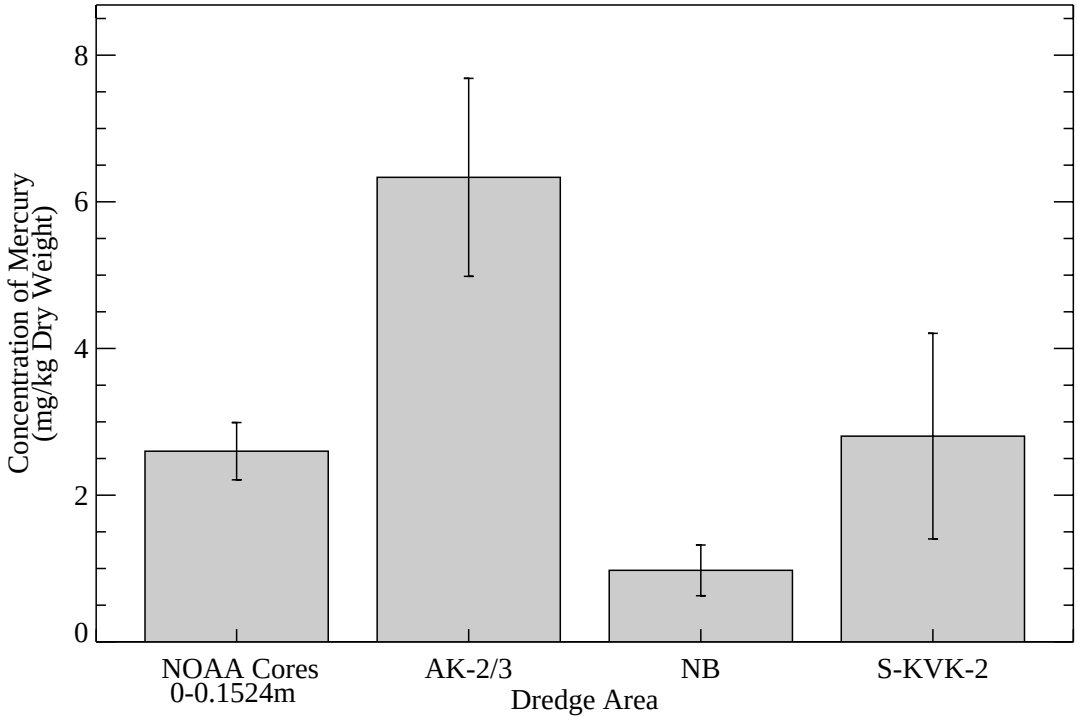
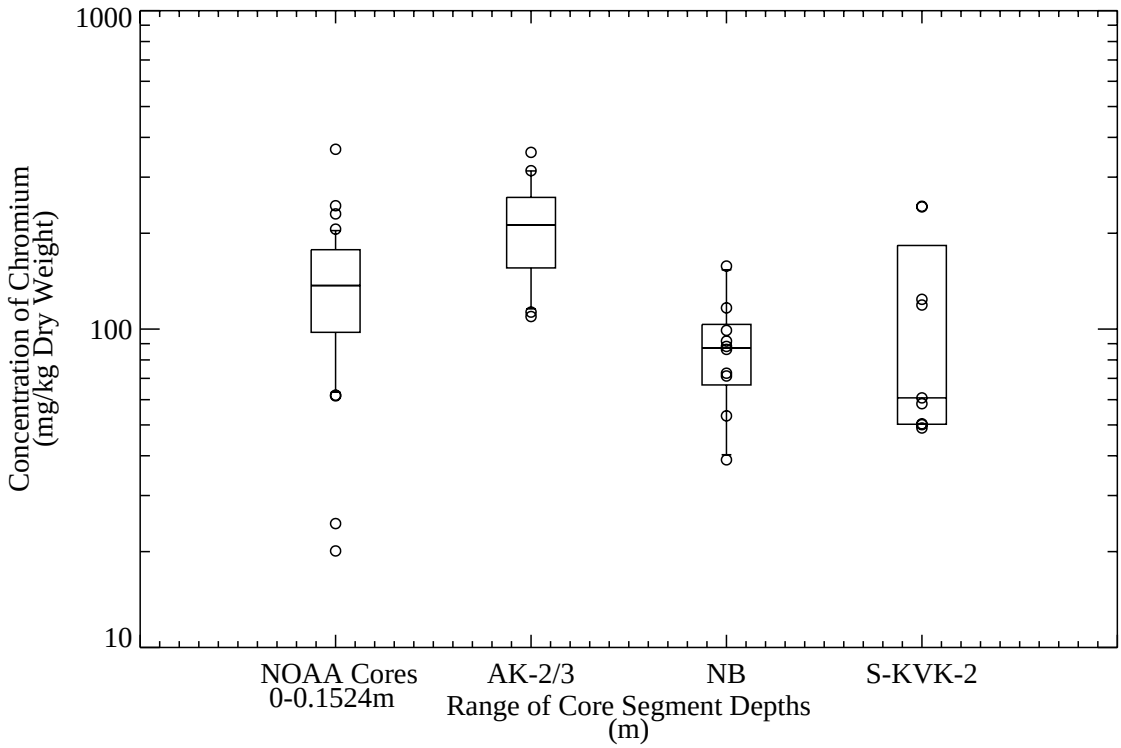


Figure 4e. Average Contaminant Concentrations (mg/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: Mercury

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP



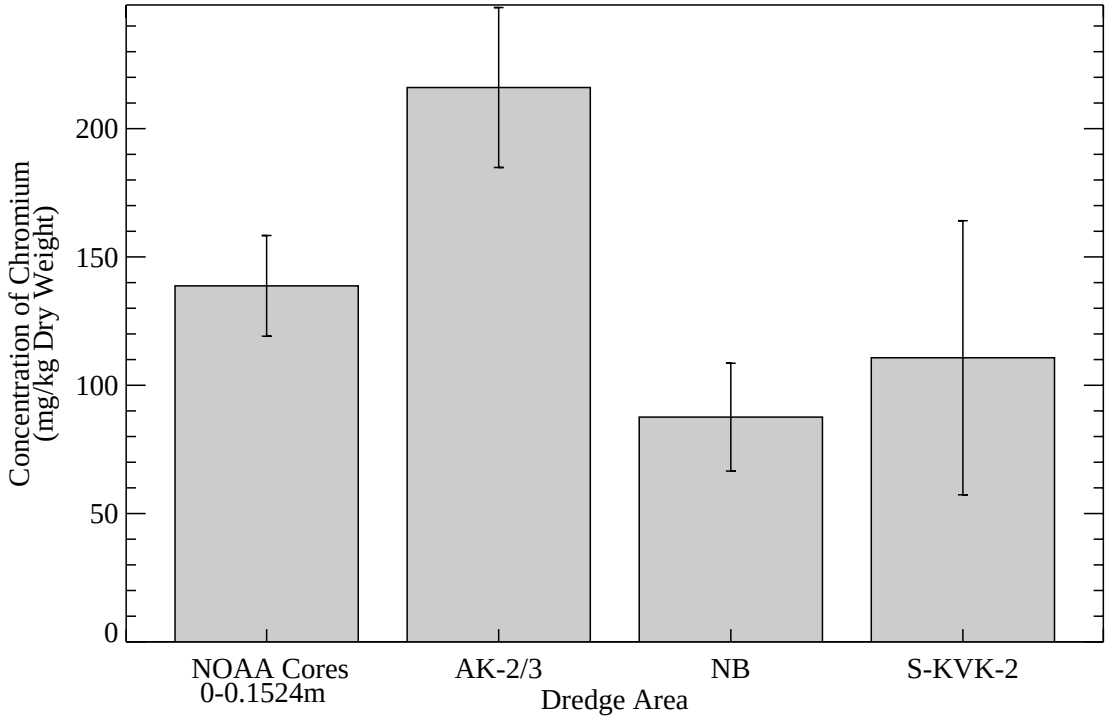


Figure 4f. Average Contaminant Concentrations (mg/kg Dry Weight) of Surface Sediments Compared with USACE Cores for each Dredge Area: Chromium

No data samples had a core depth greater than 2 m
S-KVK-2 bar includes two samples outside of the NBSA

Data Sources: NOAA NS&T 91/93, Maxus 90/91/92/93, EPA Newark Bay 97/98/99, EPA Sediment Sampling 99, REMAP 93/94/98/99, CARP