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32ND ANNUAL REPORT
RECEIVING WATER MONITORING PROGRAM
LAVACA BAY
MAY 2024 TO MAY 2025
CALHOUN COUNTY, TEXAS

Prepared for:

Formosa Plastics Corporation
Point Comfort, Texas

Prepared by:

Freese and Nichols, Inc.
10431 Morado Circle
Suite 300
Austin, Texas 78759

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Acronyms and Abbreviations

ASTM	American Society for Testing and Materials
°C	degrees Celsius
COC	chain-of-custody
COD	chemical oxygen demand
EH&A	Espey, Huston & Associates
EPA	U.S. Environmental Protection Agency
FNI	Freese and Nichols, Inc.
FPC	Formosa Plastics Corporation Texas
fps	feet per second
IC-PMS	Inductively Coupled Plasma-Mass Spectrometry
km	kilometers
L	liters
m^2	square meter
m^3	cubic meter
MAL	method analytical limit
MDL	method detection limit
mg/kg	milligram per kilogram
mg/L	milligram per liter
ml	milliliter
mm	millimeter
NPDES	National Pollutant Discharge Elimination System
NWDLS	North Water District Laboratory Services, Inc.
ppt	parts per thousand
SH	State Highway
s.u.	standard units
SWQM	Surface Water Quality Monitoring
TCEQ	Texas Commission on Environmental Quality
TDS	total dissolved solids
TNRCC	Texas Natural Resource Conservation Commission
TOC	total organic carbon
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
WQS	Water Quality Standard
µm	micron
µg/kg	microgram per kilogram

1.0 INTRODUCTION

The Formosa Plastics Corporation, Texas (FPC) Point Comfort facility is located near the eastern shore of Lavaca Bay. The wastewater discharge from the FPC complex is in Lavaca Bay at approximately Channel Marker 22. To ensure adequate dilution occurred at the discharge, calculations were conducted and FPC constructed a diffuser through which the discharge would occur. The diffuser was constructed in June and July 1993 and discharge began on September 22, 1993. The Receiving Water Monitoring Program was established to meet the objectives of the Texas Commission on Environmental Quality (TCEQ, formerly the Texas Natural Resource Conservation Commission [TNRCC]) and the U.S. Environmental Protection Agency (EPA) as outlined in TCEQ Wastewater Permit #02436, EPA Permit #TX0085570.

In May 1993, a Scope of Work (Scope), entitled *Receiving Water Monitoring Program, Scope of Work for the Formosa Plastics Corporation, TX, Point Comfort, Texas Facility* for the Receiving Water Monitoring Program, Lavaca Bay (Monitoring Program) was submitted to the Texas Water Commission (now the TCEQ) to satisfy the permit requirements. Minor revisions were requested and made, and the Scope was resubmitted in July 1993. Final written approval of the Scope from the TCEQ was dated 8 September 1993. Upon review of the First and Second Annual Reports, FPC requested and was granted certain provisions for revising the Scope via a letter from TCEQ dated 17 January 1996 (Espey, Huston & Associates, Inc. [EH&A, now Atkins (formerly PBS&J)], 1996a). The new Scope was resubmitted in April 1996 with final approval at an 11 April 1996 meeting attended by personnel from FPC, TCEQ, and EH&A. Upon review of the Third and Fourth Annual Reports, FPC requested and was granted certain provisions for revising the Scope via verbal communications stemming from a meeting (2 July 1997) attended by personnel from FPC, TCEQ, and EH&A. The new Scope was resubmitted in July 1997, verbally approved by TCEQ, and the July and October 1997 trips were sampled accordingly. Upon further deliberation, TCEQ requested that FPC revert back to the April 1996 Scope to avoid the possibility of a permit amendment. Therefore, the final two monitoring trips for the 5th year of monitoring (January and April 1998) were conducted according to the April 1996 Scope. Since the 5th year of monitoring, all work has been conducted according to the April 1996 Scope.

1.1 OBJECTIVES

According to the Receiving Water Monitoring Program outline received from the TCEQ, the objectives of the Monitoring Program are to:

1. Establish baseline background conditions in Lavaca Bay in the area that will receive the Outfall 001 discharge.
2. Monitor the health and structure of the biological community in the vicinity of the Outfall 001 discharge.
3. Monitor the water and sediment quality in the vicinity of the Outfall 001 discharge.

4. Evaluate compliance with the Texas Surface Water Quality Standards (Texas Administrative Code Chapter 307).
5. Monitor fish and shellfish tissue constituent concentrations for animals in the vicinity of the Outfall 001 discharge to assess any potential human health risks.
6. Comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) Sampling and Analysis Program.

The Scope outlined the chemical and biological sampling and analyses that would be accomplished at the stations listed in figures 1-1 and 1-2 and Table 1-1, in an effort to determine whether there were any impacts from FPC's discharge, via the pipeline and diffuser (Outfall 001), into Lavaca Bay. Sampling stations were established based on the knowledge of the general circulation patterns in this area of Lavaca Bay, definitions of the Zone of Initial Dilution and the Mixing Zone, and requirements of the TCEQ and EPA. A-, B-, C-, D-, and R-station series form rings around the diffuser at varying distances with a total of four stations per ring, except the D-stations which only have three. Four sampling locations at each ring allows for accurate scientific replicates. Reference stations (R1–R4) are well away from the FPC discharge and function as comparative stations to the routine monitoring stations.

The Scope also addressed the requirements of an agreement between Jim Blackburn and FPC. These items, which were in addition to the TCEQ and EPA permit requirements, are:

1. Discharges from Outfall 001 will not result in "measurable impact on the aquatic resources of Lavaca Bay beyond the applicable 200-foot chronic mixing zone."
2. FPC will fund (1) a "baseline survey of environmental quality within Lavaca Bay" and (2) a yearly monitoring program to determine the "quality, benthic structure, planktonic structure, and higher trophic levels" of Lavaca Bay.
3. FPC will remedy any degradation of the "aquatic resources" of Lavaca Bay, beyond the 200-foot chronic mixing zone, which is caused by discharge from Outfall 001.

The Scope was subsequently distributed to interested parties, although portions of it are included, or summarized, in this report for ease of reference.

1.2 SCOPE

The Scope indicated that two baseline sampling trips would be accomplished before there was any discharge from the outfall, although it was noted, in meetings with the TCEQ and others, that two sampling efforts could not establish a "baseline" and that impact analyses would, of necessity, be predicated on temporal and spatial trend analyses. In actuality, three baseline sampling trips were conducted for FPC, by EH&A. The trips conducted to date are shown in the following table.

Sampling Trips by Date

Monitoring	Dates/Annual Report	Monitoring	Dates/Annual Report
Year 1	First Annual Report	Year 8	Eighth Annual Report
Baseline		Trip 32	17–20 July 2000
Trip 1	19–26 May 1993	Trip 33	16–20 October 2000
Trip 2A	26–29 July 1993	Trip 34	22–25 January 2001
Trip 2B	21–22 September 1993	Trip 35	9–12 April 2001
Post-Discharge		Year 9	Ninth Annual Report
Trip 3	11–13 October 1993	Trip 36	23–26 July 2001
Trip 4	6–8 December 1993	Trip 37	22–26 October 2001
Trip 5	21–25 February 1994	Trip 38	21–24 January 2002
Trip 6	18–22 April 1994	Trip 39	15–18 April 2002
Year 2	Second Annual Report	Year 10	Tenth Annual Report
Trip 7	20–24 June 1994	Trip 40	29 July–1 August 2002
Trip 8	23–25 August 1994	Trip 41	17–17 October 2002
Trip 9	17–26 October 1994	Trip 42	13–16 January 2003
Trip 10	16–19 January 1995	Trip 43	21–24 April 2003
Trip 11	17–20 April 1995	Year 11	Eleventh Annual Report
Year 3	Third Annual Report	Trip 44	28–31 July 2003
Trip 12	24–27 July 1995	Trip 45	20–23 October 2003
Trip 13	16–19 October 1995	Trip 46	19–22 January 2004
Trip 14	15–18 January 1996	Trip 47	19–22 April 2004
Trip 15	15–19 April 1996	Year 12	Twelfth Annual Report
Year 4	Fourth Annual Report	Trip 48	26–29 July 2004
Trip 16	15 –19 July 1996	Trip 49	18–21 October 2004
Trip 17	14–17 October 1996	Trip 50	24–27 January 2005
Trip 18	20–24 January 1997	Trip 51	25–28 April 2005
Trip 19	21–24 April 1997	Year 13	Thirteenth Annual Report
Year 5	Fifth Annual Report	Trip 52	25–28 July 2005
Trip 20	21–23 July 1997	Trip 53	10–13 October 2005
Trip 21	20–22 October 1997	Trip 54	23–26 January 2006
Trip 22	19–22 January 1998	Trip 55	17–21 April 2006
Trip 23	20–23 April 1998	Year 14	Fourteenth Annual Report
Year 6	Sixth Annual Report	Trip 56	17–20 July 2006
Trip 24	20–23 July 1998	Trip 57	16–19 October 2006
Trip 25	27–30 October 1998	Trip 58	15–18 January 2007
Trip 26	18–22 January 1999	Trip 59	9–12 April 2007
Trip 27	17–21 May 1999	Year 15	Fifteenth Annual Report
Year 7	Seventh Annual Report	Trip 60	23–26 July 2007
Trip 28	22–23 September 1999	Trip 61	22–25 October 2007/ 5-6 Nov 2007
Trip 29	8–11 November 1999	Trip 62	14–17 January 2008
Trip 30	10–13 January 2000	Trip 63	21–24 April 2008
Trip 31	3–7 April 2000		

Sampling Trips by Date (concluded)

Monitoring	Dates/Annual Report	Monitoring	Dates/Annual Report
Year 16	Sixteenth Annual Report	Year 25	Twenty-Fifth Annual Report
Trip 64	21–24 July 2008	Trip 100	10–13 July 2017
Trip 65	20–23 October 2008	Trip 101	23–25 October 2017
Trip 66	19–22 January 2009	Trip 102	16–19 January 2018
Trip 67	6–9 April 2009	Trip 103	2–5 April 2018
Year 17	Seventeenth Annual Report	Year 26	Twenty-Sixth Annual Report
Trip 68	13–16 July 2009	Trip 104	23–26 July 2018
Trip 69	19–22 October 2009	Trip 105	13–16 November 2018
Trip 70	18–21 January 2010	Trip 106	14–17 January 2019
Trip 71	5–8 April 2010	Trip 107	1–4 April 2019
Year 18	Eighteenth Annual Report	Year 27	Twenty-Seventh Annual Report
Trip 72	26–29 July 2010	Trip 108	22–25 July 2019
Trip 73	25–28 October 2010	Trip 109	7–10 October 2019
Trip 74	17–20 January 2011	Trip 110	20–23 January 2020
Trip 75	4–7 April 2011	Trip 111	30 March–2 April 2020
Year 19	Nineteenth Annual Report	Year 28	Twenty-Eighth Annual Report
Trip 76	25–28 July 2011	Trip 112	27–30 July 2020
Trip 77	17–20 October 2011	Trip 113	7–10 December 2020
Trip 78	23–26 January 2012	Trip 114	18–21 January 2021
Trip 79	2–5 April 2012	Trip 115	30 March–1 April 2021
Year 20	Twentieth Annual Report	Year 29	Twenty-Ninth Annual Report
Trip 80	23–26 Jul 2012/31 Jul–1 Aug 2012	Trip 116	12–15 July 2021
Trip 81	15–18 October 2012	Trip 117	25–28 October 2021
Trip 82	21–24 January 2013	Trip 118	10–13 January 2022
Trip 83	1–4 April 2013	Trip 119	4–7 April 2022
Year 21	Twenty-First Annual Report	Year 30	Thirtieth Annual Report
Trip 84	19–22 August 2013	Trip 120	1–4 August 2022
Trip 85	21–24 October 2013	Trip 121	12–15 December 2022
Trip 86	20–23 January 2014	Trip 122	6–9 February 2023
Trip 87	31 March–3 April 2014	Trip 123	3–6 April 2023
Year 22	Twenty-Second Annual Report	Year 31	Thirty First Annual Report
Trip 88	6–9 October 2014	Trip 124	17–20 July 2023
Trip 89	10–13 November 2014	Trip 125	28–29 November / 4–7 December 2023
Trip 90	19–22 January 2015	Trip 126	5–8 February 2024
Trip 91	6–9 April 2015	Trip 127	1–4 April 2024
Year 23	Twenty-Third Annual Report	**Year 32**	**CURRENT YEAR**
Trip 92	20–23 July 2015	Trip 128	15–18 July 2024
Trip 93	19–22 October 2015	Trip 129	14–17 October 2024
Trip 94	11–14 January 2016	Trip 130	3–6 February 2025
Trip 95	4–7 April 2016	Trip 131	31 March–3 April 2025
Year 24	Twenty-Fourth Annual Report		
Trip 96	31 October–3 November 2016		
Trip 97	5–8 December 2016		
Trip 98	16–19 January 2017		
Trip 99	3–6 April 2017		

The activities conducted during the 32nd year sampling trips are presented in tables 1-2 through 1-5. The data from the 32nd year sampling trips have been reduced and are the subject of this report. In addition, upon request of the TCEQ, the chemistry data from all trips have been evaluated in this report by temporal trend analysis.

The chemical measurements to be taken during sampling were categorized into the following related suites in the Scope:

Suite I: In situ physio-chemical parameters

Suite II: Conventional water/porewater chemistry parameters

Suite III: Conventional sediment chemistry parameters

Suite IV: Priority pollutant parameters

A. Metals (total and dissolved except for Trip 1, May 1993 – total metals only)
B. Volatile Organics
C. Pesticides and PCBs (deleted by the revised Scope after Trip 14, January 1996)
D. Base Neutrals

A breakdown of each suite is detailed in tables 1-6 through 1-9. Suite I parameters are included in Table 1-6. These include the Standard or Routine Parameters: temperature, conductivity, salinity, pH, and dissolved oxygen, plus some physical conditions at each station. Suites II and IV apply to water and porewater. Tables 1-7 and 1-8, respectively, present the parameters contained in suites II and IV, along with methods used, the method analytical limits (MALs), and the method detection limits (MDLs). Similarly, suites III and IV apply to sediment and tissue samples. Table 1-9 presents the parameters contained in suites III and IV, along with methods used, the MALs, and the MDLs. These tables cross-reference the analytical methods, method MDLs, and MALs that will be applicable throughout the remainder of the Monitoring Program. While there is some overlap between suites II and III, as noted above, they are specific for water and porewater, or sediments and tissue.

Chemical analyses for all parameters in tissue samples were conducted by North Water District Laboratory Services, Inc. (NWDLS), Conroe, Texas. The permits required that 10 percent of all samples be replicated and sent to an independent laboratory. The independent laboratory for the 32nd year of monitoring was A&B Labs, Houston, Texas.

As noted above, biological samples were also collected. Nekton (trawl) and benthic macroinvertebrates were collected from fixed locations in upper Lavaca Bay during the period July 2024 through March/April 2025 by Freese and Nichols, Inc. (FNI). As per the April 1996 Scope, phytoplankton, zooplankton, and mobile organism tissue sampling were conducted during the October 2024 (Trip 129) and March/April 2025 (Trip 131) trips.

Sample analysis for the various types of samples was as follows:

Nekton	FNI
Ichthyoplankton	Dr. Greg Stunz, Texas A&M University–Corpus Christi, Corpus Christi, Texas
Benthos	Dr. Jerry McLelland, University of Southern Mississippi, Gulf Research Laboratory, Ocean Springs, Mississippi
Phytoplankton	FNI
Zooplankton	FNI

Due to the lack of availability of the species used for bioassays as outlined in the April 1996 Scope, a change of species was requested from *Ampelisca abdita* to *Leptocheirus plumulosus* and *Cyprinodon variegates* to *Menidia beryllina* (inland silverside), this request was approved by TCEQ in April 2006. *A. abdita* and *L. plumulosus* are both burrowing amphipods, included as preferred organisms in the Inland Testing Manual (EPA/U.S. Army Corps of Engineers [USACE], 1998), but *A. abdita* are routinely difficult to collect in the spring because of their life cycle. *M. beryllina* is the preferred fish for most TCEQ-required bioassays. *L. plumulosus*, *M. beryllina*, and *Americamysis bahia* (mysids, opossum shrimp) bioassays were conducted in March/April 2025. All bioassays were conducted at the NWDLS Toxicology Laboratory, Houston, Texas (note: formerly Atkins Environmental Toxicology Laboratory).

As of November 2024, Texas A&M Trace Elements Research Laboratory, which had been conducting the fish and shellfish tissue analysis for arsenic, chromium, and zinc since the inception of the monitoring program (as per the permit requirements) was decommissioned and no longer able to process and analyze the samples. Moving forward, fish and shellfish tissue samples will be analyzed using Inductively Coupled Plasma-Mass Spectrometry (IC-PMS), rather than Instrumental Neutron Activation Analysis. TCEQ was notified and acknowledged this change in November 2024.

1.3 32ND ANNUAL REPORT SUMMARY

In this report, both spatial and temporal trend analyses were conducted to examine the water and sediment chemistry data. As discussed in detail in Section 5.1, no adverse impacts have been noted in the water, porewater, or sediment quality of Lavaca Bay in the vicinity of the outfall. The biological analyses are discussed in detail in Section 5.2. As can be determined by an examination of the results discussed in sections 5.1 and 5.2, the Monitoring Program, to date, indicates that there are no adverse impacts to the health or structure of the biological community, including the quality, benthic structure, planktonic structure, and higher trophic levels in Lavaca Bay.

2.0 ENVIRONMENTAL SETTING

Lavaca Bay is a component of the Matagorda Bay system, which is the second largest estuarine system on the Texas Gulf Coast (Yamada and Armstrong, 1982). Lavaca Bay is located approximately 200 kilometers (km) southwest of Galveston and 140 km northeast of Corpus Christi. The Lavaca Bay estuary supports a valuable commercial and recreational fishery, which encourages a thriving tourism industry. In addition, important nursery habitat and marsh environments are provided by the Matagorda Bay system. The coastal region surrounding Lavaca Bay has a low population density compared with other systems along the Texas Gulf Coast.

The State Highway (SH) 35 bridge at Noble Point divides Lavaca Bay into upper and lower regions. The existing SH 35 causeway, the remains of the old causeway, and Chicken Reef restrict water movements and thus contribute to the difference in habitats between the upper and lower parts of the bay. The majority of the freshwater flow into Lavaca Bay is provided by the Lavaca and Navidad rivers. The surface area of the system is approximately 16,576 hectares, which includes Lavaca Bay proper (upper and lower), Keller Bay, Chocolate Bay, and Cox Bay (White et al., 1989). Lavaca Bay is generally very shallow with the presence of numerous reefs and shoals. These shallow conditions greatly reduce the tidal activities within the bay. However, the circulation in this shallow embayment is forced by a combination of parameters, all of which create a complex, highly variable hydrodynamic system.

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3.0 CHEMICAL ASSESSMENTS

Detailed materials and methods were specified in the Scope. A brief summary is included in this section.

3.1 COLLECTION METHODOLOGY

3.1.1 Water

Water samples (except those for metals analysis) were collected with a non-contaminating, submersible plastic pump that was slowly lowered and raised through the water column to provide a vertically integrated composite sample. Water was pumped directly into sample containers that had been cleaned by the chemistry contractor and, where appropriate, contained the proper laboratory-provided preservatives. Samples for both dissolved and total metals analyses were collected by a peristaltic variable-speed sampling pump equipped with tubing designed for inorganic sample collection. Dissolved metals samples, except for mercury and selenium, were field filtered through a 0.45-micron (µm) filter cartridge. Collection was from the bow of an anchored boat. All water samples were stored in ice chests and cooled with crushed ice until transported to a walk-in cooler or to the chemistry contractor. Strict chain-of-custody (COC) procedures were followed. Holding times met the limitations noted in the Scope.

At least 10 percent of sample stations per trip were triplicated: (1) one set of samples was treated normally; (2) one set of samples was assigned a different station number and submitted to the chemistry contractor to determine handling, preservation, transport, and analysis variation; and (3) one set was submitted to an independent laboratory.

Currents were determined by two methods: direction was determined with a neutrally buoyant drogue, and speed was determined with a Hach FH950 Portable Velocity Meter.

3.1.2 Porewater

The large quantities of sediment required for porewater extraction were stored in clean, 3.5-gallon plastic buckets, filled to overflowing, and sealed to exclude air. Porewater samples were extracted from sediments with PVC pressure chambers equipped with 5.0-µm polyester filters, following the techniques utilized by the U.S. Fish and Wildlife Service laboratory in Port Aransas, Texas. After extraction, porewater was chilled to ≤4 degrees Celsius (°C) and/or treated with the appropriate preservative. Holding times for chemical samples met the limitations noted in the Scope after extraction. While not all porewater samples could be extracted within the Scope recommended holding time of 2 weeks for sediments because of the slowness of the extraction, it is noted in EPA (1994b) that "storage of sediment samples for several months at 4°C did not result in significant changes in chemistry or toxicity (T. Dillon and H. Tatum, USACE, Vicksburg, Mississippi, personal communication; G.T. Ankley and D. Foe, EPA, Duluth, Minnesota, unpublished data). Recommended holding times range from less than two (EPA, 1994a) to less than eight weeks (EPA/USACE, 1998)." At least 10 percent of porewater samples were also triplicated.

3.1.3 Sediment

Sediment samples were collected with a stainless posthole digger. The posthole digger was rinsed between each station with acetone, Alconox, and deionized water. All sediment for chemical analyses was removed from the posthole digger with a clean stainless-steel spoon, avoiding the edges and bottom of the device, and placed into air-tight glass jars, provided by the chemistry contractor, filled to beyond capacity, sealed to exclude air, and stored at 2–4°C until delivered to the chemistry contractor. Strict COC procedures were followed. As noted above, the large quantities of sediment required for porewater extraction were stored in clean, 3.5-gallon plastic buckets, filled to overflowing, and sealed to exclude air. Holding times for sediment samples met the limitations noted in the Scope. At least 10 percent of sediment samples were also triplicated.

3.1.4 Tissue

Oyster samples were collected during October 2024 (Trip 129) and March/April 2025 (Trip 131). Mobile organisms were collected during March/April 2025 (Trip 131). Muscle (edible filet) and internal organs from Hardhead Catfish (*Arius felis*) (minimum of 10 inches in total length) were analyzed for Suite IV compounds.

3.1.4.1 Fish

Procedures for capture, handling (including compositing), procurement, and preparation of tissues were as delineated in Chapter 7 of TCEQ (2012). All organisms were collected from the gill nets. For tissue collections, the species; length; weight; and evidence of pathogens, parasites, or abnormalities of the sacrificed organisms were recorded. It was intended that at least three individuals would contribute to each sample for each species (200 grams, minimum, 300 grams preferable). Both edible (muscle) and non-edible organ (liver, gonads, eggs, gills, kidneys) tissue were analyzed except that whole, shucked oysters were analyzed for the metals and organics listed in Suite IV (Table 1-9).

3.1.4.2 Oyster

As per the Scope and to specifically respond to the NPDES monitoring program, four artificially established oyster sites located at stations C1, C2, and C3 (600-foot radius from Outfall 001; figures 1-1 and 1-2), plus another sample station (R5) on the nearest natural reef were sampled. The oysters, in cages, were placed on site at least 28 days prior to collection. Oyster samples were collected during October 2024 (Trip 129) and March/April 2025 (Trip 131). Conducting oyster monitoring during the spring trip, in addition to the fall trip, was a provision requested by FPC and granted by TCEQ. At least 10 percent of all tissue samples were also triplicated, if the quantity collected allowed.

3.2 DATA COLLECTION (FIELD FORMS)

Data forms are constructed such that, when they are completely filled out, all portions of the sampling program will have been completed and documented. The forms are printed on waterproof paper and bound by sampling trip. One set is designed for use by the personnel that have responsibility for the chemistry samples and benthos (Chemistry Suite Crew), excluding tissue samples and another set of sample forms is designed for use by the personnel that have responsibility for biological samples (Biological Suite Crew), excluding benthos.

3.3 STATISTICAL ANALYSES

Statistical analyses required for data interpretation included the calculation of correlation coefficients (R^2 values) and projection of linear fit lines for grain size and sediment chemistry parameters. The remaining statistics discussed in Section 4.5 of the Scope were not necessary for the interpretation of 32nd year chemistry data.

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4.0 BIOLOGICAL ASSESSMENTS

4.1 COLLECTION METHODOLOGY

Since all the stations are open-water stations, the following sampling gear and techniques were utilized:

4.1.1 Nekton/Epifauna

Gear:
1) 3-meter otter trawl with ¼-inch mesh cod end
2) 150-foot by 8-foot, 6-panel, experimental gill nets with 2-, 3-, 4-, 5-, 6-, and 7-inch stretch mesh panels

The otter trawl was towed for 5 minutes at approximately 2 miles per hour. A flow meter was utilized to determine the distance traveled during each trawl. The area sampled by each trawl was approximately 900–1,000 linear feet by approximately 10-foot width. Trawl samples were preserved in 10 percent formalin and transported to the FNI laboratory for analysis. Data were collected from a representative number of specimens from each species.

Gill nets were set overnight and collected the following morning. These nets are designed to capture larger, more mobile species than the trawl. Single net sets were made at the same station locations where trawl samples were collected. Organisms collected in gill nets were processed (identified, enumerated by species, measured, and weighed) in the field.

4.1.2 Plankton

4.1.2.1 Ichthyoplankton

Gear: #505 mesh, 18-inch-diameter, 7:1 length-to-mouth ratio tow net with throat-mounted flow meter

Ichthyoplankton tows were made at all stations sampled by trawl and gill nets and towed obliquely over the 5-minute period. Ichthyoplankton samples were preserved in 10 percent formalin and transferred to 70 percent ethanol, plus glycerin after hardening. Upon arrival in Austin, FNI personnel shipped the samples and COC forms to Texas A&M University–Corpus Christi.

4.1.2.2 Phytoplankton

Gear: Non-contaminating pump

Phytoplankton samples were collected by pumping 2 liters (L) of water into a clean container, via a non-contaminating pump that was slowly raised and lowered, back and forth, from the surface to a depth of 1 meter. At the outfall location, stations B1, B2, B3, and B4 each represent one of the four replicate samples. At the reference stations (R1 through R4), the four replicates were collected from four locations equally spaced along a 200-foot radius from the station. Each phytoplankton sample was preserved with acid Lugols solution to a final concentration of 1 percent. Phytoplankton samples were transported to the FNI laboratory and stored in the dark until analysis.

4.1.2.3 Zooplankton

Gear: #20-(80-µm) mesh plankton net

At each station, a zooplankton sample consisted of four replicates, each representing 48 L of water collected from the surface with a clean bucket and measured after passing through a #20-(80-µm) mesh plankton net. At the outfall location, stations B1, B2, B3, and B4 each represented one replicate sample for that location. At the reference stations (R1 through R4), the four replicates were collected from four locations evenly spaced along a 200-foot radius from the station. Zooplankton samples were preserved with acid Lugols solution to a final concentration of 1 percent. Zooplankton samples were transported to the FNI laboratory and stored in the dark until analysis.

4.1.2.4 Benthos

Gear: 6-by-6-inch Ekman dredge

Because of the small area collected by the Ekman dredge (0.023 square meters [m^2]), individual stations for benthos were established at a greater number of stations than for other gear types. Three Ekman dredge samples were collected from each station and composited for the 32nd year of monitoring. All benthic samples were field washed through a #30 mesh screen prior to preservation in the field with 10 percent formalin. Once the organisms had been picked from the sample, they were stored in 70 percent ethanol, plus glycerin. Upon arrival in Austin, FNI personnel shipped the samples and COC forms to Dr. Jerry McLelland.

4.2 DATA COLLECTION (FIELD FORMS)

Data forms are constructed such that all portions of the sampling program will have been completed and documented. The forms are printed on waterproof paper and bound by sampling trip. One set is designed for use by the personnel that have responsibility for the chemistry samples (Chemistry Suite Crew), excluding tissue samples and another set of sample forms is designed for use by the personnel that have responsibility for biological samples (Biological Suite Crew), excluding benthos.

4.3 IDENTIFICATION

For all organisms collected, identification was to the lowest practical taxon. Taxonomic references are included in Section 7.0.

4.3.1 Nekton/Epifauna

The total number by species, standard length for fish, carapace width for crabs, tip of rostrum to tip of telson length for shrimp, and body weight were recorded. For abundant fish species, specific length and weight for a minimum of 25 individuals were recorded. Total weight by species was recorded.

4.3.2 Plankton

4.3.2.1 Ichthyoplankton

For ichthyoplankton samples, only fish, shrimp, and crab species were assessed. For very abundant juvenile fish, shrimp, and crabs, the total number was estimated from volumetric aliquots; at least three 50-milliliter (ml) aliquots were counted. The length of 25 individuals of the most abundant 10 taxa was measured by ocular micrometer where necessary.

4.3.2.2 Phytoplankton (and Small Zooplankton)

Samples are received from the field where they were preserved with acid Lugols solution. The laboratory procedures for processing phytoplankton and small zooplankton (generally less than 80 µm in greatest dimension) samples are as follows:

1. Sample is received in a 125-ml wide-mouth, clear glass bottle. Bottles contain 40 to 80 ml of sample preserved with acid Lugols solution.
2. Sample mixed thoroughly by gently swirling the sample bottle and bubbling air through the sample with a pipette. This is intended to minimize the number of specimens adhering to the glass sides or bottle top above the liquid level which would occur if the bottle is inverted multiple times.
3. 2.2 ml of sample placed in a Utermöhl sedimentation chamber with a plastic pipette with a 2 millimeter (mm) wide mouth for analysis with an inverted microscope.
4. Sample settled for at least 4 hours. The acid Lugols preservative facilitates settling.
5. Counting involves a combination of the methods described below. The goal is to count at least 200 natural counting units:
    a. Identify and count large phytoplankton (e.g., *Coscinodiscus*, *Oscillatoria*) and small zooplankton (e.g., ciliated protozoa) in the entire 2.2 ml sample at 100x magnification in the sedimentation chamber. If there are very high numbers of organisms, a subsample of the chamber may be counted, for example, counting abundant organisms in half the sedimentation chamber instead of the whole chamber or in 10 to 30 randomly selected 1-mm square quadrats.
    b. Identify and count smaller phytoplankton and zooplankton too small to be typically retained by a plankton net. These organisms are usually less than approximately 50 micrometers in their greatest dimension. They are counted in a 17-mm long transect of the viewing field across the middle of the sedimentation chamber. The transect is 0.1

mm high at 1000x magnification. If there are very high numbers of organisms, a subsample may be counted. For example, abundant organisms may only be counted in an 8.5-mm long transect instead of a 17-mm long transect across the middle of the sedimentation chamber.

   c. Identify and count very small phytoplankton, typically smaller than 2 micrometers, (e.g., *Synechocystis*) in five randomly selected quadrats that are 100 µm wide and 100 µm high along a transect across the sedimentation chamber at 1000x magnification.

6. Density is expressed as the number of natural units/ml. Unicellular species are enumerated individually, colonial forms are recorded as number of discrete colonies, and filamentous forms are enumerated as number of discrete filaments (e.g., a single-celled algae is counted as one cell, a blue-green algal colony is counted as one colony, and a filament of *Chaetoceros* is counted as one filament).
7. Organisms are identified to the lowest taxonomic category possible and assigned a letter representing confidence in the taxonomic identification.
   a. A – the taxonomic identification is certain.
   b. B – the taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.
   c. C – There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, out-of-date, or there is some aspect that does not completely match the identification. The specimens in this group may also be identified as taxa of uncertain taxonomic position in the scientific literature.
8. Voucher photos are taken of one individual of most taxa counted.

4.3.2.3 Zooplankton (and Large Phytoplankton)

The laboratory procedures for processing zooplankton samples are as follows:

1. Sample is received in a 125-ml wide-mouth, clear glass bottle. Bottles contain 40 to 80 ml of sample preserved with acid Lugols solution.
2. Each sample is concentrated to about 35 ml by gently pipetting water from the surface of the sample that has settled for at least 24 hours until the volume that remains is about 35 ml.
3. Sample is mixed thoroughly by gently swirling the sample bottle and bubbling air through the sample with a pipette. This is intended to minimize the number of specimens adhering to the glass sides or bottle top above the liquid level which would occur if the bottle is inverted multiple times.
4. 1 ml of sample is removed with a wide-mouth (diameter of 2 mm) plastic pipette from the sample bottle while the sample bottle is being agitated. The 1 ml sample is placed into a 1 ml Sedgwick-Rafter cell for analysis with an inverted microscope.

5. Identify and count all zooplankton and large phytoplankton in the entire 1 ml sample at 100x magnification in the Sedgwick-Rafter cell. If there are very high numbers of organisms, the Sedgwick-Rafter cell may be subsampled by counting randomly selected transects across the Sedgwick-Rafter cell.
6. Sample volume (ml) in the sample bottle is measured in a 100-ml graduated cylinder.
7. The total volume of sample in the sample bottle equals the volume in the sample bottle plus the number of 1-ml Sedgwick-Rafter cells counted from the sample. Ex. If organisms in a 1-ml Sedgwick-Rafter cell are counted from a sample bottle and the volume of the sample in the bottle after counting the Sedgwick-Rafter cell is 29 ml, the total sample volume is 30 ml (1 ml counted in the Sedgwick-Rafter cell and 29 ml remaining in the sample bottle).
8. Density is expressed as the number of natural units/ml. For algae, unicellular species are counted individually, colonial forms are recorded as a single unit, and filamentous forms are enumerated as filaments. All zooplankton are counted as individual organisms.
9. Organisms are identified to the lowest taxonomic category possible and assigned a letter representing confidence in the taxonomic identification.
    a. A – the taxonomic identification is certain.
    b. B – the taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.
    c. C – There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, out-of-date, or there is some aspect of the identification that does not completely match the identification. The specimens in this group may also be identified as taxa of uncertain taxonomic position in the scientific literature.

4.3.3 Benthos

Each benthic sample was washed on a screen under running water to remove excess preservative. A small aliquot of the sample was dispersed in a pan with water and a stereo dissecting microscope was used to pick out all invertebrates. All picked organisms were placed into a labeled bottle with water or alcohol to cover (not allowed to dry). Insects and crustaceans were stored in alcohol, but soft-bodied specimens (e.g., cnidaria, molluscs, annelids) were usually stored in water (subsequently made into a 5 percent formalin solution) to avoid distortion, which can make identification more difficult. Additional aliquots were examined until the sample was finished. Glycerin was added to both alcohol and formalin solutions to prevent complete drying of the specimens as a result of leakage or evaporation. Each sample consisted of three composited 6-by-6-inch Ekman dredge hauls for all samples.

4.4 BIOASSAYS

4.4.1 *Leptocheirus plumulosus*

Amphipod bioassays followed the procedures provided in Section A1.3 of American Society for Testing and Materials (ASTM) E 1367-03 (ASTM, 2008). All sediment was sieved through a 1-mm screen to remove indigenous organisms that could affect the test, either through predation or putrification. Twenty amphipods were randomly distributed to each of five replicates of both the control sediment and sediment from Station B2. Control sediment was collected from the York River in Gloucester, VA and was provided by the organism vendor. Animals which did not burrow within the first 4 hours were replaced. After 10 days, the organisms were gently screened from the sediment and counted independently by two NWDLS Toxicology Laboratory personnel, and by a third if there was a difference in the first two counts.

4.4.2 *Menidia beryllina* and *Americamysis bahia*

Inland silverside (*M. beryllina*) and mysid (*A. bahia*) 7-day, short-term chronic bioassays followed the procedures provided in EPA (1994a). Ten Inland Silversides were randomly distributed to each of five replicates and five mysids were randomly distributed to each of 10 replicates of both the laboratory-prepared control water and site water from stations B2 and B4. The addition of Station B4 for water column bioassays and the deletion of all porewater bioassays were additional provisions requested by FPC and granted by TCEQ (EH&A, 1996a). All animals were cultured in-house at the NWDLS Toxicology Laboratory and only organisms within 24 hours of the same age were used. Mysids were 7 days old and minnows were 11 days old at test initiation. Both lethal (survival) and sublethal (growth) endpoints were determined. Growth was measured as the weight of the organisms after the 7-day exposure time.

4.5 STATISTICAL ANALYSES

4.5.1 Nekton

Community characterization for all benthos and trawl samples involves an evaluation of several biological community structure parameters (as discussed below) during initial data reduction, followed by pattern and classification analysis for delineation of species assemblages. Since species are distributed along environmental gradients (e.g., salinity, grain size), there are generally no distinct boundaries between communities. However, the relationships between habitats and species assemblages reflect the interactions of physical and biological factors and express the major ecological trends.

Various types of numerical indices can be used for analysis and interpretation of a biological database. Selection is based primarily on the ability of the indices to provide a meaningful summary of data, as well as their usefulness in the characterization of biological communities.

Abundance, often related to the productivity of the community, is reported as the total number of individuals per station and/or as the number of individuals per square meter, cubic meter, etc. Species richness can be reported as both the total number of taxa represented in a given station collection and/or by Margalef's Index, D (Margalef, 1958). This is estimated as $D = s\text{-}1/\ln N$, where s is the number of taxa, and N is the number of individuals in the sample.

Species diversity, which is often related to the ecological stability and environmental "quality" of the community, was estimated by the "Shannon-Weaver" Index (Margalef, 1956). The following formula has been applied, using log base e (1n):

$$H' = - \sum_{I=1}^{s} P_i(\ln P_i)$$

Where,
- s – is the number of species in the sample
- I – is the ith species in the sample, and
- P_i – is the number of individuals of the ith species divided by the total number of individuals of all species in the sample

Species diversity within a given community is dependent on both the number of taxa present (species richness) and the distribution of all individuals among those species (equitability or evenness). In order to quantify and compare the equitability of the biota to the species diversity for a given area, Pielou's Index J (Pielou, 1966) was calculated as $J = H'/\ln s$, where H' is the Index of Diversity (as calculated above), and s is the number of species in the sample.

Degradation would be evidenced by a decrease in species diversity (H') and species richness caused by the dominance of one or a few opportunistic species; i.e., those species which survive and multiply in stressed or polluted environments and replace the populations that existed before the stress or pollution reached critical levels. The abundance may or may not decrease, depending on the quality of the niche opened for the opportunistic species. While the benthos would be expected to be the most reliable indicator of degradation because of the relative immobility of most macroinvertebrates, degradation could also affect the ichthyoplankton community as well. The statistical analyses proposed for the biota are particularly adapted to distinguish shifts in populations and the opportunistic indicator species for the various communities are known. If degradation is occurring, both temporal and spatial trends should be evident. However, temporal trends must take seasonal variation into account by comparing near-discharge stations to stations farther from the discharge site, including the reference stations.

4.5.2 Phytoplankton

Density of phytoplankton too small to be consistently retained by the zooplankton net mesh is reported as number of natural units per ml of bay water. In these samples, for each taxon:

- Natural units counted in the sedimentation chamber at 100x are divided by 2.2 ml to convert the concentration of natural units to numbers per ml.

- Natural units counted in the 17 mm long and 0.1 mm high transect at 1,000x are converted to concentration of natural units per ml by multiplying the number counted by 111. This is an expansion factor calculated by dividing the area of the sedimentation chamber (415 square mm) by the area counted (1.7 square mm) and then dividing the quotient by 2.2 ml.
- Natural units counted in 5 quadrats that are 0.1 mm long and 0.1 mm high at 1,000x are converted to concentration of natural units per ml by multiplying the number counted by 3,775. This expansion factor is determined by dividing the area of the sedimentation chamber (415 square mm) by the area counted (0.05 square mm) and then dividing the quotient by 2.2 ml.
- In samples with very high abundance and in which subsampling was required, the equations used above were modified as appropriate for the area of sedimentation chamber that was counted.
- Small zooplankton concentrations counted in phytoplankton samples were multiplied by 1,000,000 to convert their concentrations from numbers per ml to numbers per cubic meter.

4.5.3 Zooplankton

Density of zooplankton and phytoplankton large enough to be consistently retained by the zooplankton net is reported as number of natural units per cubic meter of bay water. In these samples, for each taxon:

> Concentration equals the raw count for an organism (usually the number of an organism in 1 ml) multiplied by the number of ml in the sample bottle and then divided by 48 (the number of liters pumped through the plankton net) to convert the raw count for an organism to numbers per liter. The concentration per liter is multiplied by 1,000 to convert the concentration per liter to concentration per cubic meter. Phytoplankton concentrations based on counts in net plankton samples were divided by 1,000 to convert numbers per liter to numbers per ml.

4.5.4 Benthos

Macroinvertebrate densities (Number/m^2) were calculated as follows:

$$\text{Density (number/m}^2\text{)} = \text{number counted}/0.06968\ \text{m}^2$$

4.5.5 Bioassays

Since only two treatments were being compared statistically, the Student t-test was used with 2(*N*-1) degrees of freedom, if the variances were homogeneous, and (*N*-1) degrees of freedom, if the variances were heterogeneous, where *N* is the number of replicates per treatment. Homogeneity of variances was determined by Bartlett's Test or Cochran's Test (EPA/USACE, 1998).

5.0 DISCUSSION OF FINDINGS

5.1 CHEMICAL ANALYSES

There are two basic approaches that may be taken for impact analysis: (1) comparison to baseline data, and (2) trend analysis. Comparison to baseline data is difficult for an estuarine system because of the great variability present, which means that, for valid comparisons, the database must be large, encompassing many years of seasonal data. However, even if such a database is available, because of the extreme variability, it is difficult to distinguish relatively small impacts from the background noise in the system.

Therefore, trend analysis is used for impact analysis in this report. Two types of trend analyses are used: temporal (with time) and areal/spatial (with distance). For example, if a pollutant was introduced by a point-source discharge, such as FPC's Outfall 001, there could be an increase in the concentration of that pollutant with time, at any given station or station series (temporal trend), and potentially a larger increase near the diffuser than at greater distances from the diffuser (areal/spatial trend). However, because of daily tidal exchange, wind-driven currents, and freshwater inflow, a significant increase in a pollutant might not occur unless it was a high concentration. Therefore, temporal trends would not be expected, and temporal trend analyses would not likely provide useful information for water column data. However, if the data near the diffuser were collected at approximately the same time as that farther from the diffuser, there could be spatial trends in the water concentration, with decreasing concentrations of the pollutant with increasing distance from the outfall. For sediments, both temporal and spatial trends could occur since the sediments are not exchanged on a daily basis.

The chemical parameters which were not detected at Scope-specified detection limits in any sample for the 32nd year of monitoring are presented in Table 5-1. Additional parameters were detected but not in sufficient concentrations such that any purpose would be served by preparing depictions of temporal or spatial variations or conducting statistical analyses on the concentrations of these parameters. Although graphical depictions were not prepared, a discussion of these latter parameters is included in this section.

All chemical data from the 32nd year of monitoring are presented in the attached raw data sheets and in computer format. The Scope requires data submission to the TCEQ in a format that is compatible with the Surface Water Quality Monitoring (SWQM) database compiled by the TCEQ. Therefore, all data were entered in Microsoft® Excel, along with the proper Parameter Codes, which pertinent State and Federal personnel use to tag parameters, in the format used by the TCEQ (Table 5-2). This database was used to produce the temporal and spatial graphs.

5.1.1 Water

5.1.1.1 Suite I

Suite I parameters were introduced in Section 1.0 and are listed in Table 1-6. In full, Suite I include water temperature, conductivity, salinity, pH, dissolved oxygen, water depth at sampling point, observations of conditions (waves, wind, sky, antecedent weather, appearance of water), and currents (speed and direction).

Standard parameters are included in tables 5-3 through 5-6. The ranges for all parameters measured during the 32nd year of monitoring are as follows and are all within historical ranges (i.e. the range found during pre-discharge Trips 1 [May 1993] , 2A [July 1993], and 2B [September 1993]):

Temperature	–	From a low of 19.3°C in February 2025 to a high of 32.2°C in July 2024
pH	–	From a low of 7.9 standard units (s.u.) in October 2024 to a high of 8.6 s.u. in March/April 2025
Conductivity	–	From a low of 19,975 µmohs/cm in July 2024 to a high of 40,821 µmohs/cm in March/April 2025
Salinity	–	From a low of 11.3 parts per thousand (ppt) in July 2024 to a high of 26.1 ppt in February 2025
Dissolved Oxygen	–	From a low of 5.1 milligram per liter (mg/L) in July 2024 to a high of 8.3 mg/L in February 2025

Water depths are provided in tables 5-3 through 5-6. The following table provides a depth range for each series by sample event.

Sampling Depth Ranges (feet) by Date and Series

Date	A-series	B-series	C-series	R1/R2	R3	R4
July 2024	2.5-3.5	3.0-4.0	3.5-4.0	4.0-4.5	7.0	2.5
October 2024	4.0-5.0	3.5-4.0	3.5-4.0	5.0	6.0	3.0
February 2025	3.0	3.0	4.0	5.0	6.0	5.0
March/April 2025	2.5	2.5-3.0	3.0	4.0	5.6	3.1

Water depth is a complex function of tidal cycles, tide heights, wind, barometric pressure, rain, freshwater inflow, and exact location.

Data on the speed and direction of currents are in tables 5-3 through 5-6. Current direction and speed are depicted by vector arrows for each trip in figures 5-1 through 5-4. Currents data are for the direction toward which the currents were flowing and are given in feet per second (fps) (1 fps equals 0.68 miles per hour). No current speed was recorded for Trip 128 (July 2024) as the flowmeter malfunctioned during the monitoring trip.

Currents during Trip 128 (July 2024) were flowing in a southerly direction at all stations except R1 which was stationary (Table 5-3, Figure 5-1). During Trip 129 (October 2024), currents were flowing in a north easterly direction at all stations, except R4 which was flowing north (Table 5-4, Figure 5-2). During Trip 130 (February 2025), currents were flowing in a northwesterly direction at the C-series, stations A2, A4, B1, R2, and R3; a northerly direction at stations A1, A3, B2, B3, R1, and R4; and at a northeasterly direction at station B3. During Trip 131 (March/April 2025), currents were flowing in a north westerly direction at all stations (Table 5-6, Figure 5-4).

5.1.1.2 Suites II and IV

As previously mentioned, pursuant to TCEQ's request, all water and sediment chemistry parameters from all trips that were consistently found above Scope-specified detection limits were examined by temporal trend analysis. Temporal trends for porewater were not conducted because porewater lacked any notable trends during the first 6 years of monitoring, and no atypical concentrations were reported during the 32nd year of monitoring. Although temporal trends for water were conducted for all trips, spatial trend analysis has only been conducted since the 7th year monitoring effort, since spatial trends examined in previous annual reports did not change with respect to time. Some of the parameters mentioned in the first five annual reports will not be discussed because of the Scope modifications discussed in the Third Annual Report (EH&A, 1996b) and as a result of the 2 July 1997 meeting discussed in the Fifth Annual Report (EH&A, 1998).

For parameters consistently found above detection limits, the results are depicted graphically in Attachment A for water samples and are discussed below. For analysis, the A-, B-, C-series, and stations R1/R2 can be considered replicates for each series. Stations R3 and R4 are considered individually, because of their uniqueness. It should be noted that when a range of values is presented in the graphs for either stations R3 or R4, this is due to duplicate (internal and/or external) samples taken during that trip. The tabulated data, from which the graphs were generated, are included in the raw data sheets and in computer format. While the graphs were only generated for parameters that were found above detection limits and for which discussion was necessary, all data are included in the raw data sheets. The following table describes the Suite II parameters that have were above Scope-specified detection limits since the inception of the Monitoring Program.

All Suite II parameters, except ammonia nitrogen, were detected in water during the 32nd year of monitoring (Table 5-1). The parameters that are not depicted graphically either have not been detected often enough to provide useful temporal or spatial trend analysis or are not at atypical concentrations. Graphs of COD, TOC, and TSS concentrations are in Attachment A.

Suite II Detected Parameters (mg/L)

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
BOD5	<1.00	35.6	A3	27	Independent laboratory result. Next highest: 32.0 at C2, Trip 46.
Chemical oxygen demand (COD)*	<5.00	3,350	A1	28	Since Trip 91, values have remained high at all stations with values ranging from 102 to 648 (value of 648, Trip 102). Prior to Trip 91 most values were at or below 100.
Organic Nitrogen	<0.10	47.7	R4	120	Next highest: 12.3 at B2, Trip 102; 10.6 at A4 and 8.9 at A3, Trip 102; 7.0 at B3, Trip 6.
Ammonia	<0.01	1.54	B3	29	Next highest: 1.38 at C4, Trip 84; 1.31 at A4, Trip 80.
Nitrate	<0.01	10.7	A3	33	Since the inception of the program, 67 detected values ranging from 0.11 to 10.7, eighteen of the values were taken from Trip 25 and 38 from trips 33–35.
Nitrite	<0.01	0.32	C3	91	Next Highest: 0.13 at A1, Trip 77; Every station from Trip 91 ranging from 0.13-0.3.
Total Phosphorus	<0.01	77.0	C1	103	Next highest: 14.0 at A3, Trip 103; 5.43 at B3, Trip 64; 3.61 at B2, 3.35 at A4, 3.22 at C3, Trip 64.
Ortho Phosphate	<0.01	1.57	R1	116	Next highest:0.98-1.33 at all stations, Trip 116; 0.90 at B3, Trip 63; 0.75 at B2, Trip 63; 0.73 at C1, Trip 40; 0.73 at C4, Trip 83; 0.72 at C4, Trip 40.
Total organic carbon (TOC)*	<1.00	84.8	C3	18	Next highest: 47.0 at B2 and 59.9 at A2 Trip 104; 42.0 at B3, Trip 6 and A1, Trip 16.
Total suspended solids (TSS)*	<1.00	3,012	C1	19	Values greater than 260 were reported during trips 9, 18, 19, 44, and 46: flood events; and trips 47, 55, 58, 66, 67, 71, and 131.
Chlorides	<100.0	37,300	B1	123	Next highest: 30,000 at A3, Trip 2B; 28,400 at R3, Trip 120; 26,805 at A1, Trip 82; 25,209 at C4 and 24,339 at A2, Trip 103; 23,307 at R4, Trip 77.
Turbidity	1.40	657	B1	9	Values greater than 200 were reported during trips 9, 18 and 19: flood events; and trips 71 and 131.
Oil and Grease	<0.20	54.2	A1	119	Next highest: 29.2 at A2, Trip 116; 20.5 at R2, Trip 119; 17.5 at A2, Trip 115; 14.9 at R1, Trip 115; 14.7 at C1, Trip 25.

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Sulfate	3.77	5,510	B1	123	Next highest: 4,930 at A4, Trip 119; 4,880–3,740 during Trip 119; 3,340 at A1, Trip 124; 3,200–4,480 during Trip 122; 3,690 at B4, Trip 77; 3,200 at A1, A2, A4, B4, Trip 76; 3,100 at A3, B2-B4, C1-C4 R1, R3, Trip 76.
Total dissolved solids (TDS)	196.0	133,000	C2	115	Next highest: 48,300 at B4, Trip 77; 46,100 at R3, Trip 111.

* Depicted graphically.

During the 32nd year of monitoring, BOD ranged from <2.0–6.95 mg/L. COD ranged from 47.0–427.0 mg/L. COD spiked during Trip 91 (April 2015) at all station series, remaining high. Trips 102 (January 2018) and 103 (April 2018) had the highest COD since inception of the Monitoring Program. During the 32nd year of monitoring, these values continue to remain high, compared to values seen before Trip 91 (April 2015).

Organic nitrogen (<0.1–3.47 mg/L), nitrate nitrogen (<0.01–0.63 mg/L), nitrite nitrogen (<0.01–0.05 mg/L), total phosphorus (<0.01–0.19 mg/L), and ortho-phosphate (<0.01–0.34 mg/L) were detected in most trips and stations. These values are within expected ranges.

TOC ranged from 2.6–9.0 mg/L during all trips and all station series. A graphical depiction of spatial trends for TOC in water indicate TOC concentrations below historical high values (i.e., those found during predischarge sampling) during the 32nd year of monitoring. These low TOC values do not reveal any notable events within the bay (see discussion in next paragraph).

The Sixth Annual Report indicated a scattered bay wide increase in TOC starting at Trip 6 (April 1994) and continuing until Trip 18 (January 1997), then starting again at Trip 20 (July 1997) and increasing through Trip 27 (May 1999). The only trip not showing the increase was Trip 25 (October 1998), which was sampled after the October 1998 flood (PBS&J, 1999). Since Trip 50 (April 2005), the data do not support that trend. During the 26th year of monitoring, TOC levels were above historical high values during trips 104 (July 2018) and 105 (November 2018) at all stations but returned to below historically high values during trips 106 (January 2019) and 107 (April 2019). Most of the TOC values after the first post-discharge trip (Trip 3, October 1993) were greater than the historically high values (included with the First Annual Report [EH&A, 1994]), including reference station values. During the 32nd year of monitoring, TOC values near Outfall 001 did not rise above historical high values during the periods noted above. These values are similar bay wide and are not indicative of input from Outfall 001 or problems within the bay.

Concentrations of TSS (<4.0–476.0 mg/L) and turbidity (0.8–250.0 mg/L) were found during all trips and station series during the 32nd year of monitoring. High TSS and turbidity values are often linked to floods or storms. These events can cause runoff and resuspension of bottom sediments, leading to increased concentrations of suspended particles like soil, organic matter, and algae. Notable instances during the monitoring program include:

- Trip 9 (October 1994): High TSS due to floodwater release from Lake Texana.
- Trips 18 (January 1997) and 19 (April 1997): High TSS from major water releases from Lake Texana.
- Trips 44 (July 2003), 46 (January 2004), and 47 (April 2004): High TSS, with Trip 46 linked to heavy rains upstream.
- Trip 77 (October 2011): High TSS during flood events.
- Trips 89 (November 2014) and 91 (April 2015): High TSS, with Trip 91 linked to flooding weeks prior.

Overall, TSS levels have fluctuated but generally remain low, not indicating issues from Outfall 001 or within the bay.

Oil and grease ranged from <5.0–6.4 mg/L during the 32nd year of monitoring. As in previous years, chlorides (5,380–18,300 mg/L), sulfate (672–2,950 mg/L), cyanide (<0.01–0.01), and TDS (11,800–24,000 mg/L) are reflective of conductivity and salinity presented in tables 5-3 through 5-6. High concentrations of chlorides and sulfate were observed from the 19th year of monitoring through the 22nd year due to a continued drought. Drought conditions broke just prior to Trip 91 (April 2015) and lasted through Trip 119 (April 2022). During the 32nd year of monitoring, conditions returned to normal, and conductivity and salinity reflected that. Aside from the parameters that would be expected to increase or decrease with corresponding salinity (e.g., sulfate, chlorides, TDS, etc.), there were no apparent trends in the Suite II water data.

The independent laboratory (duplicate samples only) was unable to meet the 1996 Scope specified MAL for organic nitrogen and COD due to instrumentation limitations. While there are no Texas Water Quality Standards (WQSs) for these parameters, no trends have been identified with the NWDLS analysis that would indicate concentrations outside of normal ranges.

Dissolved Metals

Of the metals for which analyses were conducted during trips 128-131, the WQSs only apply to dissolved metals, except for mercury. Therefore, where appropriate, concentrations of dissolved metals will be compared with the Texas Marine Acute and Chronic WQSs (Texas Water Code §§307.1–307.10). The following table describes the dissolved metals that have been detected above Scope-specified detection limits since the inception of the Monitoring Program. During the 32nd year of monitoring, copper (<10.0–39.6 mg/L) (many stations Trip 129 and 2 stations, Trip 130), lead (<10.0–25.2 mg/L) (all stations, Trip 131), mercury (0.2–1.11 mg/L) (A1, Trip 130), nickel (<10.0–10.1 mg/L) (A3, Trip 131), and zinc (<5.0–8.5 mg/L) (trips 129, 130, and 131) were the dissolved metals detected above Scope-specified detection limits.

Dissolved Metals Detected Parameters (microgram per liter [µg/L])

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Dissolved Aluminum*	<20.0	7,700	A1	21	Excepting 4 values ranging from 1,200 to 7,700 from CHEMTEX, next highest: 80 at C1, Trip 21.
Dissolved Cadmium*	<1.0	2.4	B1	21	Only 2 detected values: 2.2 at A1, Trip 21; and 2.4 at B1, Trip 21.
Dissolved Chromium	<10.0	40.5	B3	118	Next highest: 31.5 at A1, Trip 118; 18.6 at B1, Trip 99; 17.5 at C3, Trip 36; 17.0 at A4, Trip 22.
Dissolved Copper	<5.0	151.9	C1	102	Only detected 39 times prior to Trip 128; detected 24 times during trips 128-131.
Dissolved Lead	<5.0	16.1	A3	117	Next highest: 15.0 at C2, Trip 117; 15.0 at R4 Trip 94; 11.0 at R2, Trip 94; 10.8 at B2, Trip 27. Values ranging from 11.0-14.0 at all stations, Trip 93; 11.0-14.3 at all stations, Trip 117; 13.9-25.2 at all stations, Trip 131.
Dissolved Mercury	<0.20	4.26	B3	126	Next highest: Trip 126 values ranged from 1.79 to 4.26 at B-, C-, and R-series; 0.6 at R1, Trip 15; 1.11 at A3, Trip 131; 0.3 at A1, Trip 14; 2.3 at B1, Trip 16; aberrant 4.71 at B3, Trip 29, and 0.73 at A3, Trip 48.
Dissolved Nickel	<9.0	39	A1	14	Only 4 detected values: 39.0 at A1, Trip 14; 28.4 at R3, Trip 110; 12.4 at A4, Trip 26; 12.1 at B1, Trip 99.
Dissolved Silver	<2.0	2.5	A1	21	Only time detected.
Dissolved Zinc	<5.0	529	B2	62	Next highest: 236 at A1, Trip 118; 198 at A4, Trip 118; 167 at B1, Trip 62 and 164 at C1, Trip 62.

* Discontinued running aluminum and cadmium based on 1997 scope change.

Total Metals

The following table describes the total metals that have been detected above Scope-specified detection limits since the inception of the Monitoring Program. As noted in the Fifth Annual Report, due to some discrepancies with metals data from two previous independent laboratories, FPC changed independent laboratories prior to Trip 22 (January 1998). During the 32nd year of monitoring, copper (<10.0–11.2 mg/L) (trips 129 and 130), nickel (<10.0–14.0 mg/L) (A1 and A3, Trip 131), and zinc (<5.0–11.5 mg/L) (trips 129-131) were found above detection limits.

Total Metals Detected Parameters (µg/L)

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Aluminum	<1.0	10,500	A1	21	Excepting 4 values ranging from 6,400 to 10,500 from CHEMTEX, highest: 1,390 at R2, Trip 21.
Cadmium	<1.0	73	B3	20	Only 3 detected values: 73 at B3, Trip 20; 2.7 at B1, Trip 21; 2.2 at A1, Trip 21.
Chromium	<0.01	183	C2	1	Only 16 detected values: 183 at C2, Trip 1; 86 at A1, Trip 102; remaining values range from 7.8 to 12.0.
Copper	<1.0	6,080	C2	1	Excluding aberrant values of 6,080 at C2, Trip 1, 502 at A2, Trip 24; and 2,100 at A3, Trip 2B. Next highest: 40 at A1, Trip 21; 48 at A4 and 64 at B2, Trip 102; 60 at A2 and 72 at C4, Trip 103.
Lead	<1.0	105	R2	102	Next highest: 87.0 at A3, Trip 2B; 29.6 at A1, Trip 2A.
Nickel	<0.01	110	A1	12	Next highest: 66 at C2, Trip 1.
Silver	<2.0	12.4	A1	21	Only time detected.
Zinc	<1.0	2,190	C2	1	Excluding aberrant values of 2,190 at C2, Trip 1; 1,270 at A1, Trip 21; and 1,280 at B1, Trip 21. Highest: 114 at D3, Trip 1.

Organic Compounds

There we no organic priority pollutant compounds detected above Scope-specified detection limits in water samples collected during the 32nd year of monitoring. Prior to this, the only organic priority pollutant compounds detected above Scope-specified detection limits in the post-discharge water samples were di-N-butyl phthalate from trips 14 (January 1996) , 15 (April 1996) , and 113 (December 2020) and Bis(2-ethylhexyl)phthalate from one sample in Trip 16 (July 1996) (36.8 µg/L at Station C2). Di-N-butyl phthalate was detected 17 times and ranged from 11.0 µg/L at Station R1, Trip 15 (April 1996) to 49.0 µg/L at Station C2, Trip 14. Di-N-butyl phthalate is a common laboratory contaminant and can often be found at low levels due to unavoidable laboratory contamination (ENSR, 1995). Bis(2-ethylhexyl)phthalate, a common plasticizer, was detected 10 times in water samples from Trip 1 (May 1993).

5.1.2 Porewater

5.1.2.1 Suite II

The following table describes the Suite II porewater parameters that have been detected above Scope-specified detection limits since the inception of the Monitoring Program. During the 32nd monitoring of year, oil and grease was the only compound not found above Scope-specified detection limits.

Suite II Detected Parameters (mg/L)

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
BOD5	<1.00	48.0	R2	1	
COD	8.00	2,080	C2	16	High value was independent laboratory result.
Organic Nitrogen	<0.01	36.3	C4	106	Next highest: 28.5 at B2 and 26.1 at B4, Trip 106; 22.4 at C2, Trip 1.
Ammonia	<0.10	43.1	A2	48	Next highest: 26.50 at B4, Trip 48.
Nitrate	<0.10	1,300	C2	110	Next highest: Trip 111 values ranged from 363-769 at stations A1-A4, B2-B4, C1, C2, and C4.
Nitrite	<0.01	16.0	A1/A2	79/76	Next highest: 14.8 at B1, Trip 45; 14.8 at A2, Trip 79.
Total Phosphorus	0.02	9.19	A1	64	Next highest: 8.39 at R3, Trip 80; 6.4 at A2, Trip 47; 6.28 at A2, Trip 64. Excluding aberrant values of 1,240.0 and 963.0 at C3 and R4, Trip 45; and 3,550.0 at A3, Trip 44; 9.19 at A1, Trip 64.
Ortho Phosphate	<0.01	7.7	A1	64	Next highest: 5.5 at A2, Trip 47; 4.9 at A3, Trip 17.
TOC	<1.00	1,800	B2	2A	Excluding aberrant values of 1,800 and 1,600 at B2 and R2, Trip 2A; the next highest value was 110 at R1, Trip 11.
TSS	0.70	526	A4	23	
Chlorides	<5.0	29,600	R3	120	Next highest: 25,400 at B2, Trip 118; 19,000–24,400 during Trip 120; 23,700 at B4 Trip 77; 20,249 at A1, Trip 90; 19,385 at A3, Trip 93; 19,264 at B4, Trip 88; 18,200 at C4, Trip 118; 18,000 at B3, Trip 118; ranged from 17,400 at R4, Trip 67; 17,550 to 23,700 during trips 76-79; 17,190 to 17,990 during trips 83-87.
Turbidity	<0.10	422	C1	116	Next highest: 385 at A4, Trip 23
Oil and Grease	<0.20	503	B1	124	Next highest: 75.3 at B4, Trip 114; 61.3 at R1, Trip 119; 23.8 at R1, Trip 116; 23.1 at B2, Trip 119; 22.2 at C3, Trip 116; 22.4 at D2, Trip 114.
Cyanide	<0.01	0.04	A3	127	Next highest: During Trip 127 values ranged from 0.01–0.04 at the A- and B-series, C3, C4, R3, and R4; 0.02 at stations B3 (Trip 6), A1 (Trip 12), and C2 (Trip 16).

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Sulfate	<1.00	5,920	C2	131	Next highest: 5,710 at R3, Trip 131; 5,700 at C2, Trip 120; 5,690 at C3, Trip 131; 5,050 at A1, Trip 120; 4,600 at C3, Trip 85; ranged from 3,200 to 4,300, Trip 85; ranged from 4,110 to 4,860, Trip 131; 3,700 at C1, Trip 77; ranged from 2,600 to 3,600, trips 76-79 and trip 82; 2,600 at C1/C3, trips 55 and 68; 3,300 at C3, Trip 82; 3,180 Trip 111.
TDS	1,468.0	44,240	A3	77	Next highest: 38,000 and 39,100, Trip 125; 35,600 to 43,600, Trip 120; 34,540 to 34,080 Trip 84; ranged from 33,980 to 43,840 trips 76-79 and 83; 33,290 at R4, Trip 67; 33,226 at C1, Trip 55; 32,761 at C2 and 32,669 at C3, Trip 55; 32,700 at B2, Trip 114; 30,940 at A3, Trip 90.

During the 32nd year of monitoring, all porewater parameters were detected including BOD (<2.0–5.8 mg/L), COD (80.0–440.0 mg/L), organic nitrogen (<0.1–3.1 mg/L), ammonia (<0.1–5.7 mg/L), nitrate mg/L (<0.01–0.30), nitrite (<0.01–1.43 mg/L), total phosphorous (<0.01–0.72 mg/L), ortho phosphate (<0.01–1.92 mg/L), TOC (2.9–13.8 mg/L), TSS (<4.0-56.0 mg/L), chlorides (6,070–16,300 mg/L), turbidity (0.3–15.0 mg/L), cyanide (<0.01–0.01 mg/L), sulfate (762–5,920 mg/L), and TDS (12,800–29,400 mg/L).

The first appearance of cyanide since Trip 16 (July 1996) occurred during Trip 127 (April 2024) at the A- and B-series, C3, C4, R3, and R4. Cyanide was detected during the 32nd year of monitoring during Trip 128 July 2024) (at stations C1 and C2. The majority of porewater parameters have not been detected often enough to provide useful temporal or spatial trend analysis. The remaining porewater parameters are not at atypical concentrations and showed no definitive trends over the first 7 years of monitoring. Thus, the porewater parameters are not presented graphically but are provided in the raw data sheets in the Appendix. The ranges of values for the porewater samples were not dissimilar from those of bay water for BOD, COD, TSS, chlorides, turbidity, sulfate, and TDS. As expected, most nitrogen species, TOC, and total and ortho-phosphate, are slightly higher in the porewater than in bay water.

5.1.2.2 Suite IV

Metals

It should be noted that “total” is used in the discussion of metals in porewater since the porewater is not filtered through a 0.45-µm filter. However, the porewater is pushed through a 5-µm filter and, therefore, is not “total” in the sense that unfiltered bay water would be “total.” The following table describes the total metals that have been detected above Scope-specified detection limits since the inception of the Monitoring Program.

Total aluminum, arsenic, hexavalent chromium, copper, lead, mercury, nickel, and zinc were detected above Scope-specified detection limits in porewater samples during the 32nd year of monitoring. Hexavalent chromium, which was detected for the first time during the 23rd year of monitoring, continued to be found above detection limits during the 32nd year of monitoring during Trip 128 (July 2024) at Station B3 (10.9 mg/L), Trip 129 (October 2024) at Station A3 (12.0 mg/L), and Trip 130 (February 2025) at Station A1 (13.1 mg/L). As with the Suite II parameters, the porewater metals that were detected in sufficient quantity indicated no spatial or temporal trends in any of the data sets for the first 7 years of monitoring. There were no atypical values observed during the 32nd year. Therefore, these metals are not graphically depicted in this report, but as previously mentioned, all porewater chemistry data are included in the Appendix.

Total Metals Detected Parameters (µg/L)

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Aluminum	12.0	19,500	C3	116	Next highest: 17,700 at C1, Trip 116; 7,500 at B2, Trip 116; 5,770 at C4, Trip 3; 5,470 at R4, Trip 116; 3,820 at C3, Trip 110; 3,280 at D1, Trip 2A; 3,240 at R3, Trip 126; 2,780 at C4, Trip 116; 2,420 at B1, Trip 16.
Arsenic	<1.00	68.6	B2	131	Next highest: 65.7 at A4/R2, trips 102 and 120; 65.6 at B3, Trip 106; 62.2 at R3, Trip 123; 61.6 at R2 Trip 117; 61.3 at B2, Trip 117; 60.7 at A3, Trip 102; ranging from 50.8 to 59.2 during Trip 131;57.9 at A3, Trip 110; 56.0 at B3, Trip 96; 54.6 at A4, Trip 107; 54.9 at A3, Trip 110; 54.3 at B3, Trip 117; 53.6 at R3, Trip 117; 53.9 at R1, Trip 115; 53.3 at B2 Trip 115; 52.3 at B3, Trip 113; 51.7 at R2, Trip 113.
Chromium	<0.01	31.6	B1	81	Only 9 detected values.
Hexavalent Chromium	<10.0	58.4	R2	118	Next highest: 34.3 at C2, Trip 121; 30.0 at A1, Trip 113; 28.0 at B4, Trip 117; 27.9 at R2, Trip 121; 26.6 at C3, Trip 121; 20.0 at C1/C2, Trip 92; 19.0 at B3, Trip 94; 18.7 at R3, Trip 113. Range from 11-18, Trip 92; 15.6 at R1, Trip 124.
Copper	<1.00	158.0	A2	80	Next highest: 105.0 at R4, Trip 119; 64.1 at C1, Trip 80; 59.5 at B2, Trip 80; 53.0 at R4, Trip 80; 44.0 at C1, Trip 60; 41.0 at R1, Trip 62; 40.0 at A2, Trip 60; 39.0 at A3, Trip 58.
Lead	<1.00	81.0	R2	1	Next highest: 26.0 at R4, Trip 59; ranging from 17.0 to 24.5, Trip 131; 17.0 at A4, Trip 93.
Mercury	<0.20	5.2	R1	11	Next highest: 1.8 at R2, Trip 127; 2.0 at R4, Trip 127; 2.2 at R1, Trip 127; 1.5 at C1, Trip 69; 0.7 at B3, Trip 11.
Nickel	<10.0	98.0	A1	11	Next highest: 97.0 at C2, Trip 112; 78.0 at R1, Trip 11.

Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Zinc	<5.0	450	B2	31	Next highest: 98.0 at R2, Trip 99; 64.0 at B2, Trip 98; 59.0 at C1, Trip 45; 47.0 at A1, Trip 47; 44.0 at C1, Trip 44.

Organic Compounds

There were no organic compounds found above Scope-specified detection limits in porewater samples during the 32nd year of monitoring. Bis(2-ethylhexyl)phthalate, butylbenzyl phthalate, di-N-butyl phthalate, diethyl phthalate, and phenol are the only organic chemicals that have been found above Scope-specified detection limits in porewater since the inception of the Monitoring Program. Butylbenzyl phthalate was detected only once at Station C4, Trip 13 (October 1995) (15 µg/L); di-N-butyl phthalate was detected 42 times ranging from 10.0–59.0 µg/L during Trip 14 (January 1996, Station C1), Trip 113 (December 2020, stations A1 and C1), Trip 115 (March/April 2021, stations A1, B1, and C1-C3), Trip 119 (April 2022, stations A1, B2, C1, C2, and C3), and Trip 125 (November/December 2023, stations B2 and C3); diethyl phthalate was detected only 3 times, all from Trip 13 (October 1995) (19 µg/L at Station C4, 20 µg/L at stations A2 and B4); and phenol was detected only once at Station A1, Trip 28 (September 1999) (15.1 µg/L). Bis(2-ethylhexyl)phthalate, a common plasticizer and vacuum pump liquid, was the only organic chemical found often enough in porewater to allow for a graphical depiction of the data in previous reports. However, no trends were detected and since bis(2-ethylhexyl)phthalate was not detected in porewater samples during the 32nd year of monitoring, it is not graphically depicted in this report. In general, phthalate esters are considered common laboratory/sampling contaminants (ENSR, 1995). An audit of methods revealed that bis(2-ethylhexyl) phthalate could have been leached from Tygon® tubing during porewater preparation (Grychka, personal communication) so Tygon® tubing has not been used for porewater preparation since the 7th year of monitoring.

5.1.3 Sediment

Graphical presentation of grain size and sediment parameters detected are given in Attachment B. As noted previously, all sediment chemistry data are included in the raw data sheets.

5.1.3.1 Suite III

Grain size distribution data are presented in Table 5-7. For analysis in Attachment B, the A-, B-, C-, D-series, and stations R1/R2 can be considered replicates for each series. Stations R3 and R4 are considered individually, because of their uniqueness. As previously mentioned, when a range of values is presented in the graphs for either station R3 or R4, this is due to replicate (internal and/or external) samples taken during that respective trip.

There were no spatial trends in grain size distribution during trips 128 to 131 except that R3 generally had more fines and less sand than the other stations. A visual examination of the temporal data, as presented in Attachment B, also indicates a few trends. The most notable trend is the increase in predischarge percent clay concentrations at the A- and B-series, which remained high at the A-series until the flood prior to Trip 19 (April 1997). As expected, a similar trend exists for percent silt while the reverse trend is evident for predischarge percent sand concentrations with decreases at both the A- and B-series, although the distinction is not as pronounced at the B-series because of greater variation around the means. However, the post-discharge samples do not indicate any temporal trends of the same nature, except for pre-Trip 19 (April 1997) clay and sand at the A- and B-series. An increase in percent sand at the A-series after the flood event of Trip 9 (October 1994) was noted and a considerable increase in percent sand and concomitant decrease in clay content was evident at the A-series during Trip 19 (April 1997) after considerable releases of water from Lake Texana during the spring of 1997. Over time, the post-discharge trips (3 through 96) have shown increases in percent sand at the A-series that have altered the sediment composition to be similar in range to that of the preconstruction Trip 1 (May 1993) sediment composition. The effects that a natural event, such as the flood events during the spring of 1997, appears to have caused will be examined in relation to sediment chemistry in Section 5.1.3.2. During the 32nd year of monitoring, the percent sand showed no particular trends relative to long-term trends.

It should be noted that dredging activity associated with diffuser installation occurred between Trip 2A (July 1993) and Trip 2B (September 1993) (both predischarge trips). This is important in that the increases in percent fines (silt + clay) during this time period is very evident at the A-series, to a lesser degree at the B-series, and essentially non-existent at the C-series and D-series. Decreases in percent sand at the A-, B-, and C-series and an increase at R1/R2 have been observed since Trip 90 (January 2015). The spatial trends for grain size for the 32nd year of monitoring indicate similar but not identical post-discharge trends evident in the previous reports. An earlier trend was a decrease in percent fines from the A-series to the B-series to the C-series. However, since the 11th year of monitoring, this trend has not been observed, nor was it this year, except as noted in the next paragraph.

Of the A-, B-, and C-series, the percent fines were greatest at the A-series, followed by the B-series, and C-series. The highest percent fines at the D-series occurred during Trip 129, Trip 128 at R1/R2, Trip 130 at R3 and R4. As previously mentioned, after Trip 19 (April 1997) the grain size composition at these inner rings has seemed to stabilize around the preconstruction condition. Regardless, trends in grain size composition are extremely important when reviewing the sediment chemistry data. Several sediment chemistry parameters demonstrate these same spatial and temporal trends, which can be related to grain size composition.

The following table describes the Suite III parameters that have been detected above Scope-specified detection limits since the inception of the Monitoring Program.

Suite III Detected Parameters (milligram per kilogram [mg/kg])					
Parameter	Minimum Value	Maximum Value	Station	Trip	Notes
Oil and Grease*	<1.0	1,900	C3/A2	119/ 124	Next highest: 1,820 at R1, Trip 124; 1,300 at A4, Trip 117; 560 at R4, Trip 110; 520 at R2, Trip 109; 500 at C2, Trip 110; 405 at R1, Trip 19; 402 at D2, Trip 13; 401 at A3, Trip 20.
Ammonia	<0.05	1,500	B4	61	Next highest: 1,400 at B3, Trip 61; 1,200 at R2, Trip 62; 1,200 at C3 and R4, Trip 61.
Organic Nitrogen	<10.0	25,133	A4	8	Next highest: 17,646 at A3, Trip 8.
Nitrate	<10.0	896	C4	16	Next highest: 519 at R4, Trip 16.
Nitrite	<0.05	41.8	A2	110	Next highest: 35.8 at B3, Trip 43; 35.2 at B4 and R3, Trip 41.
Volatile Solids	1,000.0	117,600	A1	8	
Acid Volatile Solids	<1.00	882	C4	119	Next highest: 318 at C4, Trip 73; 318 at R3, Trip 121; 248 at C3, Trip 119; 242 at A4, Trip 45.
TOC*	3.78	93,700	C2	52	Next highest: 89,600 at B3, 82,600 at B4, Trip 54; 79,400 at D3, Trip 55; and 78,700 at C3, Trip 56.

*Depicted graphically.

Of the Suite III parameters, nitrate nitrogen, nitrite nitrogen, total PAH, and cyanide were not detected at limits specified in the Scope during the 32nd year of monitoring.

The spatial and temporal trend analyses are depicted graphically in Attachment B. TOC trends generally associate well with grain size (i.e., sediment TOC decreases as the percentage of fines decreases) and showed no trends during the 32nd year of monitoring. The temporal and spatial depiction of the data for TOC typically reflects the variations in grain size composition bay-wide with the exception of the high values reported from Station R2 during Trip 26 (January 1999); Station R1 during Trip 29 (November 1999); Station R1/R2 during trips 37 (October 2001) and 42 (January 2003); Station C1 during Trip 52 (July 2005); stations B3 and B4 during Trip 54 (January 2006); Station D3 during Trip 55 (April 2006); Station C3 during Trip 56 (July 2006); most stations during trips 70 (January 2010), 71 (April 2010), 72 (July 2010), 73 (October 2010), 75 (April 2011), and 76 (July 2011); Station A2 during Trip 80 (July/August 2012); Station C3 during Trip 82 (January 2013); Station R4 during trips 84 (August 2013) and 85 (October 2013); Station R3 during Trip 91 (April 2015); Station R3 during Trip 95 (April 2016); Station R3 during trips 108 (July 2019) and 109 (October 2019); Station R3 during trips 112 (July 2020) and 113 December 2020); stations B3, C3, and D3 during Trip 114 (January 2021); Station R3 during Trip 116 (July 2021); stations C4 and R1 during Trip 118 (January 2022); stations B3 and R3 Trip 123 (April 2023); Station R3 during Trip 126 (February 2024); Station R3 during trips 129 (October 2024) and 131 (March/April 2025), and Station B3 Trip 131 (March/April 2025). TOC has been detected during all trips.

On a bay-wide scale, oil and grease was essentially undetected, post-discharge, until Trip 10 (January 1995). The sudden bay-wide appearance of oil and grease from Trip 10 (January 1995) to Trip 32 (July 2000) may reflect some relationship to the flood event of October 1994. The higher bay-wide oil and grease concentrations detected during Trip 19 (April 1997) (a period of water release and heavy runoff) and Trip 20 (July 1997) (the subsequent sampling), may help confirm the relationship that oil and grease has with flood events. However, no increases were noted after the October 1998, July 2002, January 2003, January 2004, January 2007, July 2007, January 2010, or October 2010 (trips 25, 40, 42, 46, 58, 60, 70, and 73) flood events. Oil and grease remained undetected from trips 51 (April 2005) to 104 (July 2018). During trips 105 (November 2018) and 107 (April 2019) oil and grease made a sudden appearance and that trend has continued. During the 32nd year of monitoring, oil and grease was detected at many stations during all trips ranging from <10–360 mg/kg. The oil and grease test is not a unique chemical entity and contains both polar and non-polar organics. All volatile or semi-volatiles were below detection limits, which are more sensitive tests, therefore the high oil and grease concentrations are likely a result of large amounts of decaying organic matter occurring in the bay and are not indicative of input from Outfall 001.

Sediment ammonia was not detected at any station until Trip 4 (December 1993), after which it was detected bay wide. The temporal analysis presented in the Fifth Annual Report revealed a sizable increase in sediment ammonia concentrations during trips 22 (January 1998) and 23 (April 1998). A further examination of the data in preparation of the Sixth Annual Report revealed that the sediment ammonia and sediment organic nitrogen values for those two trips had been reversed. Using the corrected values, no trends or atypical concentrations were reported for either parameter during trips 22 (January 1998) and 23 (April 1998) or since the 6th year of monitoring. Therefore, no graphical presentation for sediment ammonia was conducted for the 32nd Annual Report.

The independent laboratory (duplicate samples only) was unable to meet the 1996 Scope specified MAL for acid–volatile sulfide due to instrumentation limitations. There are no WQS for this parameter, no trends have been identified with the NWDLS analysis and therefore this is not a cause for concern.

5.1.3.2 Suite IV

As in each previous year, aluminum and iron, as expected, were found in large concentrations: up to 24,600 and 25,400 mg/kg, respectively. Arsenic, total chromium, copper, lead, mercury, nickel, and zinc were found consistently. The Texas 85th Percentile Values (TCEQ, 2003) for these metals are listed below:

Texas 85th Percentile Values

Metal	Texas 85th Percentile (mg/kg)	Monitoring Program Range (mg/kg)
Arsenic	9.61	<0.02–44.82[1]
Cadmium	0.663	<0.05–0.75
Chromium	36.9	<1.0–48.0
Copper	19.9	<1.0–109.0[2]

Metal	Texas 85th Percentile (mg/kg)	Monitoring Program Range (mg/kg)
Lead	21.9	<0.50–58.0
Mercury	0.23	<0.004–3.90[3]
Nickel	21.4	<1.0–51.8
Silver	0.6	<0.2–1.7[4]
Zinc	107.0	<0.50–191.9[5]

[1] Station C4, Trip 9 (October 1994); the next highest value was 10.9 mg/kg, Station A2, Trip 7 (June 1994).

[2] Station A2, Trip 7 (June 1994); the next highest values were 103.2 mg/kg, Station A2, Trip 6 (April 1994); 102.8 mg/kg, Station R3, Trip 2A (July 1993); 93.0 mg/kg, Station A2, Trip 6 (April 1994).

[3] Station A4, Trip 26 (January 1999); the next highest values were 2.46 mg/kg, Station A3, Trip 11 (April 1995); 1.7 mg/kg, Station R1, Trip 2A (July 1993).

[4] Only 3 detected values all from Station R1, Trip 21 (October 1997); 0.52, 0.65, and 1.7 mg/kg.

[5] Station A2, Trip 7 (June 1994); the next highest value was 141 mg/kg, Station R3, Trip 2B (September 1993).

Although graphical presentations of aluminum concentrations in sediments are included in Attachment B, many, if not all, of the sediments sampled are alumino-silicate minerals and, therefore, aluminum is no necessarily considered a sign of contamination. Along the same lines, although graphical presentations were prepared for iron in sediments, iron is often used as a normalizing factor to aid in making a determination of whether the concentrations of other metals in sediments are of anthropogenic origin. A visual examination of the temporal data, as presented in Attachment B indicated a few potential trends. The most notable trend was an increase in (1) predischarge metal concentrations for all sediment metals (except mercury), (2) the (previously mentioned) predischarge increase in percent fines at the A-series, and in most instances, increases in concentrations at the B-series, and (3) the reduction in concentrations at the A-series after Trip 19 (April 1997). However, as with the grain-size data, an examination of the post-discharge mean metals data (Attachment B) does not indicate any other trends. As mentioned, dredging activity associated with diffuser installation occurred between trips 2A (July 1993) and 2B (September 1993) (both predischarge trips) and the increase in percent fines during this time period was very evident at the A-series and to a lesser degree at the B-series. Sediment metals concentrations generally displayed the same trend as percent fines. During the 32nd year of monitoring metal concentrations of aluminum, arsenic, chromium, lead, and mercury were generally highest at stations at R3 and R4 for trips 128 (July 2024), 130 (February 2025), and 131 (March/April 2025) which follows the same trend as the percent fines.

Metals concentrations at the A-series, B-series, C-series, D-series, and station R4 were also high, following the percent fines trend. The C-series generally had the lowest levels of metals concentrations which follow the percent fines. Looking at the long-term trends, metals remained similar to previous years and, therefore, there is no concern about the accumulation of these metals in the sediments.

A second method utilized for data analysis is presented in Attachment C and discussed below. Using all values from all trips, these sediment metals were compared to grain size composition, in particular percent fines, with the R^2 values for each parameter given below as well as graphically presented in Attachment C.

Sediment Metals vs. Percent Fines

Parameter	R^2 value
Aluminum	0.3894
Iron	0.4467
Arsenic	0.2747[1]
Chromium	0.4002
Copper	0.2470[2]
Lead	0.3689
Mercury	0.0076
Nickel	0.3436
Zinc	0.2114

[1]Excluding 44.82 mg/kg flood value.

[2] The number would be 0.0216 if four extremely high values are included

As can be seen, there is generally a solid relationship between metals concentration and percent fines, except for mercury and copper. Greater than 21 percent of the variation in each metal concentration can be explained by the variation in percent fines, except for copper and mercury.

While most of the R^2 values indicate strong relationships, and include a large number of data points, it should be noted that excluding one datum from a total of 3,005 data in the sediment arsenic versus percent fines database changes the R^2 from 0.22 to 0.27. Likewise, a few data points in a relatively non-correlated database could dramatically increase the value of R^2. However, by using all mentioned methods to examine the data, FNI believes the data indicate that the physical disturbance (diffuser construction) which occurred in the pre-discharge time period caused an increase in fines and, concomitantly, most metals near the discharge point with less of an increase with distance from the discharge point.

The general numerical (not necessarily statistical) post-discharge pattern in the aluminum and iron concentrations on the spatial depiction is very similar to that of the spatial depiction of arsenic, chromium, copper, lead, nickel, and zinc. With some variation, the numerical pattern is:

1. The post-discharge metals concentrations appear to be stabilizing around the pre-construction values for the bay.
2. A strong correlation between percentage fines and concentrations of total metals, except mercury (R^2 ranged from 0.2114 to 0.4467).
3. Station R3 having the highest value for almost all 32nd year sediment metals, as well as the highest percent fines. This is a shift from the first several reports in which the A-series predominantly maintained the highest percent fines and corresponding higher concentrations of sediment metals. This point reiterates the dynamic nature of an estuary system with ever shifting sediment compositions.

The spatial trends, that are not nearly as evident during the 32nd year of monitoring, are likely lingering from the physical disturbance of the site prior to any discharges from Outfall 001 and from natural events such as floods. There are no apparent trends in sediment metals that represent impacts due to post-discharge activity, but in actuality, the data represent estuarine responses to physical disturbances.

This spatial and temporal trend analysis reiterates two items: (1) the relationship between metals concentrations and sediment particle composition, and (2) the effects of a physical disturbance (anthropogenic or natural) to a dynamic system. The placing of the diffuser is the anthropogenic example of a physical disturbance that appears to have changed the system (at least at the A-, B-, and C-series) by altering sediment composition and thus sediment chemistry parameters. Flood events are natural examples of physical disturbances that appear to have aided the already changing system by altering the sediment composition in the other direction and thus altering sediment chemistry as well.

During the 32nd year of monitoring, no organic priority pollutants were found in the sediment samples above Scope-specified detection limits. The only other organic priority pollutant found previously was di-N-butyl phthalate, bis(2-ethylhexyl)phthalate, and chloroform. Di-N-butyl phthalate was detected 17 times ranging from 397 (microgram per kilogram) µg/kg at B2, Trip 7 (June 1994) to 19,500 µg/kg at B3, Trip 6 (April 1994). Bis(2-ethylhexyl)phthalate was detected 16 times and ranged from 153 µg/kg at B1, Trip 1 (May 1993) to 391 µg/kg at A4, Trip 5 (February 1994). Chloroform was detected during Trip 122 (February 2023) at stations C1, C3, C4, D2, D3, R1, and R3 and ranged from 10.8–13.7 µg/kg. As previously mentioned, phthalate esters are common laboratory/sampling contaminants, and the presence of these compounds at some stations may be the result of sampling and analytical contamination (ENSR, 1995). Previous studies conducted with phthalate esters have overestimated the toxicity of phthalate esters to aquatic organisms (Rhodes et al., 1995; Adams et al., 1995).

The independent laboratory (duplicate samples only) was unable to meet the 1996 Scope specified MAL for some Suite IV and organic priority pollutants compounds due to instrumentation limitations. While there are no sediment standards for these parameters, no trends have been identified with the NWDLS analysis and therefore this is not a cause for concern.

5.1.4 Tissue

Fish tissue samples were taken during Trip 131 (March/April 2025). In addition, oyster cages were stocked, and tissue samples collected for Trip 129 (October 2024) and Trip 131 (March/April 2025). The terms "higher" and "lower" used below are strictly used numerically, not statistically.

5.1.4.1 Tissue from Gill Nets

The results of the fish tissue analyses are presented below:

March/April 2025 – Detected Parameters

Parameter (mg/kg wet weight)	B-Series		C-Series		R1/R2	
	Hardhead Catfish		Hardhead Catfish		Hardhead Catfish	
	Muscle	Organs	Muscle	Organs	Muscle	Organs
Aluminum	<3.0	15.8	<3.0	21.0	<3.0	15.6
Arsenic	11.0	5.7	5.4	3.3	13.7	2.1
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	<1.0	2.9	<1.0	2.7	<1.0	2.7
Lead	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Mercury	0.13	0.12	0.13	0.13	0.12	0.08
Nickel	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	12.6	500.0	12.5	514.0	18.3	589.0

Aluminum, arsenic, copper, mercury, and zinc were detected during the 32nd year. Aluminum (15.6–21.0 mg/kg) and copper (2.1–13.7 mg/kg) was found above detection limits in all organ samples, arsenic was found in all muscle and organ samples and ranged from 2.1–13.7 mg/kg, and mercury (0.08–0.13 mg/kg) and zinc (12.6–589.0 mg/kg) was found in all muscle and organ samples.

Organ concentrations for aluminum were higher at the C-series than the B-series and R1/R2; arsenic was higher at the B-series, followed by the C-series and R1/R2; and copper, mercury, and zinc was similar over all stations. These results are anticipated, as metals typically accumulate more in specific organs of catfish than in their muscle tissue. Since Hardhead Catfish (*Arius felis*) are highly mobile, it is difficult to draw conclusions about the origins of potential contaminants found in the fish. During the 32nd year of monitoring, organic priority pollutants were found in fish muscle samples. During Trip 131 (March/April 2025), phenol was detected in the C-Series (252.0 ug/kg) and R1/R2 (324 ug/kg).

5.1.4.2 Tissue from Oyster Sets

The oysters utilized for both stocking events were obtained from a local fish market in Port Lavaca, Texas. The archive sample represents a subset of oysters that were analyzed to provide tissue contaminant concentrations in the oysters before the tests began. Aluminum, arsenic, chromium, copper, mercury, nickel, and zinc were detected in oyster tissue from October 2024 and March/April 2025. The tables below provide the available concentrations for the C-stations and reference stations for the October 2024 (Trip 129) and March/April 2025 (Trip 131) sampling effort.

During the October 2024 (Trip 129) sampling, parameters detected in oyster tissue included aluminum (863–1,510 mg/kg), arsenic (7.7–14.4 mg/kg), chromium (<1.0–4.2 mg/kg), copper (201–637 mg/kg), nickel (3.4–6.6 mg/kg), and zinc (4,150–10,700 mg/kg) were detected for most C-station series, Reference Station, and Archive sample. During the March/April 2025 aluminum (37–154 mg/kg), arsenic (1.8–3.2 mg/kg), copper (13–21 mg/kg), mercury (<0.02–0.02 mg/kg), and zinc (186–309 mg/kg) were detected at all or most C-station series, Reference Station, and Archive sample. An examination of station results versus Reference data indicate that metals concentration vary and there is little or no indication that tissue samples have higher concentrations near the FPC discharge.

During the 32nd year of monitoring, organic priority pollutants were found in oyster tissue samples. During Trip 129 (October 2024), bis(2-ethylhexyl)phthalate was detected in station C1 (165 ug/kg) and the Archive (163 ug/kg) sample, phenol was detected in stations C1 and C2, Reference Station, and Archive sample (835–1,590 ug/kg), and methyl chloride was detected in stations C1 and C2, and the Archive sample (148–195 ug/kg).

October 2024 and March/April 2025 Parameter Concentrations

October 2024

Parameter (mg/kg wet weight)	C-Series Stations C1	C2	C3	Reference Station	Archive
Aluminum	1,230	1,510	863	1,180	1,380
Arsenic	11.0	14.4	7.7	8.1	13.3
Chromium	3.2	<1.0	<1.0	4.2	<1.0
Copper	363	637	201	226	474
Lead	<0.5	<0.5	<0.5	<0.5	<0.5
Mercury	0.14	0.18	<0.02	0.19	0.24
Nickel	5.6	6.2	4.1	3.4	6.6
Zinc	7,090	10,700	4,880	4,150	7,550

March/April 2025

Parameter (mg/kg wet weight)	C-Series Stations C1	C2	C3	Reference Station	Archive
Aluminum	91	61	85	154	37
Arsenic	3.0	2.4	3.2	2.3	1.8
Chromium	<0.5	<0.5	<0.5	<0.5	<0.5
Copper	19	13	19	21	15
Lead	<0.5	<0.5	<0.5	<0.5	<0.5
Mercury	<0.02	0.02	0.02	0.02	0.02
Nickel	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	288	208	294	309	186

The only other instance of organic priority pollutants being detected include Trip 125 (November/December 2023) methyl chloride (37.5–44.9 ug/kg), Trip 127 (April 2024) phenol (162–191 ug/kg), and Trip 117 (October 2021) methyl chloride (117–226 µg/kg) and chloroform (229 µg/kg) were detected. Since bioaccumulation has never been demonstrated during the previous years and was not detected during the 32nd year of monitoring, there appears to be no indication of bioaccumulation of pollutants by oysters at the near-diffuser stations relative to the Reference Station.

5.2 BIOLOGICAL ANALYSES

The biological collections listed in the Scope consist of trawl, gill net, plankton, and benthos samples.

5.2.1 Nekton

5.2.1.1 Trawl Data

The results of the trawl data are presented in tables 5-8 through 5-11 and graphically depicted in Attachment D.

Spot (*Leiostomus xanthurus*) (676 total) dominated the species collected at all stations during July 2024. Other species collected at most stations included Gafftopsail Catfish (*Bagre marinus*) (130 total), Pinfish (*Lagodon rhomboides*) (123 total), Golden Croaker (*Micropogonias undulatus*) (106 total), Bay Anchovy (*Anchoa mitchilli*) (100 total), and White Shrimp (*Litopenaeus setiferus*) (46 total). During October 2024, Spot (617 total) and Bay Anchovy (374) were found at all stations. Other species collected included Golden Croaker (42 total), Pinfish (24 total), and Gafftopsail Catfish (20 total). In February 2025, Golden Croaker (29 total), Bay Anchovy (25 total), and Grass Shrimp (*Palaemonetes* sp.) (18 total) were the dominate species found. During the March/April 2025 sampling effort, Spot (615 total), Golden Croaker (614 total), Bay Anchovy (455 total), Gulf Menhaden (*Brevoortia patronus*) (349 total), and shrimp (*Farfantepenaeus* sp.) (256 total) were the dominant species found at all or most stations. Other species collected include Gulf Menhaden (349 total) and shrimp (256 total).

The graphs (Attachment D) present the means of the community indices: (1) “Shannon Weaver” Diversity Index (H'), (2) Pielou’s Evenness Index (J), (3) the number of taxa caught, and (4) the number of individuals caught by station series. Data are presented both spatially and temporally for all trips for which data were available for a given station series.

Diversity was greatest at the B- and C-series during the spring, followed by summer, fall, and winter; and at the R-series during the summer, followed by the spring, fall, and winter. The greatest number of taxa at the B-, C-, and R-series was collected during the summer, followed by spring, fall, and winter. The greatest number of individuals at the B-, C-, and R-series was collected during the spring, followed by summer, fall, and winter. The least number of taxa and individuals was observed during the winter at all station series. The occasional high number of individuals at certain stations is not uncommon considering the schooling behavior of many estuarine species. An analysis of the spatial graphs reveals that H', J, number of taxa, and number of individuals appear fairly consistent among the respective station-series.

Although seasonal trends are evident, the temporal and spatial analyses show no indication that there has been a decrease in diversity, evenness, number of taxa, or number of individuals during the 32nd year of monitoring. Based on the lack of trends, either spatial or temporal, further statistics were not warranted with these data.

5.2.1.2 Gill Net Data

The results of the gill net data are presented in tabular format (tables 5-12 through 5-15). Gill net data are usually not amenable to statistical analysis and, therefore, will only be used to supplement the trawl data.

Hardhead Catfish (439 total), Gafftopsail Catfish (290 total), and Gulf Menhaden (213 total) were the dominant species collected at all or most stations during the July 2024 sampling effort. Other species collected included Atlantic Stingray (*Dasyatis sabina*) (59 total), Atlantic Thread Herring (*Opisthonema oglinum*) (56 total), and Bull Shark (*Carcharhinus leucas*) (45 total). In October 2024, Gulf Menhaden (295 total), Gafftopsail Catfish (281 total), and Hardhead Catfish (216 total) were the dominant species collected at all stations. Other species collected include Sand Trout (*Cynoscion arenarius*) (72 total) and Southern Kingfish (*Menticirrhus americanus*) (63 total). In February 2025, Gulf Menhaden (137 total) and Hardhead Catfish (60 total) dominated the sample and were collected at most stations. The March/April 2025 sample was dominated by Hardhead Catfish (469 total), Gafftopsail Catfish (331 total), and Spot (126 total). Other species collected included Gulf Menhaden (59 total) and Cownose Ray (*Rhinoptera bonasus*) (47 total). No other species were found in significant numbers.

In summary, seasonal trends were evident as expected and the species composition changed from trip to trip based to a large extent on the water temperature and the salinity of the bay.

5.2.2 Plankton

5.2.2.1 Ichthyoplankton

The ichthyoplankton results are presented in tabular format in tables 5-16 through 5-19.

In July 2024 (Trip 128), a total of 2 species were collected, Bay Anchovy (4 total) and Blenny (Blennidae sp.) (1 total). During October 2024 (Trip 129), a total of 7 species were collected and dominated by Bay Anchovy (17 total). The February 2025 (Trip 130) samples represented 6 species, Bay Anchovy (30 total) and Pinfish (14 total) dominating the sample. The March/April 2025 (Trip 131) sampling produced 10 species and 450 individuals. Dominant species included Gulf Menhaden (259 total), Pinfish (65 total), Skilletfish (*Gobiesox strumosus*) (52 total), and Blenny (31 total). No other species were found in significant numbers.

The greatest number of individuals occurred during the spring, followed by winter, fall, and summer. The greatest number of taxa occurred during the spring, followed by fall, winter, and summer. The ichthyoplankton community continues to demonstrate seasonal variation and the data show no indication that these variations are related to the FPC diffuser.

5.2.2.2 Phytoplankton

Phytoplankton density (natural counting units/ml) collected during Trip 129 (October 2024) is presented in Attachment E. The taxa collected during Trip 129 (October 2024) are summarized by station in Table 5-20. The number of replicate samples analyzed is indicated in parenthesis next to each station number.

The phytoplankton assemblage was numerically dominated by picoplanktonic blue-green and green algae and unidentified unicellular algae. Fifty-one taxa (not including unidentified algal cells with and without flagella) were collected, 27 were diatoms, 11 were blue-green algae, 6 were dinoflagellates, and 4 were green algae. Diatoms have typically been represented by more species than other divisions of phytoplankton. The most abundant organisms were picoplankton (typically defined as organisms smaller than 2 microns), which were unicellular, blue-green algae like *Synechocystis*. Picoplanktonic unicellular green algae were also abundant in this year's samples. Small nanoplanktonic (less than 10 microns) unidentified algae, including flagellates were also abundant and present at all locations. Counts of these unidentified nanoplanktonic algae were lowest at Station R3.

Very small pennate diatoms (less than 10 µm in length) were the most abundant diatoms and were counted in all samples. The diatoms, *Coscinodiscus*, and *Cylindrotheca closterium*, were the most commonly counted diatoms in net plankton samples, counted in all samples. Both taxa are cosmopolitan in distribution. *C. closterium* has been shown to colonize the exoskeleton of copepods. The dinoflagellate, *Gymnodinium spirale,* was the most common dinoflagellate and was counted in 12 samples.

Station B had the most taxa with 41, followed by R2 with 29 taxa. Similarity of the phytoplankton communities between stations was evaluated with Jaccard's coefficient of community similarity. Coefficients were calculated using the taxa combined from all the replicates at each station. The phytoplankton communities that were least similar (coefficient of similarity of 0.45) were those from R3 and B. The phytoplankton communities that were most similar (coefficient of similarity of 0.59) were those from R2 and R3. Coefficients of similarity in the 2024 samples were:

Stations	Jaccard's Coefficient
R2 and R3	0.59
R1 and B	0.57
R1 and R3	0.56
R1 and R4	0.56
R2 and B	0.53
R2 and R4	0.50
R4 and B	0.48
R1 and R2	0.47
R3 and R4	0.47
R3 and B	0.45

Station B had the greatest diatom diversity (18 taxa), with small pennate diatoms occurring in highest numbers. The number of diatom taxa at the other stations ranged from 9 (Station R4) to 16 (Station R3).

Station R4 had the most concentrated blue-green algal community with an average concentration of 250,000/ml, most of which were small picoplankton. Blue-green algal concentrations at the other stations ranged from an average of 100,000/ml at B to 160,000/ml average at R1. The highest average concentration of phytoplankton was at Station R4 with about 1.5 million/ml compared to a low of 550,000 cells/ml at station R3.

Diversity, as measured with Shannon-Weaver's index of diversity calculated using the average concentrations of the replicates at each station, ranged from 0.90 at R1 to 1.27 at R3. Equitability was lowest, 0.05 at Stations R1 and B and highest at R3 with a value of 0.08. Diversity and equitability values are listed below:

Station	Diversity	Equitability
R4	1.19	0.06
R1	0.51	0.03
B	0.49	0.02
R3	0.43	0.02
R2	0.42	0.02

A modification in the analytical protocol applied to samples collected after 2007 results in much higher counts of picoplankton than before 2008. Including higher numbers of picoplankton increases the density of phytoplankton measured at each station by a factor of about 1,000 when compared to densities recorded for years prior to 2008. The much higher numbers of picoplankton included in the analysis and computations since 2008 result in lower values of diversity and equitability at all stations than before 2008.

5.2.2.3 Zooplankton

Zooplankton density (number/cubic meter [m^3]) data for October 2024 (Trip 129) are presented in Attachment E. The taxa collected are summarized by station in Table 5-21. Small ciliated protozoa, counted in phytoplankton samples, can be an important component of zooplankton communities, and have been included in the analysis since 2008. Many of these ciliated protozoa are too small to be retained by the plankton net and as a result cannot be analyzed in net plankton samples. Ciliated protozoa numerically dominated zooplankton concentrations and exceeded 0.9 million/m^3 in all samples with concentrations exceeding 22 million/m^3 in one replicate at R4.

When considering zooplankton retained by the plankton net, crustacean nauplii were encountered in all samples with concentrations exceeding 1,900/m^3. Highest concentrations of nauplii were found at R4 averaging 1,000/m^3. Adult copepods were observed only in samples from Station R2, R3, and B. Juvenile copepods of the genus *Halicyclops* were the most abundant juvenile copepods. *Halicyclops* is recognized as a primarily brackish water genus of copepods.

Synchaeta, a genus of rotifer known to have species inhabiting estuarine habitats was the most abundant rotifer observed, counted in 18 replicate samples in all replicates with average concentrations exceeding 670/m^3 at all stations. Rotifers which were misshapen and contracted by the preservative and which could not be identified to species were common and were categorized as unidentified rotifers.

Bivalve mollusk veligers were counted in samples from all stations. Gastropod veligers were observed at all stations except B. Larval polychaetes were counted in all samples with concentrations up to 16,000/m^3 in one replicate at Station B. The comb jelly, *Pleurobrachia pileus*, was observed in samples from R2 and B. This is the first time this species has been observed in the net plankton.``

Jaccard's coefficient of community similarity for zooplankton, calculated with the inclusion of protozoan taxa ranged from 0.48 (the least similar) to 0.76. Calculations of Jaccard's coefficient of community similarity were also made excluding protozoa taxa counted in phytoplankton samples. The stations with the most taxonomically similar zooplankton communities, coefficients of similarity equal to 0.76, were R3 to R4 (including protozoa) and R3 to R4 (excluding protozoa). Coefficients of similarity between the stations were:

Stations Compared	Jaccard's Coefficient of Similarity (including protozoa)
R3 and R4	0.76
R2 and B	0.60
R1 and R4	0.59
R2 and R4	0.59
R1 and R3	0.58
R3 and B	0.58
R1 and B	0.56
R2 and R3	0.56
R4 and B	0.52
R1 and R2	0.48

Stations Compared	Jaccard's Coefficient of Similarity (excluding protozoa)
R3 and R4	0.73
R2 and B	0.63
R1 and R4	0.63
R1 and R3	0.58
R2 and R3	0.58
R1 and B	0.55
R3 and B	0.55
R2 and R4	0.53
R4 and B	0.50
R1 and R2	0.45

Diversity, as measured by Shannon-Weaver's index of diversity calculated from the average of the replicates at each station including protozoa, ranged from 0.54 at R3 to 1.25 at R4. Equitability ranged from 0.02 (R3) to 0.05 (R4). The diversity and equitability values included:

Station	Diversity	Equitability	Diversity	Equitability
	(with protozoa)		(without protozoa)	
B	0.77	0.03	2.93	0.20
R1	0.75	0.03	2.26	0.16
R2	1.16	0.05	2.50	0.17
R3	0.54	0.02	3.16	0.23
R4	1.25	0.05	1.79	0.13

Taxa richness varied from 21 taxa at B to 17 taxa at R2 and R4. R3 had the highest average concentrations of protozoa, 61 million/m^3. The high concentration of protozoa at R3 resulted from the inclusion of choanoflagellates counted in the phytoplankton sample at 1,000X. R3, R4, and B had the greatest number of protozoan taxa, six. The ciliated prototistan genus, *Euplotes*, was counted at all stations. It is cosmopolitan in distribution and is found freshwater, marine, and soil habitats.

5.2.3 Benthos

Raw macroinvertebrate number and density (number/m^2) data for the July 2024 through March/April 2025 sampling period are presented in Attachment F. A total of 55 taxa were identified for the current study period, as shown in Table 5-22, summarized by station series. A total of 15 taxa were unidentified and are presented in Table 5-22; however, they are not included in the discussion below. Table 5-23 and figures 5-5 through 5-7 present the number of taxa, density, diversity, and equitability by station series for July 2024 through March/April 2025.

This assemblage is overwhelmingly marine in origin. Major group representation in the 2024–2025 assemblage included 17 Mollusca (Gastropoda and Bivalvia) taxa, 10 Malacostraca taxa, and 21 taxa of Polychaeta. Miscellaneous groups included Bryozoa, Chordata, Cnidaria, Echinodermata, Porifera, and Nemertea.

The number of taxa in each major group observed during the quarterly collections was only slightly more than what was seen during the 31st year of monitoring, except Echinodermata, which was the same. During all four quarters, the B-series exhibited largest numbers of taxa, followed by the A-series, C-series, R-series, and D2.

Average macroinvertebrate taxa richness was highest during the February 2025 sampling followed by March/April 2025, July 2024, and October 2024, while average densities were highest during the February 2025 sampling, followed by March/April 2025, July 2024, and October 2024.

The greatest average diversity was observed during February 2025 sampling followed by March/April 2025, July 2024, and October 2024 (Table 5-23, figures 5-5 through 5-7). Equitability was highest in October 2024, followed by February 2025, July 2024, and March/April 2025.

5.3 BIOASSAYS

The bioassay data are presented in tables 5-24 through 5-32, by trip, for the amphipods, fish, and mysids.

5.3.1 *Leptocheirus plumulosus*

Ten-day solid phase bioassays were conducted with sediment collected from Station B2 during March/April 2025 (Trip 131). Control survival (Table 5-24) was not more than 10 percent greater than survival in B2 sediments, and therefore statistical analysis was not required (EPA/USACE, 1991).

Therefore, the conclusion of the testing is that no adverse ecological impacts should be expected to sensitive benthic organisms exposed to Station B2 sediments, unless future sampling indicates a trend.

5.3.2 *Menidia beryllina* and *Americamysis bahia*

Seven-day water column bioassays were conducted with site water with Inland Silversides and mysids as test organisms. Site water was collected from stations B2 and B4 during the March/April 2025 (Trip 131) monitoring trip. Survival of mysids and sheepshead minnows exposed to site water from stations B2 and B4 was not at least 10 percent less than survival of organisms exposed to control water (tables 5-25 through 5-28) and statistical analysis is not required. Growth of Inland Silversides exposed to site water from Station B2 was greater than growth of organisms exposed to controls (Table 5-29). The statistical analysis shows no significant difference (α=0.05) in test and control survival. Growth of Inland Silversides exposed to site water from Station B4 was not at least 10 percent less than survival of organisms exposed to control water (Table 5-30) and statistical analysis is not required. Growth of mysids exposed to site water from stations B2 and B4 was greater than growth of organisms exposed to the controls (tables 5-31 and 5-32). Therefore, the overall conclusion of the testing is that no adverse ecological impacts should be expected from exposure of sensitive water column or epibenthic organisms from station B2 or B4 site water.

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6.0 ANALYSIS OF CONFORMANCE WITH STUDY OBJECTIVES

This analysis compares the Monitoring Program, from July 2024 through March/April 2025, to the objectives given in the Scope and repeated in Section 1.

Since the Scope, as approved by the TCEQ, was designed to monitor the health and structure of the biological community in the vicinity of the discharge and since the Monitoring Program has been carried out in accordance with the Scope, this objective has been met. The results of the Monitoring Program, to date, indicate that there is no adverse impact to the health or structure of the biological community in Lavaca Bay associated with Outfall 001.

The water and sediment quality of Lavaca Bay in the vicinity of the outfall have been monitored since October 1993 when discharges first began. No adverse impacts have been noted.

Violations of the *Texas Surface Water Quality Standards* have not been detected by the Monitoring Program.

Tissue samples have been taken from oysters caged for 28 days within 600 feet of the discharge during October 2024 and March/April 2025 and compared with oysters caged on a natural reef and archive samples. There is no evidence of uptake of harmful constituents associated with the Outfall 001 since its inception of the Monitoring Program.

Since (1) the Scope has been examined and approved by the TCEQ, (2) the Scope was designed to comply with the sampling requirements of the NPDES Sampling and Analysis Program, and (3) the Scope has been followed in the execution of the Monitoring Program, compliance with the requirements of the NPDES Sampling and Analysis Program has been achieved.

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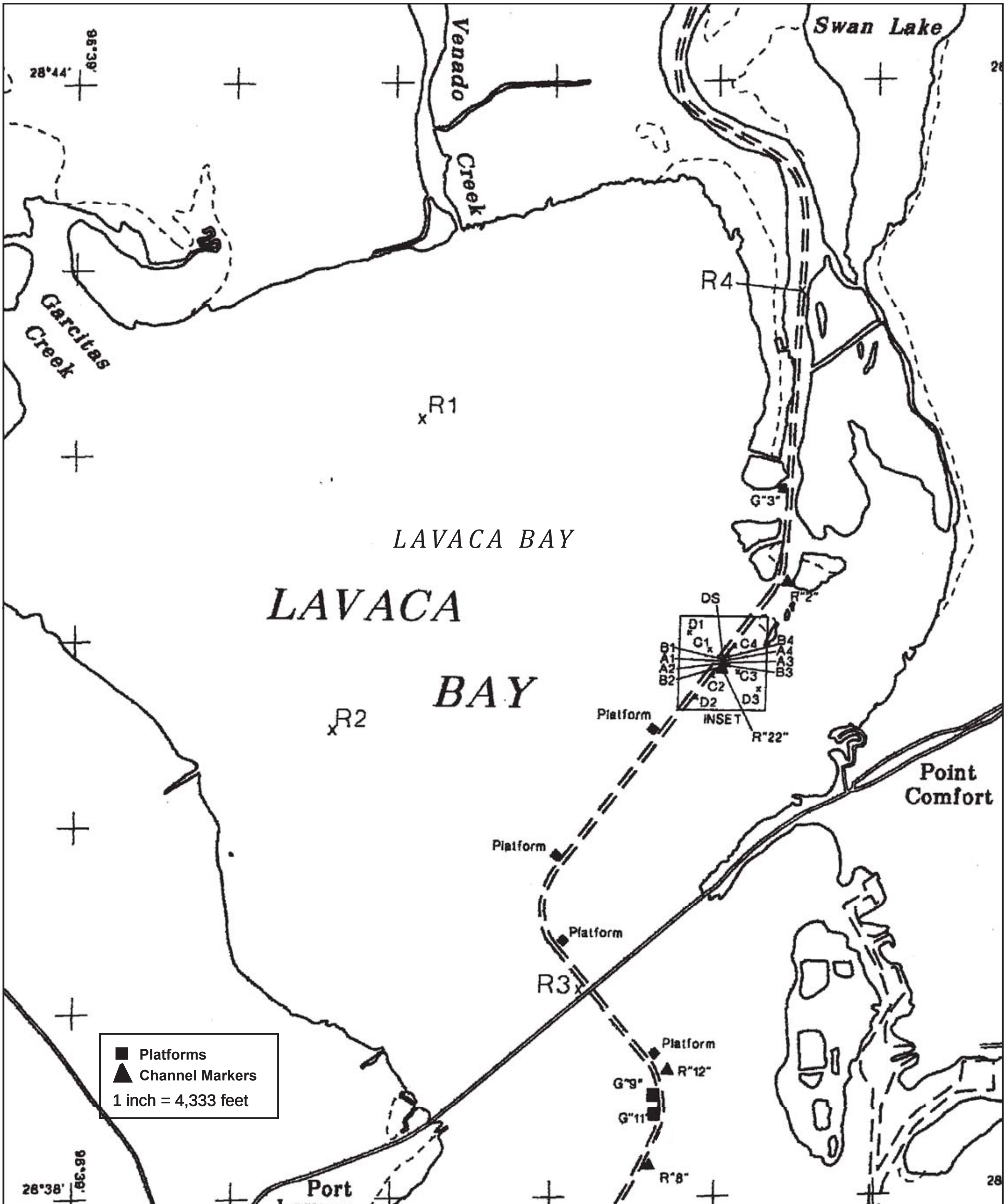
Figures



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FORMOSA PLASTICS CORPORATION

Receiving Water Monitoring Program

Sample Stations

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Feet

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DESIGNED	SSJ
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1-1

FIGURE

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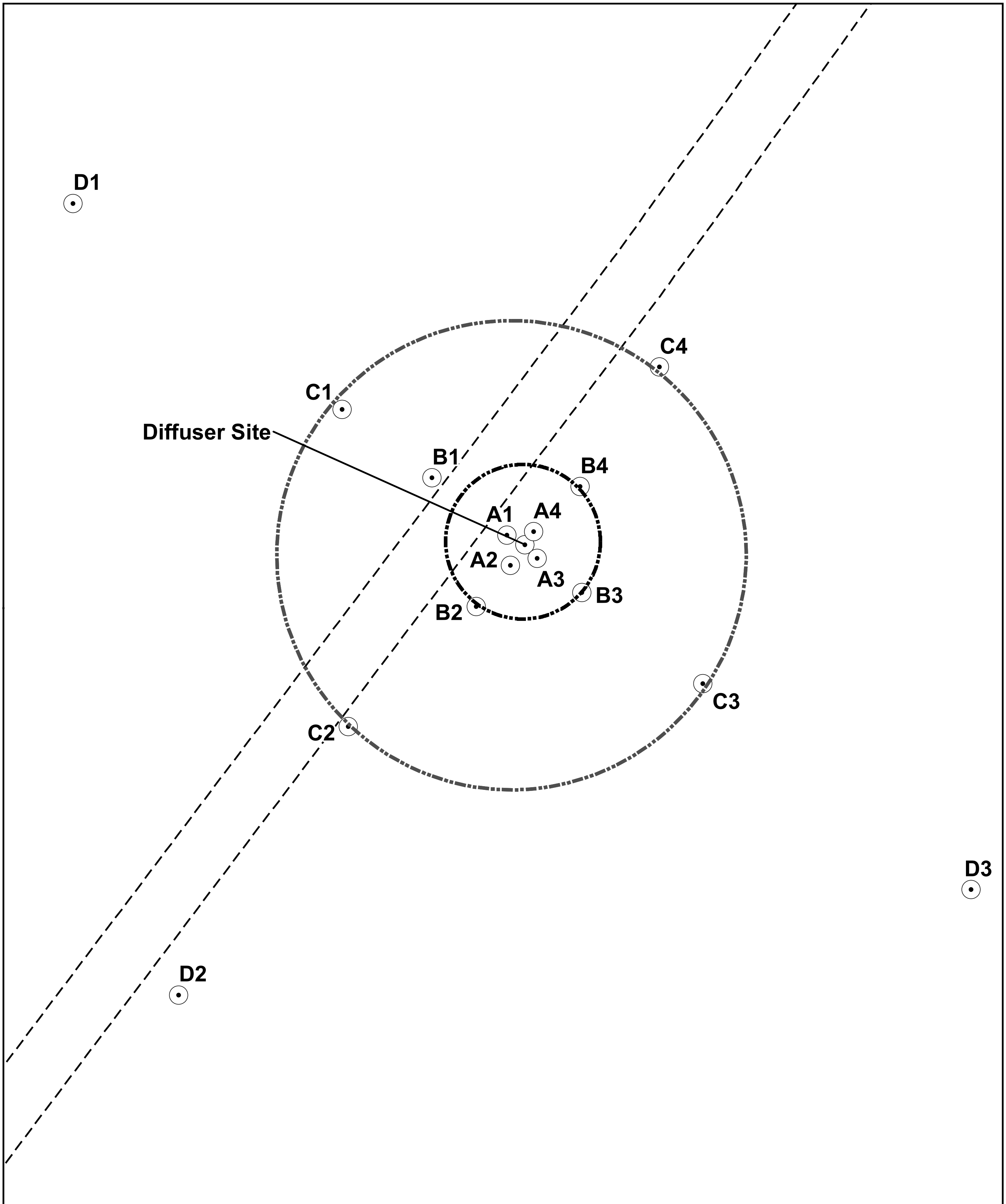

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Sample Stations Near Diffuser

0 500 1,000 Feet

FN JOB NO	FMS14521
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1-2

FIGURE

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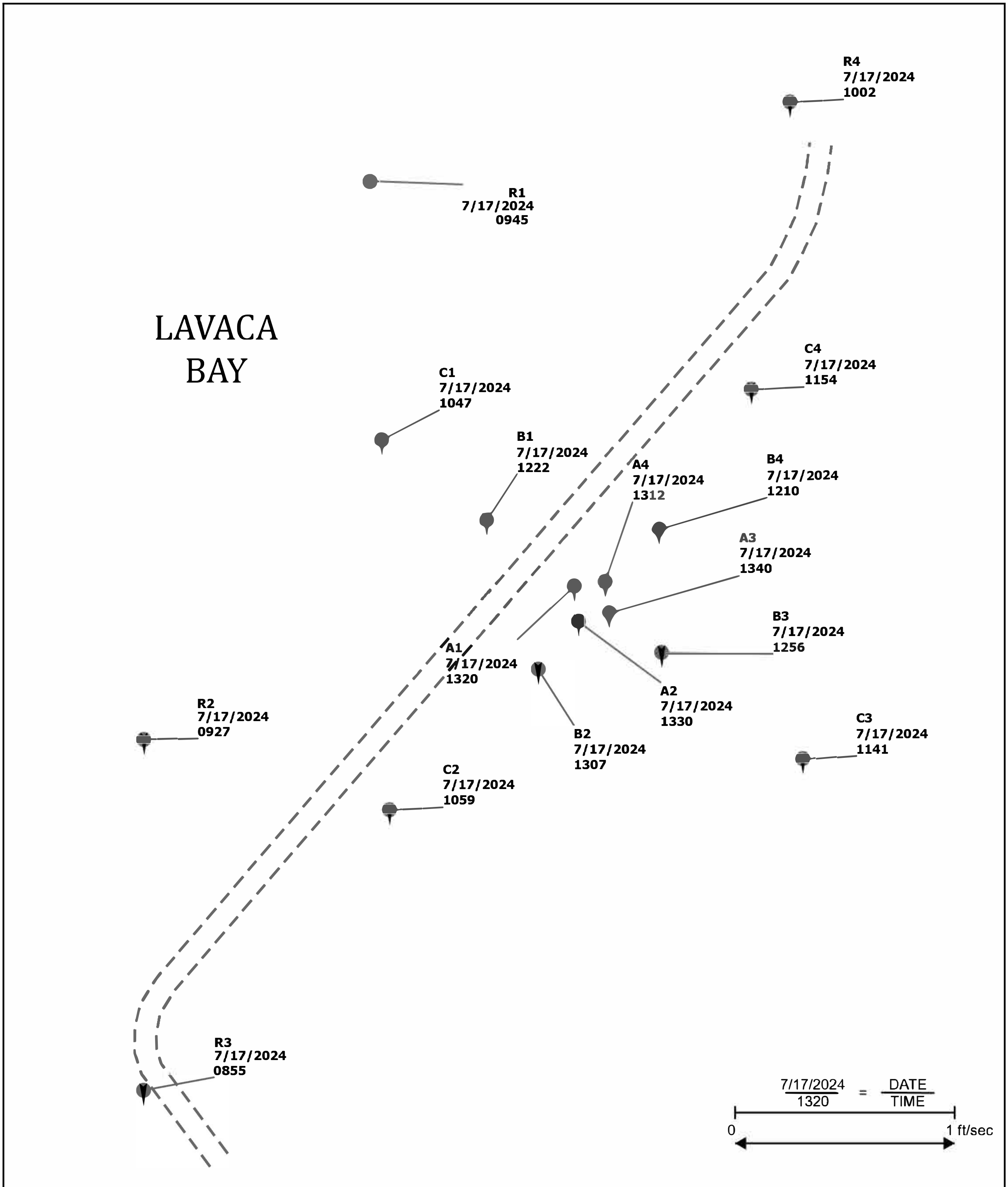

* The flowmeter malfunctioned during monitoring trip and therefore no current speeds were recorded.

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Currents Data - Trip 128

Station Locations Not to Scale

FN JOB NO	FMS24749
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5-1

FIGURE

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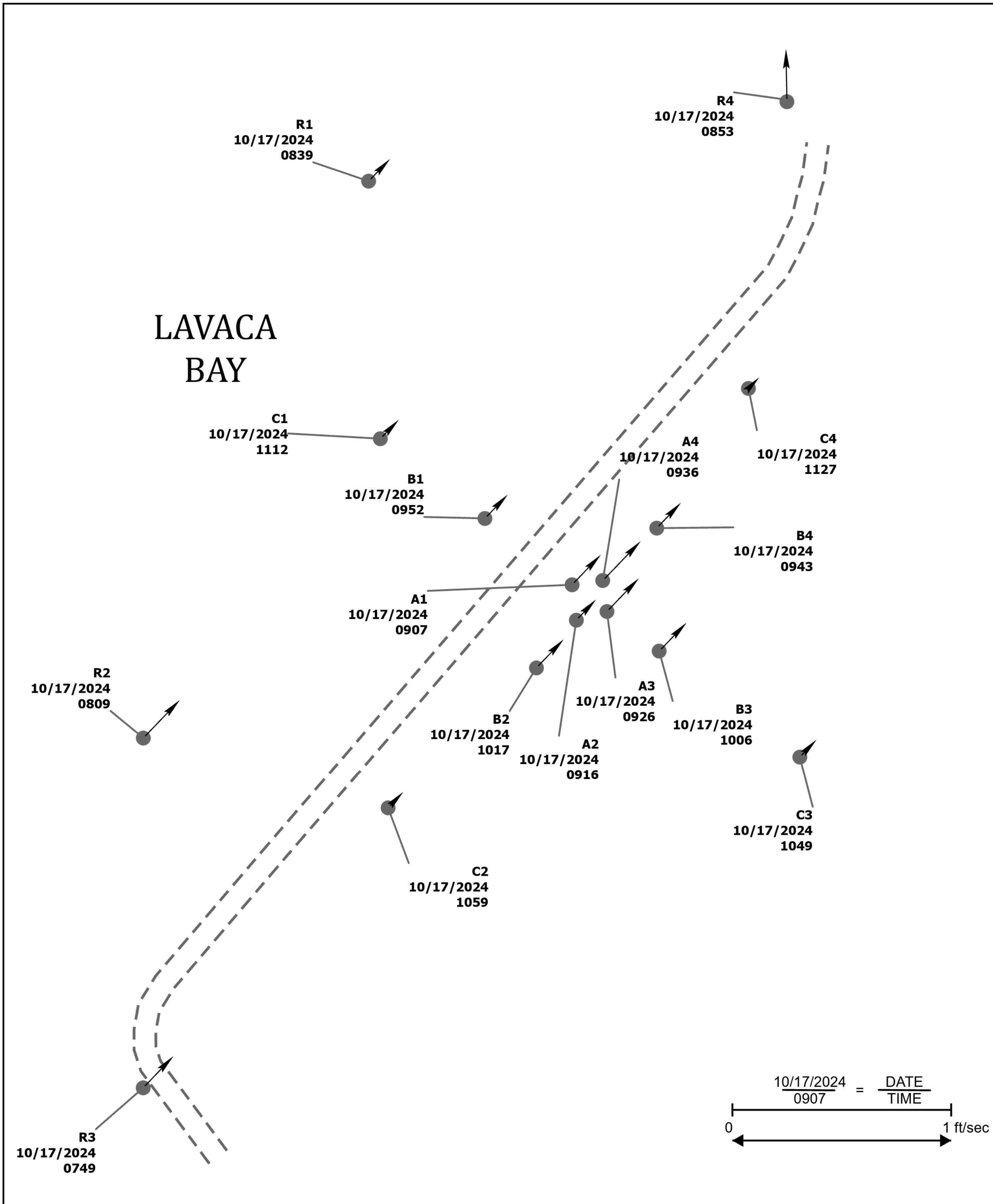

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Receiving Water Monitoring Program

Currents Data - Trip 129

Station Locations Not to Scale

FN JOB NO	FMS24749
FILE NAME	Figures_2025.aprx
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5-2

FIGURE

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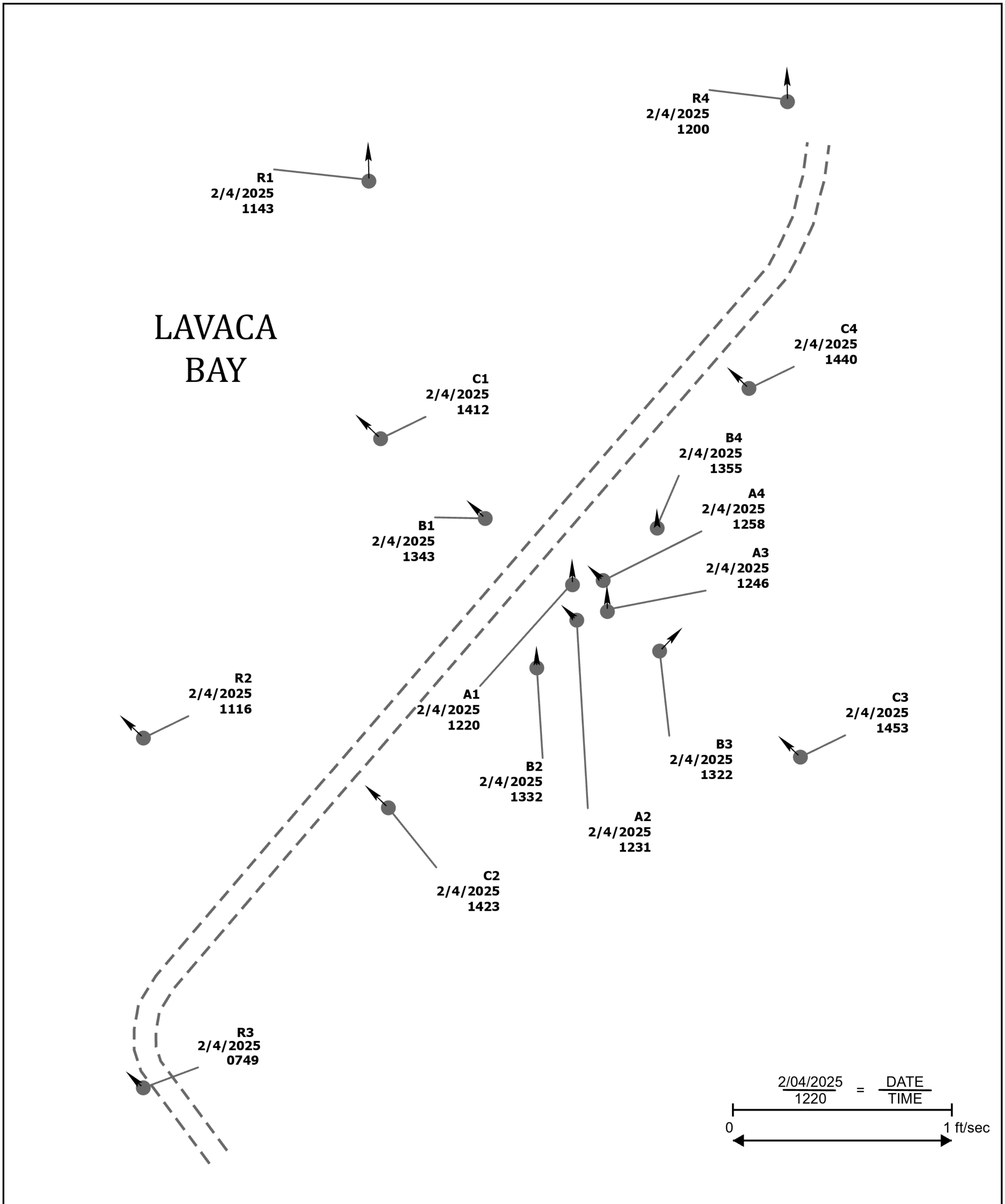

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Currents Data - Trip 130

Station Locations Not to Scale

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5-3

FIGURE

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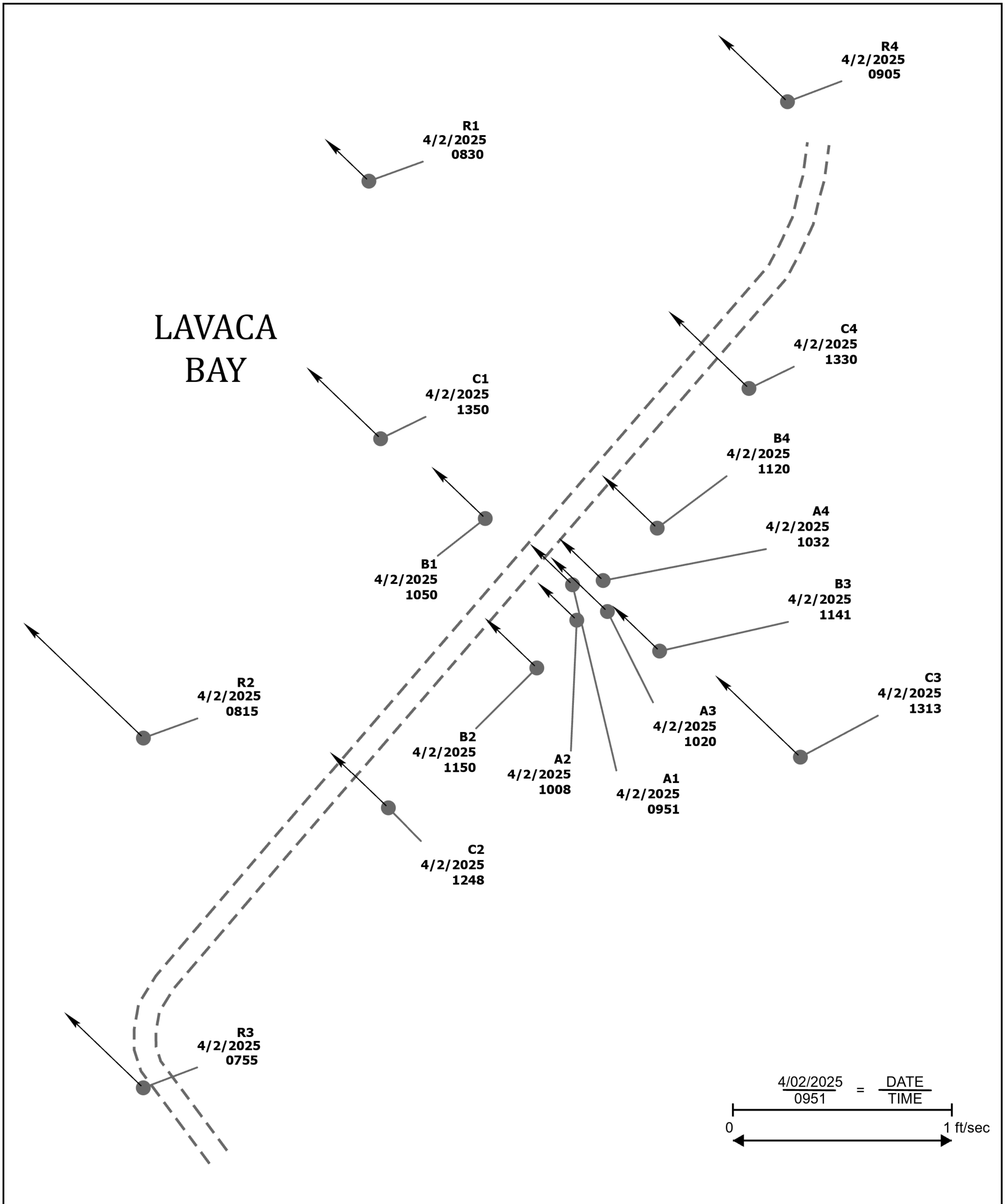

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Receiving Water Monitoring Program

Currents Data - Trip 131

Station Locations Not to Scale

FN JOB NO	FMS24749
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DATE	5/21/2025
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DESIGNED	SSJ
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5-4

FIGURE

Path: H:\ENVIRONMENTAL\Final_Exhibits\2025_Trip\Figures_2025.aprx

NAD 1983 StatePlane Texas South Central FIPS 4204 Feet

Figure 5-5
Taxa Richness of Macroinvertebrate Assemblages
July 2024 - March/April 2025

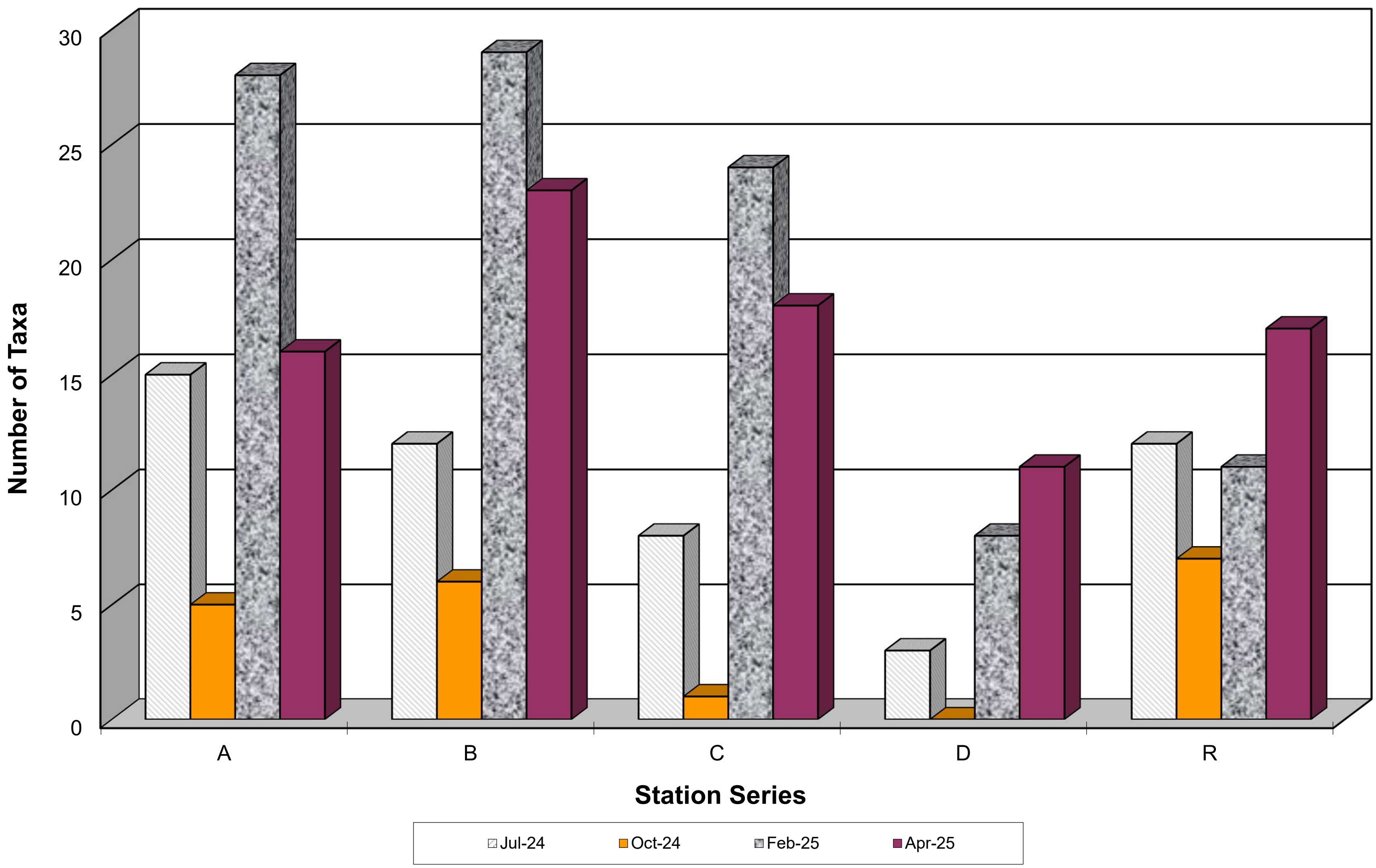


Figure 5-6
Density (Number/m²) of Macroinvertebrates
July 2024 - March/April 2025

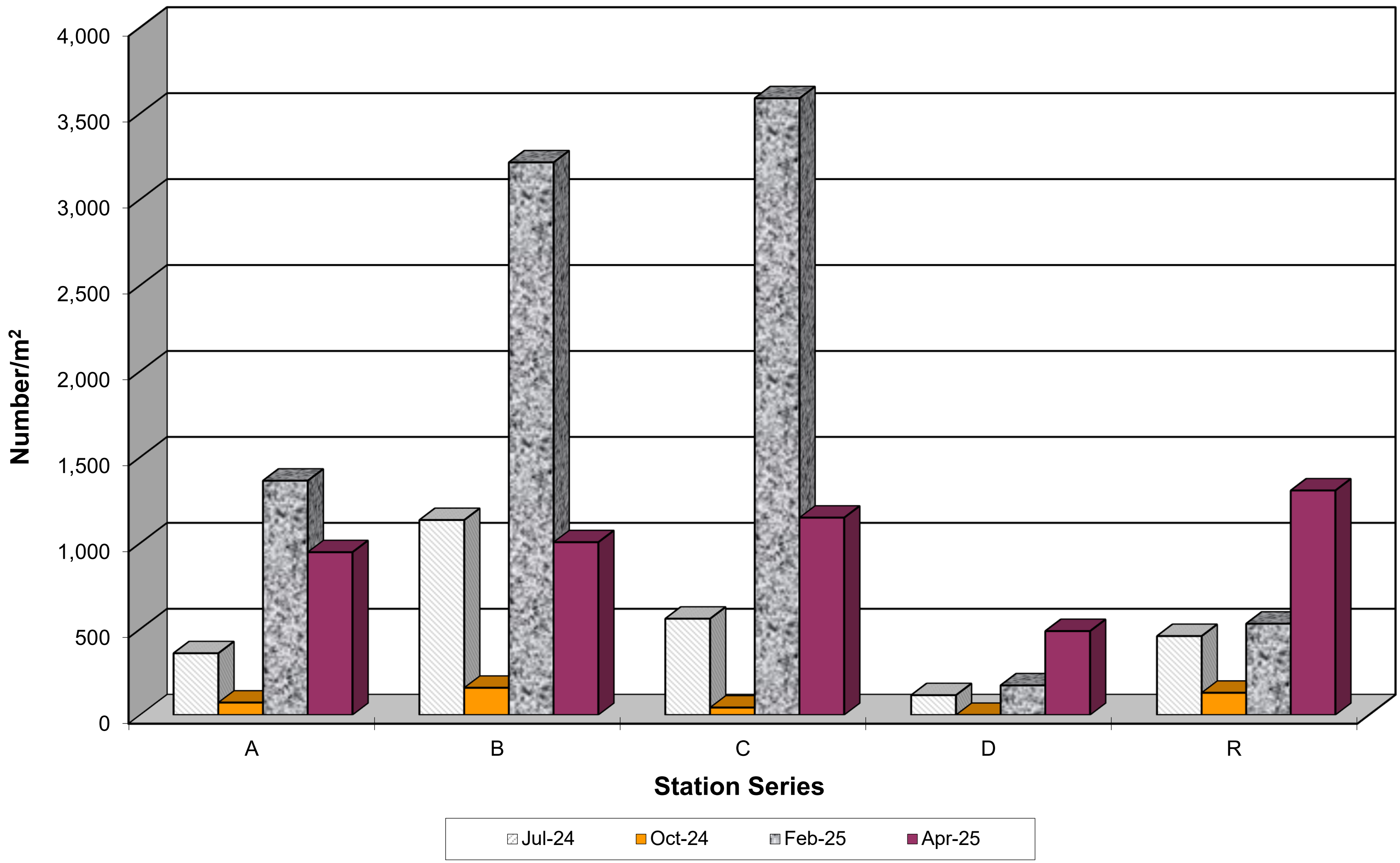
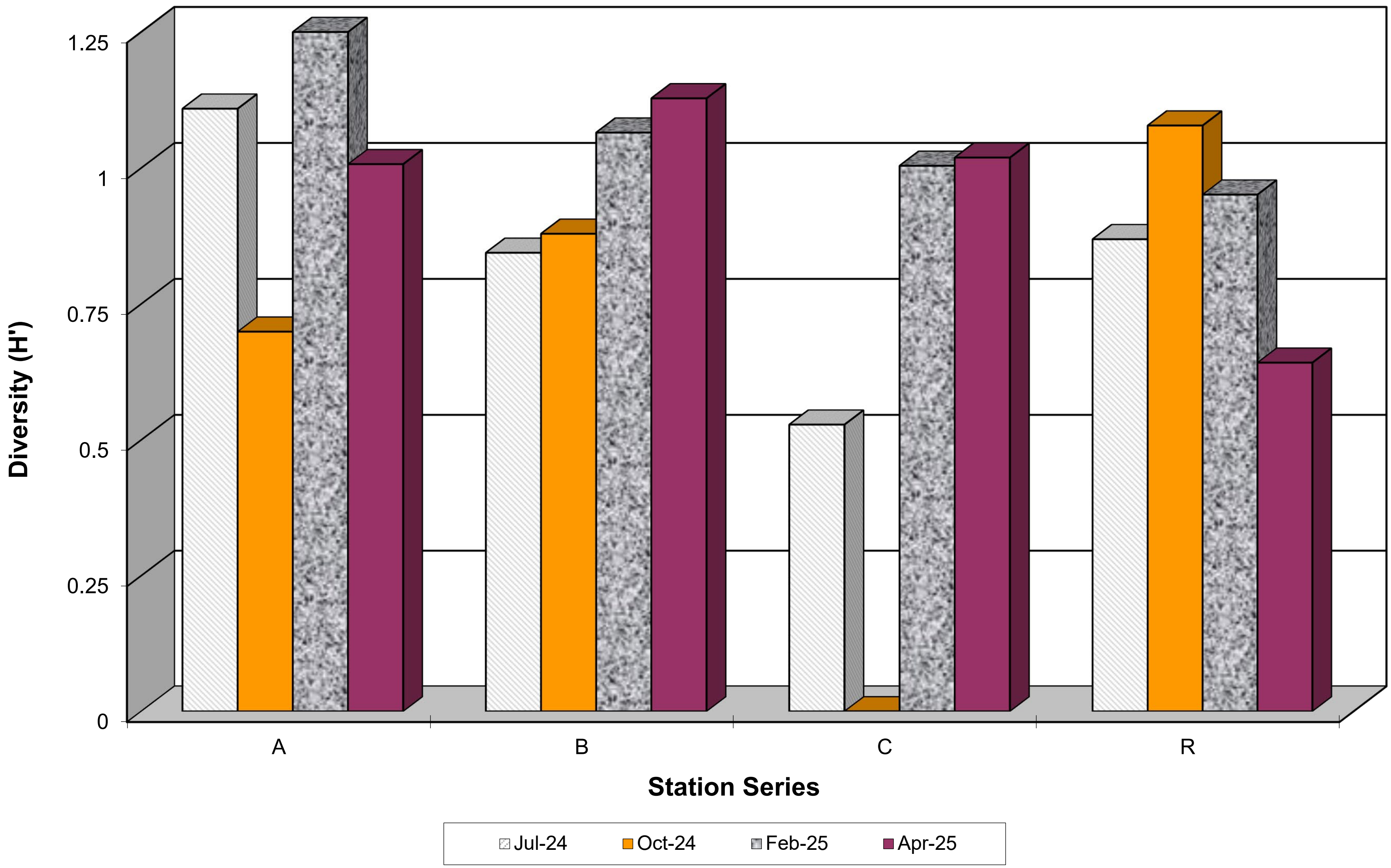


Figure 5-7
Diversity (H') of Macroinvertebrate Assemblages
July 2024 - March/April 2025



Tables

TABLE 1-1

SAMPLING STATION DESCRIPTIONS

Station	GPS Coordinates		Distance from Diffuser (feet)
A1	28° 40' 51.80" N	96° 34' 56.01" W	50
A2	28° 40' 51.00" N	96° 34' 55.92" W	50
A3	28° 40' 51.18" N	96° 34' 55.13" W	50
A4	28° 40' 51.88" N	96° 34' 55.22" W	50
B1	28° 40' 53.34" N	96° 34' 58.21" W	250*
B2	28° 40' 49.94" N	96° 34' 56.97" W	200
B3	28° 40' 50.26" N	96° 34' 53.81" W	200
B4	28° 40' 53.04" N	96° 34' 54.17" W	200
C1	28° 40' 55.19" N	96° 35' 0.85" W	600
C2	28° 40' 46.84" N	96° 34' 59.76" W	600
C3	28° 40' 47.80" N	96° 34' 50.26" W	600
C4	28° 40' 56.15" N	96° 34' 51.38" W	600
D1	28° 41' 0.73" N	96° 35' 8.76" W	1,500
D2	28° 40' 39.87" N	96° 35' 6.04" W	1,500
D3	28° 40' 42.26" N	96° 34' 42.38" W	1,500
R1	28° 42' 11.76" N	96° 36' 45.84" W	12,500
R2	28° 40' 30.72" N	96° 37' 23.34" W	12,500
R3	28° 39' 7.74" N	96° 35' 46.50" W	12,500
R4	28° 42' 51.24" N	96° 34' 26.76" W	12,500

*B1 at 250 feet to avoid channel (see Figure 1-2)

TABLE 1-2
TRIP 128 (15 – 18 July 2024)

	Chemical Suite				Bioassays	Biology Suite			
Station	I[1]	II[2]	III[3]	IV[4]		Trawl/ Gill Net	Phyto-/ Zoo-plankton	Ichthyo-plankton	Benthos
A1	X	X	X	X					X
A2	X	X	X	X					X
A3	X	X	X	X					X
A4	X	X	X	X					X
B1	X	X	X	X		X		X	X
B2	X	X	X	X		X		X	X
B3	X	X	X	X		X		X	X
B4	X	X	X	X		X		X	X
C1	X	X	X	X		X		X	X
C2	X	X	X	X		X		X	X
C3 (dup)	X	X	X	X		X		X	X
C4	X	X	X	X		X		X	X
C5*	X	X	X	X					
D1			X	X[3]					
D2			X	X[3]					X
D3			X	X[3]					
Marker 22				X[5]					
R1 (dup)	X	X	X	X		X		X	X
R2	X	X	X	X		X		X	X
R3	X	X	X	X		X		X	X
R4	X	X	X	X		X		X	X
R5*[3]			X						

[1] In-field data
[2] Water and porewater only
[3] Sediment only
[4] Water, porewater, and sediment
[5] Sediment metals and grain size only
* Duplicate Station

Tissue - Not Required for Trip 128.

TABLE 1-3
TRIP 129 (14 – 17 October 2024)

Station	Chemical Suite I[1]	II[2]	III[3]	IV[4]	Bioassays	Biology Suite Trawl/ Gill Net	Phyto-/ Zoo- plankton	Ichthyo- plankton	Benthos
A1 (dup)	X	X	X	X					X
A2	X	X	X	X					X
A3	X	X	X	X					X
A4	X	X	X	X					X
A5*	X	X	X	X					
B1	X	X	X	X		X	X	X	X
B2	X	X	X	X		X	X	X	X
B3	X	X	X	X		X	X	X	X
B4	X	X	X	X		X	X	X	X
C1 (dup)	X	X	X	X		X		X	X
C2	X	X	X	X		X		X	X
C3	X	X	X	X		X		X	X
C4	X	X	X	X		X		X	X
C5*	X	X	X	X					
D1			X	X[3]					
D2			X	X[3]					X
D3			X	X[3]					
Marker 22				X[5]					
R1	X	X	X	X		X	X	X	X
R2	X	X	X	X		X	X	X	X
R3	X	X	X	X		X	X	X	X
R4	X	X	X	X		X	X	X	X

[1] In-field data
[2] Water and porewater only
[3] Sediment only
[4] Water, porewater, and sediment
[5] Sediment metals and grain size only
* Duplicate Station

Tissue	
Hardhead catfish (edible and non-edible)	a,b
Oysters (edible)	c

a = Combination of organisms from any or all of Stations B1, B2, B3, B4, C1, C2, C3, C4
b = Combination of organisms from Stations R1, R2
c = Organisms from Stations C1, C2, C3, R5, and Archive

TABLE 1-4
TRIP 130 (3 – 6 February 2025)

	Chemical Suite					Biology Suite			
Station	I[1]	II[2]	III[3]	IV[4]	Bioassays	Trawl/ Gill Net	Phyto-/ Zoo-plankton	Ichthyo-plankton	Benthos
A1	X	X	X	X					X
A2 (dup)	X	X	X	X					X
A3	X	X	X	X					X
A4	X	X	X	X					X
A5*	X	X	X	X					
B1	X	X	X	X		X		X	X
B2	X	X	X	X		X		X	X
B3	X	X	X	X		X		X	X
B4 (dup)	X	X	X	X		X		X	X
B5*[3]			X						
C1	X	X	X	X		X		X	X
C2	X	X	X	X		X		X	X
C3	X	X	X	X		X		X	X
C4	X	X	X	X		X		X	X
D1			X	X[3]					
D2			X	X[3]					X
D3			X	X[3]					
Marker 22				X[5]					
R1	X	X	X	X		X		X	X
R2	X	X	X	X		X		X	X
R3	X	X	X	X		X		X	X
R4	X	X	X	X		X		X	X

1 In-field data
2 Water and porewater only
3 Sediment only
4 Water, porewater, and sediment
5 Sediment metals and grain size only
* Duplicate Station

Tissue - Not Required for Trip 130.

TABLE 1-5

TRIP 131 (March 31 – 3 April 2025)

Station	Chemical Suite I[1]	II[2]	III[3]	IV[4]	Bioassays	Biology Suite Trawl/ Gill Net	Phyto-/ Zoo- plankton	Ichthyo- plankton	Benthos
A1	X	X	X	X					X
A2	X	X	X	X					X
A3	X	X	X	X					X
A4	X	X	X	X					X
B1	X	X	X	X		X	X	X	X
B2	X	X	X	X	X	X	X	X	X
B3	X	X	X	X		X	X	X	X
B4 (dup)	X	X	X	X	X	X	X	X	X
B5*	X	X	X	X					
C1	X	X	X	X		X		X	X
C2 (dup)	X	X	X	X		X		X	X
C3	X	X	X	X		X		X	X
C4	X	X	X	X		X		X	X
C5*	X	X	X	X					
D1			X	X[3]					
D2			X	X[3]					X
D3			X	X[3]					
Marker 22				X[5]					
R1	X	X	X	X		X	X	X	X
R2	X	X	X	X		X	X	X	X
R3	X	X	X	X		X	X	X	X
R4	X	X	X	X		X	X	X	X

[1] In-field data
[2] Water and porewater only
[3] Sediment only
[4] Water, porewater, and sediment
[5] Sediment metals and grain size only
* Duplicate Station

Tissue	
Oysters (edible)	c

c = Organisms from Stations C1, C2, C3, R5, and Archive

TABLE 1-6

IN-SITU PHYSICO-CHEMICAL PARAMETERS

<u>SUITE I</u>
Water temperature
Conductivity compensated to 25°C
Salinity
pH
Dissolved oxygen
Water depth at sampling point
Observations of conditions (waves, wind, sky, antecedent weather, appearance of water)
Currents (speed and direction)

TABLE 1-7

WATER

ANALYTICAL METHODOLOGY, METHOD ANALYTICAL LEVELS AND METHOD DETECTION LIMITS

Parameter	MAL	Method	MDL
SUITE II			
BOD5	2 mg/l	SM 5210 B	2
COD	5 mg/l	Hach 8000	5
Organic Nitrogen	1.0 mg/l	351.4	1
Ammonia Nitrogen	0.1 mg/l	350.1	0.1
Nitrate Nitrogen	0.07 mg/l	300.0	0.07
Total Phosphorus	0.01 mg/l	365.1	0.01
Ortho Phosphate	0.01 mg/l	365.1	0.01
TOC	1 mg/l	SM 5310 C	1
TSS	4 mg/l	SM 2540 D	4
Chlorides[1]	34.5 mg/l	300.0	34.5
Turbidity (NTU)	0.1 mg/l	180.1	0.1
Oil and Grease[2]	5 mg/l	1664A	5
Sulfate	1.7 mg/l	300.0	1.7
Cyanide (Total)	0.01 mg/l	SM 4500-CN^- C	0.01
TDS	10 mg/l	SM 2540 C	10
Nitrite Nitrogen	0.01 mg/l	Hach 8507	0.01
SUITE IV			
METALS			
Total Chromium (total and dissolved)	10 µg/l	200.7	10
Copper (total and dissolved)	10 µg/l	200.7	10
Lead (total and dissolved)	2.7 µg/l	200.7	2.7
Mercury (dissolved only)	0.2 µg/l	245.2	0.2
Nickel (total and dissolved)	10 µg/l	200.7	10
Zinc (total and dissolved)	5 µg/l	200.7	5
PAHs			
Acenaphthene	10 µg/l	8270	10
Acenaphthylene	10 µg/l	8270	10
Anthracene	10 µg/l	8270	10
Benzo(a)anthracene	10 µg/l	8270	10
Benzo(k)fluoranthene	10 µg/l	8270	10

TABLE 1-7 (Continued)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
PAHs (cont)			
3,4-Benzofluoranthene	10 µg/l	8270	10
Benzo(a)pyrene	10 µg/l	8270	10
Chrysene	10 µg/l	8270	10
Fluoranthene	10 µg/l	8270	10
Fluorene	10 µg/l	8270	10
Naphthalene	20 µg/l	8270	10
Phenanthrene	20 µg/l	8270	10
Pyrene	20 µg/l	8270	10
VOLATILES			
Acrylonitrile	50 µg/l	8260	5
Benzene	10 µg/l	8260	5
Carbon Tetrachloride	10 µg/l	8260	5
Chlorobenzene	10 µg/l	8260	6
Chloroethane	10 µg/l	8260	5
Chloroform	10 µg/l	8260	5
Chloromethane	10 µg/l	8260	5
1,1-Dichloroethane	10 µg/l	8260	5
1,2-Dichloroethane	10 µg/l	8260	5
1,1-Dichloroethene	10 µg/l	8260	5
Trans-1,2-Dichloroethene	10 µg/l	8260	5
1,2,-Dichloropropane	10 µg/l	8260	5
Cis-1,3-Dichloropropene	10 µg/l	8260	5
Trans-1,3-Dichloropropene	10 µg/l	8260	5
Ethylbenzene	10 µg/l	8260	5
Methylene Chloride	20 µg/l	8260	5
Tetrachloroethene	10 µg/l	8260	5
Toluene	10 µg/l	8260	5
1,1,1-Trichloroethane	10 µg/l	8260	5
1,1,2-Trichloroethane	10 µg/l	8260	5
Trichloroethene	10 µg/l	8260	5
Vinyl Chloride	10 µg/l	8260	5
SEMIVOLATILES			
Bis(2-Ethylhexyl)phthalate	10 µg/l	8270	10
Butylbenzyl Phthalate	10 µg/l	8270	10
4-Chloro-3-cresol	10 µg/l	8270	10
2-Chlorophenol	10 µg/l	8270	10
Di-N-Butyl Phthalate	10 µg/l	8270	10
1,2-Dichlorobenzene	10 µg/l	8270	10
1,3-Dichlorobenzene	10 µg/l	8270	10

TABLE 1-7 (Concluded)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
SEMIVOLATILES			
1,4-Dichlorobenzene	10 µg/l	8270	10
2,4-Dichlorophenol	10 µg/l	8270	10
Diethyl Phthalate	10 µg/l	8270	10
2,4-Dimethylphenol	10 µg/l	8270	10
Dimethyl Phthalate	10 µg/l	8270	10
4,6-Dinitro-2-Methylphenol	10 µg/l	8270	10
2,4-Dinitrophenol	50 µg/l	8270	50
2,4-Dinitrotoluene	10 µg/l	8270	10
2,6-Dinitrotoluene	10 µg/l	8270	10
Hexachlorobenzene	10 µg/l	8270	10
Hexachlorobutadiene	10 µg/l	8270	10
Hexachloroethane	20 µg/l	8270	10
Nitrobenzene	20 µg/l	8270	10
2-Nitrophenol	10 µg/l	8270	10
4-Nitrophenol	10 µg/l	8270	10
Phenol	10 µg/l	8270	10
1,2,4-Trichlorobenzene	10 µg/l	8270	10

U.S. EPA, "Test Methods for the Evaluation of Solid Waste," 846, November, 1990.

U.S. EPA, "Manual of Analytical Methods for the Analysis of Pesticide Residues in Human and Environmental Samples," 1977.

U.S. EPA, "Methods for Chemical Analysis of Water and Waste," EPA 600/4-79-020, 1970.

Organochlorine Pesticides and PCB's, EPA method 608; Federal Register. Vol. 44, No. 233, 12-3-79.

Acid Digestion of Aqueous Samples for Graphite Furnace. EPA Method 3020.

Acid Digestion of Sediments, Sludges and Soils. EPA Method 3050.

Analysis of Acid, Base, Neutral. EPA Method 8270.

Hach Water Analysis Handbook, 2nd Edition. 1992.

Riggin, R.M., and Strup, P.E. "Screening Methods for PAH priority pollutants in wastewater." EPA-600/4-84-007, NTIS #PB84-132992. Environmental Monitoring and Support Laboratory, Office of Research and Development, Cincinnati, Ohio, 1984

[1] 1996 Scope specified MAL for chlorides of 0.5 was revised to 5.0 due to laboratory equipment changes (NWDLS only).

[2] 1996 Scope specified MAL for oil and grease of 0.2 was found to be erroneous and subsequently changed to 5.0 (NWDLS only).

TABLE 1-8

POREWATER

ANALYTICAL METHODOLOGY, METHOD ANALYTICAL LEVELS AND METHOD DETECTION LIMITS

Parameter	MAL	Method	MDL
SUITE II			
BOD5	2 mg/l	SM 5210 B	2
COD	5 mg/l	Hach 8000	5
Organic Nitrogen	1.0 mg/l	351.4	1
Ammonia Nitrogen	0.1 mg/l	350.1	0.1
Nitrate Nitrogen	0.07 mg/l	300.0	0.07
Total Phosphorus	0.01 mg/l	365.1	0.01
Ortho Phosphate	0.01 mg/l	365.1	0.01
TOC	1 mg/l	SM 5310 C	1
TSS	4 mg/l	SM 2540 D	4
Chlorides[1]	34.5 mg/l	300.0	34.5
Turbidity (NTU)	0.1 mg/l	180.1	0.1
Oil and Grease[2]	5 mg/l	1664A	5
Sulfate	1.7 mg/l	300.0	1.7
Cyanide (Total)	0.01 mg/l	SM 4500-CN^- C	0.01
TDS	10 mg/l	SM 2540 C	10
Nitrite Nitrogen	0.01 mg/l	Hach 8507	0.01
SUITE IV			
METALS			
Aluminum[3]	30 µg/l	200.7	30
Arsenic	2.7 µg/l	200.7	10
Total Chromium	10 µg/l	200.7	10
Hexavalent Chromium	10 µg/l	SM 3500-Cr B	10
Copper	10 µg/l	200.7	10
Lead	2.7 µg/l	200.7	2.7
Mercury	0.2 µg/l	200.7	0.2
Nickel	10 µg/l	200.7	10
Zinc	5 µg/l	200.7	5
PAHs			
Acenaphthene	10 µg/l	8270	10
Acenaphthylene	10 µg/l	8270	10
Anthracene	10 µg/l	8270	10
Benzo(a)anthracene	10 µg/l	8270	10
Benzo(k)fluoranthene	10 µg/l	8270	10

TABLE 1-8 (Continued)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
PAHs (cont)			
3,4-Benzofluoranthene	10 µg/l	8270	10
Benzo(a)pyrene	10 µg/l	8270	10
Chrysene	10 µg/l	8270	10
Fluoranthene	10 µg/l	8270	10
Fluorene	10 µg/l	8270	10
Naphthalene	20 µg/l	8270	10
Phenanthrene	20 µg/l	8270	10
Pyrene	20 µg/l	8270	10
VOLATILES			
Acrylonitrile	50 µg/l	8260	5
Benzene	10 µg/l	8260	5
Carbon Tetrachloride	10 µg/l	8260	5
Chlorobenzene	10 µg/l	8260	6
Chloroethane	10 µg/l	8260	5
Chloroform	10 µg/l	8260	5
Chloromethane	10 µg/l	8260	5
1,1-Dichloroethane	10 µg/l	8260	5
1,2-Dichloroethane	10 µg/l	8260	5
1,1-Dichloroethene	10 µg/l	8260	5
Trans-1,2-Dichloroethene	10 µg/l	8260	5
1,2,-Dichloropropane	10 µg/l	8260	5
Cis-1,3-Dichloropropene	10 µg/l	8260	5
Trans-1,3-Dichloropropene	10 µg/l	8260	5
Ethylbenzene	10 µg/l	8260	5
Methylene Chloride	20 µg/l	8260	5
Tetrachloroethene	10 µg/l	8260	5
Toluene	10 µg/l	8260	5
1,1,1-Trichloroethane	10 µg/l	8260	5
1,1,2-Trichloroethane	10 µg/l	8260	5
Trichloroethene	10 µg/l	8260	5
Vinyl Chloride	10 µg/l	8260	5
SEMIVOLATILES			
Bis(2-Ethylhexyl)phthalate	10 µg/l	8270	10
Butylbenzyl Phthalate	10 µg/l	8270	10
4-Chloro-3-cresol	10 µg/l	8270	10
2-Chlorophenol	10 µg/l	8270	10
Di-N-Butyl Phthalate	10 µg/l	8270	10
1,2-Dichlorobenzene	10 µg/l	8270	10
1,3-Dichlorobenzene	10 µg/l	8270	10

TABLE 1-8 (Concluded)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
SEMIVOLATILES			
1,4-Dichlorobenzene	10 µg/l	8270	10
2,4-Dichlorophenol	10 µg/l	8270	10
Diethyl Phthalate	10 µg/l	8270	10
2,4-Dimethylphenol	10 µg/l	8270	10
Dimethyl Phthalate	10 µg/l	8270	10
4,6-Dinitro-2-Methylphenol	10 µg/l	8270	10
2,4-Dinitrophenol	50 µg/l	8270	50
2,4-Dinitrotoluene	10 µg/l	8270	10
2,6-Dinitrotoluene	10 µg/l	8270	10
Hexachlorobenzene	10 µg/l	8270	10
Hexachlorobutadiene	10 µg/l	8270	10
Hexachloroethane	20 µg/l	8270	10
Nitrobenzene	20 µg/l	8270	10
2-Nitrophenol	10 µg/l	8270	10
4-Nitrophenol	10 µg/l	8270	10
Phenol	10 µg/l	8270	10
1,2,4-Trichlorobenzene	10 µg/l	8270	10

U.S. EPA, "Test Methods for the Evaluation of Solid Waste," 846, November, 1990.

U.S. EPA, "Manual of Analytical Methods for the Analysis of Pesticide Residues in Human and Environmental Samples," 1977.

U.S. EPA, "Methods for Chemical Analysis of Water and Waste," EPA 600/4-79-020, 1970.

Organochlorine Pesticides and PCB's, EPA method 608; Federal Register. Vol. 44, No. 233, 12-3-79.

Acid Digestion of Aqueous Samples for Graphite Furnace. EPA Method 3020.

Acid Digestion of Sediments, Sludges and Soils. EPA Method 3050.

Analysis of Acid, Base, Neutral. EPA Method 8270.

Hach Water Analysis Handbook, 2nd Edition. 1992.

Riggin, R.M., and Strup, P.E. "Screening Methods for PAH priority pollutants in wastewater." EPA-600/4-84-007, NTIS #PB84-132992. Environmental Monitoring and Support Laboratory, Office of Research and Development, Cincinnati, Ohio, 1984.

[1] 1996 Scope specified MAL for chlorides of 0.5 was revised to 5.0 due to laboratory equipment changes.

[2] 1996 Scope specified MAL for oil and grease of 0.2 was found to be erroneous and subsequently changed to 5.0.

[3] 1996 Scope specified MAL for aluminum of 20 was revised to 30 due to laboratory equipment/method changes.

TABLE 1-9

SEDIMENT AND TISSUE

ANALYTICAL METHODOLOGY, METHOD ANALYTICAL LEVELS AND METHOD DETECTION LIMITS

Parameter	MAL	Method	MDL
SUITE III			
Oil and Grease[1]	10 mg/kg	1664A	10
Ammonia - Nitrogen	10 mg/kg	350.2	10
Organic - Nitrogen	10 mg/kg	SM 4500 N C	10
Nitrate - Nitrogen	10 mg/kg	SW-9056A	10
Nitrite - Nitrogen	0.1 mg/kg	Hach 8507	0.1
Volatile Solids	0.1 mg/kg	160.4	0.1
Acid - Volatile Sulfide	1 mg/kg	821-R-91-100	1
TOC	0.1 mg/kg	9060	0.1
Cyanide (Total)	1 mg/kg	9014	1
Grain Size Analysis	N/A	K&A, 1949	N/A
SUITE IV			
METALS			
Aluminum[2]	3 mg/kg	6010C	3
Arsenic‡	0.007 mg/kg	6010C	0.007
Chromium (Total‡ and VI)	1 mg/kg	6010C	1
Copper	0.003 mg/kg	6010C	0.003
Iron	3 mg/kg	6010C	2
Lead	0.46 mg/kg	6010C	0.46
Mercury	0.02 mg/kg	7471B	0.02
Nickel	1 mg/kg	6010C	1
Zinc‡	0.9 mg/kg	6010C	0.9

‡By INAA for tissue samples only (Cornelia, R. 1984-85. "Trace Element Studies in the Biosphere with Neutron Activation Analysis." J. Trace & Microprobe Tech. 2 (3&4).

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
PAHs*			
Acenaphthene	150 µg/kg	8270	150
Acenaphthylene	150 µg/kg	8270	150
Anthracene	150 µg/kg	8270	150
Benzo(a)anthracene	150 µg/kg	8270	150
Benzo(k)fluoranthene	150 µg/kg	8270	150
3,4-Benzofluoranthene	150 µg/kg	8270	150
Benzo(a)pyrene	150 µg/kg	8270	150
Chrysene	150 µg/kg	8270	150
Fluoranthene	150 µg/kg	8270	150
Fluorene	150 µg/kg	8270	150

TABLE 1-9 (Continued)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
PAHs*			
Naphthalene	150 µg/kg	8270	150
Phenanthrene	150 µg/kg	8270	150
Pyrene	150 µg/kg	8270	150
Total PAH	500 mg/kg	8270	500
VOLATILES*			
Acrylonitrile	100 µg/kg	8260	100
Benzene	10 µg/kg	8260	10
Carbon Tetrachloride	10 µg/kg	8260	10
Chlorobenzene	10 µg/kg	8260	10
Chloroethane	10 µg/kg	8260	10
Chloroform	10 µg/kg	8260	10
Chloromethane	10 µg/kg	8260	10
1,1-Dichloroethane	10 µg/kg	8260	10
1,2-Dichloroethane	10 µg/kg	8260	10
1,1-Dichloroethene	10 µg/kg	8260	10
Trans-1,2-Dichloroethene	10 µg/kg	8260	10
1,2,-Dichloropropane	10 µg/kg	8260	10
Cis-1,3-Dichloropropene	10 µg/kg	8260	10
Trans-1,3-Dichloropropene	10 µg/kg	8260	10
Ethylbenzene	10 µg/kg	8260	10
Methylene Chloride	10 µg/kg	8260	10
Tetrachloroethene	10 µg/kg	8260	10
Toluene	10 µg/kg	8260	10
1,1,1-Trichloroethane	10 µg/kg	8260	10
1,1,2-Trichloroethane	10 µg/kg	8260	10
Trichloroethene	10 µg/kg	8260	10
Vinyl Chloride	10 µg/kg	8260	10
SEMIVOLATILES*			
Bis(2-Ethylhexyl)phthalate	150 µg/kg	8270	150
Butylbenzyl Phthalate	150 µg/kg	8270	150
4-Chloro-3-cresol	300 µg/kg	8270	300
2-Chlorophenol	150 µg/kg	8270	150
Di-N-Butyl Phthalate	150 µg/kg	8270	150
1,2-Dichlorobenzene	150 µg/kg	8270	150
1,3-Dichlorobenzene	150 µg/kg	8270	150
1,4-Dichlorobenzene	150 µg/kg	8270	150
2,4-Dichlorophenol	150 µg/kg	8270	150
Diethyl Phthalate	150 µg/kg	8270	150
2,4-Dimethylphenol	150 µg/kg	8270	150
Dimethyl Phthalate	150 µg/kg	8270	150
4,6-Dinitro-2-Methylphenol	710 µg/kg	8270	710

TABLE 1-9 (Concluded)

Parameter	MAL	Method	MDL
SUITE IV (cont.)			
SEMIVOLATILES*			
2,4-Dinitrophenol	710 µg/kg	8270	710
2,4-Dinitrotoluene	150 µg/kg	8270	150
2,6-Dinitrotoluene	150 µg/kg	8270	150
Hexachlorobenzene	150 µg/kg	8270	150
Hexachlorobutadiene	150 µg/kg	8270	150
Hexachloroethane	150 µg/kg	8270	150
Nitrobenzene	150 µg/kg	8270	150
2-Nitrophenol	150 µg/kg	8270	150
4-Nitrophenol	710 µg/kg	8270	710
Phenol	150 µg/kg	8270	150
1,2,4-Trichlorobenzene	150 µg/kg	8270	150

* All samples reported on a dry weight basis.

U.S. EPA, "Methods for Chemical Analysis of Water and Waste," EPA 600/4-79-020, 1979.

U.S. EPA, "Manual of Analytical Methods for the Analysis of Pesticide Residues in Human and Environmental Samples," 1977.

U.S. EPA, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, 3rd Edition, November 1990.

Organochlorine Pesticides and PCB's, EPA method 608; Federal Register. Vol. 44, No. 233, 12-3-79.

Analysis of Acid, Base, Neutral. EPA Method 625.

Riggin, R.M., and Strup, P.E. "Screening Methods for PAH priority pollutants in wastewater." EPA-600/4-84-007, NTIS #PB84-132992. Environmental Monitoring and Support Laboratory, Office of Research and Development, Cincinnati, Ohio, 1984

[1] 1996 Scope specified MAL for oil and grease of 1.0 was not appropriate based on the EPA approved analytical method and therefore was revised to 10.0.

[2] 1996 Scope specified MAL for aluminum of 2.0 was revised to 3.0 due to laboratory equipment/method changes.

TABLE 5-1

UNDETECTED PARAMETERS FOR TRIPS 128-131
USING SCOPE SPECIFIED DETECTION LIMITS

Parameters	Water		Porewater	Sediment	Tissue
	Total	Dissolved			
<u>SUITE II</u>					
Ammonia Nitrogen	*				
Oil and Grease			*		
<u>SUITE III</u>					
Nitrate Nitrogen				*	
Nitrite Nitrogen				*	
Total PAH				*	
Cyanide (Total)				*	
<u>SUITE IV</u>					
<u>METALS</u>					
Chromium	*	*	*		
Hexavalent Chromium				*	
Lead	*				*
<u>PAHs</u>					
Acenaphthene	*		*	*	*
Acenaphthylene	*		*	*	*
Anthracene	*		*	*	*
Benzo(a)anthracene	*		*	*	*
Benzo(k)fluoranthene	*		*	*	*
Benzo(b)fluoranthene	*		*	*	*
Benzo(a)pyrene	*		*	*	*
Chrysene	*		*	*	*
Fluoranthene	*		*	*	*
Fluorene	*		*	*	*
Naphthalene	*		*	*	*
Phenanthrene	*		*	*	*
Pyrene	*		*	*	*
<u>VOLATILES</u>					
Acrylonitrile	*		*	*	*
Benzene	*		*	*	*
Carbon Tetrachloride	*		*	*	*
Chlorobenzene	*		*	*	*
Chloroethane	*		*	*	*
Chloroform	*		*	*	*
Chloromethane	*		*	*	*

TABLE 5-1 (Concluded)

Parameters	Water		Porewater	Sediment	Tissue
	Total	Dissolved			
SUITE IV (cont.)					
1,1-Dichloroethane	*		*	*	*
1,2-Dichloroethane	*		*	*	*
1,1-Dichloroethene	*		*	*	*
Trans-1,2-Dichloroethene	*		*	*	*
1,2-Dichloropropane	*		*	*	*
Cis-1,3-Dichloropropene	*		*	*	*
Trans-1,3-Dichloropropene	*		*	*	*
Ethylbenzene	*		*	*	*
Methylene Chloride	*		*	*	
Tetrachloroethene	*		*	*	*
Toluene	*		*	*	*
1,1,1-Trichloroethane	*		*	*	*
1,1,2-Trichloroethane	*		*	*	*
Trichloroethene	*		*	*	*
Vinyl Chloride	*		*	*	*
SEMIVOLATILES					
Bis(2-Ethylhexyl)phthalate	*		*	*	
Butylbenzyl Phthalate	*		*	*	*
4-Chloro-3-cresol	*		*	*	*
2-Chlorophenol	*		*	*	*
Di-N-Butyl Phthalate	*		*	*	*
1,2-Dichlorobenzene	*		*	*	*
1,3-Dichlorobenzene	*		*	*	*
1,4-Dichlorobenzene	*		*	*	*
2,4-Dichlorophenol	*		*	*	*
Diethyl Phthalate	*		*	*	*
2,4-Dimethylphenol	*		*	*	*
Dimethyl Phthalate	*		*	*	*
4,6-Dinitro-2-Methylphenol	*		*	*	*
2,4-Dinitrophenol	*		*	*	*
2,4-Dinitrotoluene	*		*	*	*
2,6-Dinitrotoluene	*		*	*	*
Hexachlorobenzene	*		*	*	*
Hexachlorobutadiene	*		*	*	*
Hexachloroethane	*		*	*	*
Nitrobenzene	*		*	*	*
2-Nitrophenol	*		*	*	*
4-Nitrophenol	*		*	*	*
Phenol	*		*	*	
1,2,4-Trichlorobenzene	*		*	*	*

TABLE 5-2

CHEMICAL PARAMETERS, MEDIA, PARAMETER CODES

Parameter	Water	Porewater	Sediment	Tissue
BOD5[a]	00310	PWBOD	N/A	N/A
COD[a]	00335	PWCOD	N/A	N/A
ORGANIC NITROGEN	00605	PWORN	00626	N/A
Ammonia Nitrogen[a]	00610	P1004	00611	N/A
Nitrate Nitrogen[a]	00620	P1005	SENO3	N/A
Nitrite-Nitrogen[a]	00615	P1006	00616	N/A
Total Phosphorus[a]	00665	P1007	00668	N/A
Ortho Phosphate[a] (as P)	00671	P1008	N/A	N/A
Total Organic Carbon[a]	00680	P1009	81951	N/A
Total Suspended Solids[a]	00530	PWTSS	N/A	N/A
Volatile Solids[a]	00535	N/A	00496	N/A
Total PAH	N/A	N/A	SEPAH	N/A
Acid Volatile Sulfide[a]	00745	N/A	00747	N/A
Chlorides[a]	00940	PWCHL	N/A	N/A
Turbidity (NTU)	00076	PWTUR	N/A	N/A
Oil and Grease[a]	00556	PWOAG	00561	N/A
Sulfate[a]	00945	PWSUL	N/A	N/A
Cyanide (Total)[a]	00720	PWCYN	00721	N/A
Total Dissolved Solids[a]	70300	PWTDS	N/A	N/A
Clay % dry wt.	N/A	N/A	82009	N/A
Silt % dry wt.	N/A	N/A	82008	N/A
Sand % dry wt.	N/A	N/A	89991	N/A
<u>METALS</u> (Total and dissolved in Water)[b]				
Aluminum	01105,01106	P2001	01108	81666
Arsenic	01002,01000	P2003	01003	01004
Cadmium	01027,01025	P2005	01028	71940

TABLE 5-2 (Continued)

CHEMICAL PARAMETERS, MEDIA, PARAMETER CODES

Parameter	Water	Porewater	Sediment	Tissue
Chromium (Total)	01034,01030	P2006	01029	71939
Chromium VI (only dissolved)	01220	P2007	SCRHX	N/A
Copper	01042,01040	P2008	01043	71937
Iron	01045,01046	N/A	01170	N/A
Lead	01051,01049	P2010	01052	71936
Mercury	71900,71890	P2011	71921	71930
Nickel	01067,01065	P2012	01068	01069
Silver	01077,01075	P2014	01078	34474
Zinc	01092,01090	P2016	01093	71938
PAHs[c]				
Acenaphthene	34205	P6001	34208	34209
Acenaphthylene	34200	P6002	34203	34204
Anthracene	34220	P6003	34223	34224
Benzo(a)anthracene	34526	P6004	34529	34530
Benzo(k)fluoranthene	34242	P6005	34245	34246
Benzo(b)fluoranthene	34230	P6006	34233	34234
Benzo(a)pyrene	34247	P6008	34250	34251
Chrysene	34320	P6009	34323	34324
Fluoranthene	34376	P6011	34379	34380
Fluorene	34381	P6012	34384	34385
Naphthalene	34696	P6014	34445	34446
Phenanthrene	34461	P6015	34464	34465
Pyrene	34469	P6016	34472	34473
VOLATILES[c]				
Acrylonitrile	34215	P4002	34218	34219
Benzene	34030	P4003	34237	34238
Carbon Tetrachloride	32102	P4007	34299	34300
Chlorobenzene	34301	P4008	34304	34305

TABLE 5-2 (Continued)

CHEMICAL PARAMETERS, MEDIA, PARAMETER CODES

Parameter	Water	Porewater	Sediment	Tissue
Chloroethane	34311	P4009	34314	34315
Chloroform	32106	P4011	34318	34319
Chloromethane	30201	P4012	88835	88836
1,1-Dichloroethane	34496	P4014	34499	34500
1,2-Dichloroethane	34531	P4015	34534	34535
1,1-Dichloroethene	34501	P4016	34504	34505
Trans-1,2-Dichloroethene	34546	P4017	34549	34550
1,2,-Dichloropropane	34541	P4018	34544	34545
Cis-1,3-Dichloropropene	34704	P4019	34702	34703
Trans-1,3-Dichloropropene	34699	P4020	34697	34698
Ethylbenzene	34371	P4021	34374	34375
Methylene Chloride	34423	P4022	34426	34427
Tetrachloroethene	34475	P4024	34478	34479
Toluene	34010	P4025	34483	34484
1,1,1-Trichloroethane	34506	P4026	34509	34510
1,1,2-Trichloroethane	34511	P4027	34514	34515
Trichloroethene	39180	P4028	34487	34692
Vinyl Chloride	39175	P4029	34495	34693
SEMIVOLATILES[c]				
Bis(2-Ethylhexyl)phthalate	39100	P5005	39102	39099
Butylbenzyl Phthalate	34292	P5007	34295	34296
4-Chloro-3-cresol (3-methyl-4-chlorophenol)	34452	P5008	34455	34456
2-Chlorophenol	34586	P5010	34589	34590
Di-N-Butyl Phthalate	39110	P5012	39112	34683
1,2-Dichlorobenzene	34536	P5013	34539	34540
1,3-Dichlorobenzene	34566	P5014	34569	34570
1,4-Dichlorobenzene	34571	P5015	34574	34575
2,4-Dichlorophenol	34601	P5017	34604	34605

TABLE 5-2 (Concluded)

CHEMICAL PARAMETERS, MEDIA, PARAMETER CODES

Parameter	Water	Porewater	Sediment	Tissue
Diethyl Phthalate	34336	P5018	34339	34340
2,4-Dimethylphenol	34606	P5019	34609	34610
Dimethyl Phthalate	34341	P5020	34344	34345
4,6-Dinitro-2-Methylphenol	34657	P5021	34660	34661
2,4-Dinitrophenol	34616	P5022	34619	34620
2,4-Dinitrotoluene	34611	P5023	34614	34615
2,6-Dinitrotoluene	34626	P5024	34629	34630
Hexachlorobenzene	39700	P5027	39701	34688
Hexachlorobutadiene	34391	P5028	39705	34395
Hexachloroethane	34396	P5030	34399	34400
Nitrobenzene	34447	P5032	34450	34451
2-Nitrophenol	34591	P5033	34594	34595
4-Nitrophenol	34646	P5034	34649	34650
Phenol	34694	P5039	34695	34468
1,2,4-Trichlorobenzene	34551	P5040	34554	34555

[a] Water and Porewater in mg/l; Sediment and Tissue in mg/kg.
[b] Water and Porewater in µg/l; Sediment and Tissue in mg/kg.
[c] Water and Porewater in µg/l; Sediment µg/kg;and Tissue in mg/kg wet weight.

TABLE 5-3
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 128 - JULY 2024

STATION: A1 | DATE: 7/17/24 | TIME: 1320 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	23,400	14.1	31.1	8.4	7.7
MID DEPTH	24,429	14.8	30.9	8.3	7.2
BOTTOM	24,277	14.7	30.4	8.3	7.2

STATION: A2 | DATE: 7/17/24 | TIME: 1330 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	23,695	14.3	31.0	8.3	7.8
MID DEPTH	23,889	14.4	30.9	8.3	7.8
BOTTOM	23,889	14.5	31.1	8.2	7.8

STATION: A3 | DATE: 7/17/24 | TIME: 1340 | DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	23,248	14.0	32.2	8.4	7.7
MID DEPTH	23,328	14.1	30.8	8.4	7.6
BOTTOM	24,803	14.8	30.7	8.3	7.1

STATION: A4 | DATE: 7/17/24 | TIME: 1312 | DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	23,186	14.0	31.0	8.3	7.6
MID DEPTH	23,615	14.4	30.8	8.3	7.6
BOTTOM	24,887	15.1	30.5	8.3	7.0

TABLE 5-3
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 128 - JULY 2024

STATION: B1 DATE: 7/17/24 TIME: 1322 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	23,777	14.4	30.7	8.3	7.2
MID DEPTH	24,386	14.5	30.4	8.2	6.6
BOTTOM	24,288	14.7	30.4	8.3	6.5

STATION: B2 DATE: 7/17/24 TIME: 1307 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	23,877	14.4	31.0	8.3	7.3
MID DEPTH	23,880	14.4	31.0	8.3	7.3
BOTTOM	23,995	14.5	30.9	8.3	7.3

STATION: B3 DATE: 7/17/24 TIME: 1356 DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	23,577	14.2	31.1	8.3	7.6
MID DEPTH	24,516	14.9	30.6	8.3	7.2
BOTTOM	25,176	15.3	30.4	8.2	6.5

STATION: B4 DATE: 7/17/24 TIME: 1210 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	24,691	14.9	30.3	8.3	6.4
MID DEPTH	24,882	15.1	30.2	8.2	6.1
BOTTOM	24,883	15.1	30.2	8.2	5.8

TABLE 5-3
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 128 - JULY 2024

STATION: C1 | DATE: 7/17/24 | TIME: 1047 | DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	23,697	14.3	30.2	8.3	6.4
MID DEPTH	23,894	14.4	30.1	8.2	6.2
BOTTOM	23,840	14.4	30.1	8.2	6.0

STATION: C2 | DATE: 7/17/24 | TIME: 1059 | DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	23,730	14.4	30.4	8.3	6.8
MID DEPTH	24,332	14.6	30.2	8.2	6.3
BOTTOM	24,505	14.8	30.3	8.2	6.1

STATION: C3 | DATE: 7/17/24 | TIME: 1141 | DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	24,432	14.8	30.5	8.3	6.5
MID DEPTH	25,421	15.5	30.2	8.3	6.0
BOTTOM	25,501	15.5	30.0	8.2	5.5

STATION: C4 | DATE: 7/17/24 | TIME: 1154 | DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	23,861	14.4	30.7	8.3	7.2
MID DEPTH	24,541	14.8	30.3	8.3	6.4
BOTTOM	24,501	14.8	30.2	8.3	6.1

TABLE 5-3
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 128 - JULY 2024

STATION: R1 | DATE: 7/17/24 | TIME: 0945 | DEPTH: 4.5'

	COND	S‰	T(°C)	pH	DO
TOP	22,553	13.2	30.0	8.3	5.9
MID DEPTH	22,648	13.3	30.0	8.3	6.0
BOTTOM	23,200	13.6	30.2	8.3	5.3

STATION: R2 | DATE: 7/17/24 | TIME: 0927 | DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	20,954	12.9	29.9	8.4	6.2
MID DEPTH	21,530	13.2	29.7	8.4	6.1
BOTTOM	22,081	13.5	29.6	8.3	5.8

STATION: R3 | DATE: 7/17/24 | TIME: 0855 | DEPTH: 7.0'

	COND	S‰	T(°C)	pH	DO
TOP	26,998	15.8	30.2	8.2	6.0
MID DEPTH	27,012	15.9	30.2	8.3	5.9
BOTTOM	27,021	16.0	30.2	8.3	5.9

STATION: R4 | DATE: 7/17/24 | TIME: 1002 | DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	19,975	11.3	29.6	8.2	6.1
MID DEPTH	21,136	12.9	29.8	8.2	5.5
BOTTOM	23,802	13.7	29.9	8.2	5.1

TABLE 5-3
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 128 - JULY 2024

STATION	DATE	TIME	DIRECTION (TO) N/S/E/W	SPEED (ft/sec)*
A1	7/17/2024	1320	S	–
A2	7/17/2024	1330	S	–
A3	7/17/2024	1340	S	–
A4	7/17/2024	1312	S	–
B1	7/17/2024	1222	S	–
B2	7/17/2024	1307	S	–
B3	7/17/2024	1256	S	–
B4	7/17/2024	1210	S	–
C1	7/17/2024	1047	S	–
C2	7/17/2024	1059	S	–
C3	7/17/2024	1141	S	–
C4	7/17/2024	1154	S	–
R1	7/17/2024	0945	Stationary	–
R2	7/17/2024	0927	S	–
R3	7/17/2024	0855	S	–
R4	7/17/2024	1002	S	–

* Flowmeter malfunctioned during monitoring trip.

TABLE 5-4
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 129 - OCTOBER 2024

STATION: A1 DATE: 10/17/24 TIME: 0907 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,340	20.2	21.2	8.2	7.1
MID DEPTH	32,336	20.2	21.3	8.2	7.0
BOTTOM	32,344	20.2	21.3	8.2	7.0

STATION: A2 DATE: 10/17/24 TIME: 0916 DEPTH: 4.5'

	COND	S‰	T(°C)	pH	DO
TOP	32,450	20.2	21.1	8.2	7.1
MID DEPTH	32,423	20.2	21.2	8.2	7.1
BOTTOM	32,436	20.2	21.2	8.2	7.1

STATION: A3 DATE: 10/17/24 TIME: 0926 DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,451	20.3	21.2	8.2	7.2
MID DEPTH	32,444	20.2	21.2	8.2	7.1
BOTTOM	32,437	20.3	21.2	8.2	7.1

STATION: A4 DATE: 10/17/24 TIME: 0936 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,338	20.2	21.3	8.2	7.1
MID DEPTH	32,332	20.2	21.3	8.2	7.0
BOTTOM	32,342	20.2	21.3	8.2	7.0

TABLE 5-4
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 129 - OCTOBER 2024

STATION: B1 DATE: 10/17/24 TIME: 0952 DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	32,119	20.0	21.3	8.3	7.2
MID DEPTH	32,112	20.0	21.3	8.3	7.2
BOTTOM	32,112	20.0	21.3	8.3	7.2

STATION: B2 DATE: 10/17/24 TIME: 1017 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,430	20.2	21.1	8.3	7.2
MID DEPTH	32,441	20.2	21.1	8.3	7.2
BOTTOM	32,432	20.2	21.2	8.3	7.2

STATION: B3 DATE: 10/17/24 TIME: 1006 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,110	20.0	21.3	8.2	7.3
MID DEPTH	32,118	20.0	21.3	8.3	7.3
BOTTOM	32,126	20.0	21.3	8.3	7.3

STATION: B4 DATE: 10/17/24 TIME: 1943 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,592	20.3	21.1	8.3	7.2
MID DEPTH	32,578	20.3	21.2	8.3	7.1
BOTTOM	32,602	20.3	21.2	8.3	7.2

TABLE 5-4
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 129 - OCTOBER 2024

STATION: C1 DATE: 10/17/24 TIME: 1112 DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	32,457	20.2	21.5	8.3	7.4
MID DEPTH	32,459	20.3	21.5	8.3	7.5
BOTTOM	32,436	20.2	21.5	8.3	7.5

STATION: C2 DATE: 10/17/24 TIME: 1059 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,270	20.1	21.4	8.3	7.4
MID DEPTH	32,271	20.1	21.4	8.3	7.5
BOTTOM	32,277	20.1	21.4	8.2	7.5

STATION: C3 DATE: 10/17/24 TIME: 1049 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,198	20.1	21.0	8.3	7.4
MID DEPTH	32,199	20.1	21.1	8.3	7.4
BOTTOM	32,209	20.1	21.1	8.3	7.4

STATION: C4 DATE: 10/17/24 TIME: 1127 DEPTH: 3.5'

	COND	S‰	T(°C)	pH	DO
TOP	32,174	20.1	21.1	8.3	7.5
MID DEPTH	32,177	20.1	21.1	8.3	7.5
BOTTOM	32,205	20.1	21.1	8.3	7.5

TABLE 5-4
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 129 - OCTOBER 2024

STATION: R1 | DATE: 10/17/24 | TIME: 0839 | DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	31,922	19.9	21.4	8.2	6.8
MID DEPTH	31,930	19.9	21.6	8.2	6.7
BOTTOM	31,946	19.9	21.6	8.1	6.7

STATION: R2 | DATE: 10/17/24 | TIME: 0809 | DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	32,423	20.2	21.6	8.2	7.1
MID DEPTH	32,334	20.2	21.6	8.2	7.0
BOTTOM	32,309	20.2	21.6	8.2	7.0

STATION: R3 | DATE: 10/17/24 | TIME: 0749 | DEPTH: 6.0'

	COND	S‰	T(°C)	pH	DO
TOP	36,588	23.2	21.8	8.0	6.8
MID DEPTH	36,578	23.1	21.8	8.0	6.8
BOTTOM	36,601	23.2	21.9	8.0	6.8

STATION: R4 | DATE: 10/17/24 | TIME: 0853 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	31,946	19.9	21.5	8.2	6.6
MID DEPTH	31,964	19.9	21.8	8.1	6.7
BOTTOM	31,876	19.9	21.7	8.1	6.6

TABLE 5-4
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 129 - OCTOBER 2024

STATION	DATE	TIME	DIRECTION (TO) N/S/E/W	SPEED (ft/sec)
A1	10/17/2024	09:07	NE	0.13
A2	10/17/2024	09:16	NE	0.07
A3	10/17/2024	09:26	NE	0.15
A4	10/17/2024	09:36	NE	0.19
B1	10/17/2024	09:52	NE	0.09
B2	10/17/2024	10:17	NE	0.12
B3	10/17/2024	10:06	NE	0.12
B4	10/17/2024	09:43	NE	0.10
C1	10/17/2024	11:12	NE	0.06
C2	10/17/2024	10:59	NE	0.04
C3	10/17/2024	10:49	NE	0.05
C4	10/17/2024	11:27	NE	0.01
R1	10/17/2024	08:39	NE	0.08
R2	10/17/2024	08:09	NE	0.18
R3	10/17/2024	07:49	NE	0.14
R4	10/17/2024	08:53	N	0.18

TABLE 5-5
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 130 - FEBRUARY 2025

STATION: A1 DATE: 2/5/25 TIME: 0841 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,949	25.6	21.2	8.2	7.7
MID DEPTH	40,377	26.1	21.4	8.1	7.8
BOTTOM	40,415	25.6	21.4	8.2	7.7

STATION: A2 DATE: 2/5/25 TIME: 0824 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,737	25.4	21.0	8.1	7.7
MID DEPTH	39,717	25.4	21.2	8.1	7.6
BOTTOM	40,541	26.0	21.7	8.1	7.7

STATION: A3 DATE: 2/5/25 TIME: 0833 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,008	25.6	21.3	8.2	7.7
MID DEPTH	40,215	25.7	21.3	8.1	7.7
BOTTOM	40,030	26.0	21.4	8.1	7.8

STATION: A4 DATE: 2/5/25 TIME: 0850 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,113	25.6	21.2	8.2	7.7
MID DEPTH	40,144	25.6	21.1	8.2	7.7
BOTTOM	40,015	25.7	21.3	8.2	7.7

TABLE 5-5
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 130 - FEBRUARY 2025

STATION: B1 DATE: 2/5/25 TIME: 0930 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,375	25.8	21.1	8.2	7.8
MID DEPTH	40,358	25.8	21.1	8.2	7.8
BOTTOM	40,347	25.8	21.1	8.2	7.8

STATION: B2 DATE: 2/5/25 TIME: 0920 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,360	25.8	21.0	8.2	7.7
MID DEPTH	40,319	25.8	21.0	8.2	7.7
BOTTOM	40,388	25.8	21.0	8.2	7.7

STATION: B3 DATE: 2/5/25 TIME: 0911 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,193	25.7	21.0	8.2	7.7
MID DEPTH	40,176	25.7	21.0	8.2	7.7
BOTTOM	40,183	25.7	21.0	8.2	7.7

STATION: B4 DATE: 2/5/25 TIME: 0858 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,939	25.5	21.1	8.2	7.7
MID DEPTH	39,938	25.5	21.1	8.2	7.6
BOTTOM	39,955	25.5	21.1	8.2	7.7

TABLE 5-5
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 130 - FEBRUARY 2025

STATION: C1 DATE: 2/5/25 TIME: 1013 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,386	25.8	21.0	8.2	8.0
MID DEPTH	40,384	25.8	21.0	8.2	8.1
BOTTOM	40,390	25.9	21.0	8.2	8.1

STATION: C2 DATE: 2/5/25 TIME: 1028 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,289	25.7	20.5	8.2	8.1
MID DEPTH	40,266	25.8	20.5	8.2	8.2
BOTTOM	40,273	25.7	20.5	8.2	8.1

STATION: C3 DATE: 2/5/25 TIME: 1042 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,421	25.9	20.3	8.3	8.3
MID DEPTH	40,455	25.9	20.3	8.2	8.3
BOTTOM	40,429	25.9	20.3	8.2	8.3

STATION: C4 DATE: 2/5/25 TIME: 1001 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,464	25.9	21.2	8.2	7.6
MID DEPTH	40,456	25.9	21.2	8.2	7.6
BOTTOM	40,455	25.9	21.2	8.2	7.6

TABLE 5-5
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 130 - FEBRUARY 2025

STATION: R1 DATE: 2/5/25 TIME: 1130 DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,466	25.2	20.8	8.2	7.9
MID DEPTH	39,457	25.2	20.7	8.2	7.9
BOTTOM	39,463	25.2	20.7	8.2	8.0

STATION: R2 DATE: 2/5/25 TIME: 1114 DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	40,365	25.9	20.1	8.3	8.2
MID DEPTH	40,371	25.8	20.1	8.3	8.3
BOTTOM	40,362	25.8	20.1	8.3	8.2

STATION: R3 DATE: 2/5/25 TIME: 1101 DEPTH: 6.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,761	25.4	19.4	8.3	8.1
MID DEPTH	39,776	25.4	19.3	8.3	8.1
BOTTOM	39,768	25.4	19.3	8.3	8.1

STATION: R4 DATE: 2/5/25 TIME: 1145 DEPTH: 5.0'

	COND	S‰	T(°C)	pH	DO
TOP	36,082	22.8	20.7	8.2	7.7
MID DEPTH	36,087	22.8	20.7	8.3	7.7
BOTTOM	36,121	22.8	20.6	8.3	7.7

TABLE 5-5
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 130 - FEBRUARY 2025

STATION	DATE	TIME	DIRECTION (TO) N/S/E/W	SPEED (ft/sec)
A1	2/5/2025	12:20	N	0.06
A2	2/5/2025	12:31	NW	0.04
A3	2/5/2025	12:46	N	0.06
A4	2/5/2025	12:58	NW	0.04
B1	2/5/2025	13:43	NW	0.06
B2	2/5/2025	13:32	N	0.04
B3	2/5/2025	13:22	NE	0.09
B4	2/5/2025	13:55	N	0.03
C1	2/5/2025	14:12	NW	0.10
C2	2/5/2025	14:23	NW	0.09
C3	2/5/2025	14:53	NW	0.08
C4	2/5/2025	14:40	NW	0.08
R1	2/5/2025	11:43	N	0.12
R2	2/5/2025	11:16	NW	0.09
R3	2/5/2025	09:30	NW	0.05
R4	2/5/2025	12:00	N	0.10

TABLE 5-6
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 131 - MARCH/APRIL 2025

STATION: A1 DATE: 4/2/25 TIME: 0951 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	40,120	25.6	25.4	8.2	7.4
MID DEPTH	40,270	25.8	25.2	8.2	7.2
BOTTOM	40,322	25.8	25.2	8.3	7.2

STATION: A2 DATE: 4/2/25 TIME: 1008 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	40,256	25.8	24.7	8.3	7.0
MID DEPTH	40,727	25.9	24.7	8.4	6.8
BOTTOM	40,821	26.0	24.6	8.4	6.7

STATION: A3 DATE: 4/2/25 TIME: 1020 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	40,026	25.6	25.3	8.3	7.4
MID DEPTH	39,972	25.6	25.4	8.3	7.5
BOTTOM	39,971	25.6	25.4	8.3	7.4

STATION: A4 DATE: 4/2/25 TIME: 1032 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	40,446	25.9	24.9	8.4	7.0
MID DEPTH	40,413	25.9	24.9	8.4	7.0
BOTTOM	40,468	25.9	24.9	8.4	7.0

TABLE 5-6
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 131 - MARCH/APRIL 2025

STATION: B1 DATE: 4/2/25 TIME: 1050 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	39,277	25.1	24.4	8.5	6.1
MID DEPTH	39,283	25.0	24.4	8.5	6.8
BOTTOM	39,266	25.1	24.4	8.5	6.8

STATION: B2 DATE: 4/2/25 TIME: 1150 DEPTH: 2.5'

	COND	S‰	T(°C)	pH	DO
TOP	29,331	25.1	24.6	8.6	6.9
MID DEPTH	29,392	25.1	24.6	8.6	6.9
BOTTOM	39,390	25.1	24.5	8.6	6.9

STATION: B3 DATE: 4/2/25 TIME: 1141 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,354	25.1	24.5	8.6	6.8
MID DEPTH	39,342	25.1	24.5	8.6	6.8
BOTTOM	39,350	25.1	24.5	8.6	6.8

STATION: B4 DATE: 4/2/25 TIME: 1120 DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,011	24.8	24.8	8.3	7.3
MID DEPTH	39,013	24.9	25.0	8.3	7.2
BOTTOM	39,307	25.1	24.9	8.4	7.0

TABLE 5-6
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 131 - MARCH/APRIL 2025

STATION: C1 | DATE: 4/2/25 | TIME: 1340 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,426	25.1	24.7	8.6	6.9
MID DEPTH	39,417	25.1	24.7	8.6	6.9
BOTTOM	39,394	25.1	24.7	8.6	6.9

STATION: C2 | DATE: 4/2/25 | TIME: 1248 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,390	25.1	24.6	8.6	6.9
MID DEPTH	39,405	25.1	24.6	8.6	6.9
BOTTOM	39,426	25.1	24.6	8.6	6.9

STATION: C3 | DATE: 4/2/25 | TIME: 1313 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,372	25.1	24.7	8.6	6.7
MID DEPTH	39,363	25.1	24.7	8.6	6.7
BOTTOM	39,364	25.1	24.7	8.6	6.7

STATION: C4 | DATE: 4/2/25 | TIME: 1330 | DEPTH: 3.0'

	COND	S‰	T(°C)	pH	DO
TOP	39,417	25.1	24.7	8.6	6.9
MID DEPTH	39,312	25.1	24.7	8.6	6.9
BOTTOM	39,284	25.1	24.7	8.6	6.9

TABLE 5-6
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 131 - MARCH/APRIL 2025

STATION: R1 DATE: 4/2/25 TIME: 0839 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	38,999	24.9	24.5	8.3	6.7
MID DEPTH	37,024	24.9	24.4	8.3	6.7
BOTTOM	39,008	24.9	24.5	8.3	6.7

STATION: R2 DATE: 4/2/25 TIME: 0815 DEPTH: 4.0'

	COND	S‰	T(°C)	pH	DO
TOP	36,602	23.2	24.6	8.3	6.5
MID DEPTH	36,757	23.2	24.6	8.4	6.5
BOTTOM	37,006	23.6	24.6	8.4	6.5

STATION: R3 DATE: 4/2/25 TIME: 0755 DEPTH: 5.6'

	COND	S‰	T(°C)	pH	DO
TOP	38,286	24.4	24.5	8.2	6.6
MID DEPTH	38,374	24.5	24.5	8.2	6.5
BOTTOM	38,790	24.6	24.6	8.2	6.5

STATION: R4 DATE: 4/2/25 TIME: 0905 DEPTH: 3.1'

	COND	S‰	T(°C)	pH	DO
TOP	38,228	24.3	24.7	8.2	6.5
MID DEPTH	38,242	24.3	24.7	8.2	6.5
BOTTOM	38,256	24.3	24.7	8.2	6.5

TABLE 5-6
FORMOSA PLASTICS CORPORATION
LAVACA BAY MONITORING
STANDARD PARAMETERS / CURRENTS
TRIP 131 - MARCH/APRIL 2025

STATION	DATE	TIME	DIRECTION (TO) N/S/E/W	SPEED (ft/sec)
A1	4/2/2025	09:51	NW	0.21
A2	4/2/2025	10:08	NW	0.19
A3	4/2/2025	10:20	NW	0.30
A4	4/2/2025	10:32	NW	0.22
B1	4/2/2025	10:50	NW	0.28
B2	4/2/2025	11:50	NW	0.27
B3	4/2/2025	11:41	NW	0.24
B4	4/2/2025	11:20	NW	0.29
C1	4/2/2025	13:40	NW	0.41
C2	4/2/2025	12:48	NW	0.31
C3	4/2/2025	13:13	NW	0.48
C4	4/2/2025	13:30	NW	0.45
	4/2/2025			
R1		08:30	NW	0.22
R2	4/2/2025	08:15	NW	0.70
R3	4/2/2025	07:55	NW	0.44
R4	4/2/2025	09:05	NW	0.38

TABLE 5-7
GRAIN SIZE ANALYSES
TRIP 128 - JULY 2024

STATION	% SAND	% SILT	% CLAY	TOTAL
A1	83.0	12.3	4.7	100.0
A2	44.0	35.7	20.3	100.0
A3	53.2	26.2	20.6	100.0
A4	81.8	14.2	4.0	100.0
B1	88.7	7.1	4.2	100.0
B2	73.2	16.0	10.8	100.0
B3	62.2	23.4	14.4	100.0
B4	81.0	11.0	8.0	100.0
C1	81.0	9.7	9.3	100.0
C2	88.3	7.1	4.6	100.0
C3	75.2	15.4	9.4	100.0
C4	78.0	11.9	10.1	100.0
D1	79.4	9.9	10.7	100.0
D2	79.9	12.7	7.4	100.0
D3	62.7	18.2	19.1	100.0
R1	63.1	23.8	13.1	100.0
R2	54.3	24.9	20.8	100.0
R3	57.3	21.4	21.3	100.0
R4	62.7	20.8	16.5	100.0

TABLE 5-7
GRAIN SIZE ANALYSES
TRIP 129 - OCTOBER 2024

STATION	% SAND	% SILT	% CLAY	TOTAL
A1	72.9	13.8	13.3	100.0
A2	56.3	27.0	16.7	100.0
A3	42.0	31.6	26.4	100.0
A4	65.4	20.8	13.8	100.0
B1	78.7	11.6	9.7	100.0
B2	59.3	21.2	19.5	100.0
B3	56.6	23.0	20.4	100.0
B4	82.2	11.1	6.7	100.0
C1	84.0	8.7	7.3	100.0
C2	75.6	16.1	8.3	100.0
C3	71.5	19.2	9.3	100.0
C4	77.8	12.3	9.9	100.0
D1	82.2	9.8	8.0	100.0
D2	72.3	18.5	9.2	100.0
D3	52.3	23.2	24.5	100.0
R1	59.9	23.9	16.2	100.0
R2	63.9	17.5	18.6	100.0
R3	50.1	23.4	26.5	100.0
R4	68.2	18.3	13.5	100.0

TABLE 5-7
GRAIN SIZE ANALYSES
TRIP 130 - FEBRUARY 2025

STATION	% SAND	% SILT	% CLAY	TOTAL
A1	84.2	8.4	7.4	100.0
A2	71.4	14.9	13.7	100.0
A3	84.5	9.5	6.0	100.0
A4	82.1	10.8	7.1	100.0
B1	82.9	10.7	6.4	100.0
B2	72.1	15.1	12.8	100.0
B3	68.4	18.8	12.8	100.0
B4	77.3	12.1	10.6	100.0
C1	83.0	7.3	9.7	100.0
C2	87.2	5.8	7.0	100.0
C3	70.6	17.8	11.6	100.0
C4	81.2	8.3	10.5	100.0
D1	78.3	13.1	8.6	100.0
D2	66.1	21.3	12.6	100.0
D3	49.6	27.4	23.0	100.0
R1	62.3	22.1	15.6	100.0
R2	89.7	7.2	3.1	100.0
R3	33.4	30.5	36.1	100.0
R4	50.6	23.7	25.7	100.0

TABLE 5-7
GRAIN SIZE ANALYSES
TRIP 131 - MARCH/APRIL 2025

STATION	% SAND	% SILT	% CLAY	TOTAL
A1	63.3	25.7	11.0	100.0
A2	58.8	31.3	9.9	100.0
A3	78.9	11.6	9.5	100.0
A4	82.0	9.8	8.2	100.0
B1	82.7	9.6	7.7	100.0
B2	51.1	28.1	20.8	100.0
B3	69.1	20.7	10.2	100.0
B4	75.2	17.1	7.7	100.0
C1	83.0	9.7	7.3	100.0
C2	66.2	22.1	11.7	100.0
C3	83.2	10.4	6.4	100.0
C4	78.8	12.1	9.1	100.0
D1	75.6	15.2	9.2	100.0
D2	78.3	12.6	9.1	100.0
D3	55.3	24.4	20.3	100.0
R1	63.2	23.2	13.6	100.0
R2	63.5	18.3	18.2	100.0
R3	48.0	24.2	27.8	100.0
R4	51.3	23.5	25.2	100.0

TABLE 5-8
TRAWL DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
B1	*Leiostomus xanthurus*	30	303.95	10.13	4.90 - 18.26	55 - 83
15 July 2024	*Anchoa mitchilli*	21	20.51	0.98	0.25 - 2.48	28 - 54
1827-0832	*Bagre marinus*	13	77.07	5.93	2.33 - 10.36	50 - 80
	Lagodon rhomboides	9	64.69	7.19	5.18 - 9.36	55 - 64
	Micropogonias undulatus	7	77.49	11.07	8.91 - 17.03	70 - 90
	Litopenaeus setiferus	1	5.4	5.40	-- - --	94 - --
	TOTAL	81				
B2	*Leiostomus xanthurus*	61	660.54	10.83	7.50 - 14.30	60 - 80
15 July 2024	*Lagodon rhomboides*	25	211.29	8.45	3.25 - 16.15	44 - 72
1726-1731	*Bagre marinus*	10	61.45	6.15	1.23 - 11.26	40 - 85
	Anchoa mitchilli	8	6.77	0.85	0.25 - 1.71	28 - 52
	Micropogonias undulatus	4	41.81	10.45	7.82 - 13.39	70 - 82
	Arius felis	2	181.40	90.70	90.70 - --	178 - 230
	Litopenaeus setiferus	2	17.50	8.75	8.13 - 9.37	110 - 115
	TOTAL	112				
B3	*Leiostomus xanthurus*	48	473.10	9.86	6.31 - 13.61	60 - 85
15 July 2024	*Lagodon rhomboides*	4	54.96	13.74	4.46 - 30.90	45 - 95
1755-1800	*Micropogonias undulatus*	4	36.18	9.05	7.32 - 10.29	68 - 80
	Anchoa mitchilli	3	0.74	0.25	0.16 - 0.37	25 - 30
	Arius felis	1	35.75	35.75	-- - --	125 - --
	Bagre marinus	1	7.85	7.85	-- - --	78 - --
	Dasyatis sabina	1	90.70	90.70	-- - --	152 - --
	Hemicaranx amblyrhynchus	1	4.02	4.02	-- - --	50 - --
	Litopenaeus setiferus	1	1.87	1.87	-- - --	70 - --
	TOTAL	64				
B4	*Leiostomus xanthurus*	85	920.74	10.83	6.68 - 15.87	61 - 80
15 July 2024	*Anchoa mitchilli*	18	9.66	0.54	0.17 - 1.83	24 - 50
1655-1700	*Micropogonias undulatus*	10	97.16	9.72	7.88 - 12.12	70 - 80
	Lagodon rhomboides	8	68.83	8.60	5.64 - 13.56	85 - 75
	Bagre marinus	2	11.11	5.56	4.35 - 6.76	65 - 70
	Arius felis	1	32.81	32.81	-- - --	120 - --
	TOTAL	124				

TABLE 5-8 (Continued)
TRAWL DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
C1	*Leiostomus xanthurus*	115	1143.81	9.95	5.80 - 12.44	56 - 80
15 July 2024	*Bagre marinus*	38	225.75	5.94	1.55 - 9.40	44 - 85
1808-1813	*Micropogonias undulatus*	31	294.25	9.49	4.70 - 15.20	62 - 88
	Anchoa mitchilli	8	5.09	0.64	0.12 - 1.90	22 - 58
	Lagodon rhomboides	7	43.18	6.17	3.11 - 13.20	42 - 70
	Callinectes sapidus	2	90.70	45.35	90.70 - --	127 - --
	Eucinostomus argenteus	2	2.36	1.18	1.18 - --	36 - 40
	Hemicaranx amblyrhynchus	1	4.04	4.04	-- - --	50 - --
	Ophichthus gomesi	1	18.33	18.33	-- - --	127 - --
	Sphoeroides parvus	1	5.71	5.71	-- - --	48 - --
	TOTAL	206				
C2	*Leiostomus xanthurus*	29	294.25	10.15	6.47 - 14.89	63 - 80
15 July 2024	*Lagodon rhomboides*	27	241.17	8.93	4.87 - 21.10	51 - 70
1740-1745	*Micropogonias undulatus*	7	79.01	11.29	7.55 - 17.96	66 - 92
	Bagre marinus	3	21.26	7.09	6.70 - 7.62	72 - 76
	Brevoortia patronus	1	30.43	30.43	-- - --	105 - --
	Litopenaeus setiferus	1	11.18	11.18	-- - --	125 - --
	Sphoeroides parvus	1	1.82	1.82	-- - --	32 - --
	TOTAL	69				
C3	*Leiostomus xanthurus*	205	1867.52	9.11	5.17 - 12.99	58 - 80
15 July 2024	*Lagodon rhomboides*	30	215.59	7.19	2.43 - 19.74	40 - 80
1711-1716	*Anchoa mitchilli*	5	0.91	0.18	0.08 - 0.27	20 - 30
	Litopenaeus setiferus	4	29.66	7.42	3.48 - 11.14	80 - 120
	Micropogonias undulatus	2	11.86	5.93	5.01 - 6.85	60 - 75
	Arius felis	1	34.12	34.12	-- - --	125 - --
	TOTAL	247				
C4	*Leiostomus xanthurus*	45	525.09	11.67	6.68 - 17.87	58 - 80
15 July 2024	*Bagre marinus*	34	244.61	7.19	2.86 - 11.05	55 - 85
1635-1640	*Anchoa mitchilli*	14	3.78	0.27	0.11 - 0.53	24 - 35
	Micropogonias undulatus	14	131.55	9.40	4.75 - 12.20	60 - 80
	Litopenaeus setiferus	11	77.62	7.06	1.78 - 21.27	70 - 150
	Lagodon rhomboides	4	39.46	9.87	7.51 - 12.07	60 - 70
	Peprilus burti	2	16.00	8.00	7.27 - 8.73	50 - 55
	Sphoeroides parvus	1	3.78	3.78	-- - --	45 - --
	TOTAL	125				

TABLE 5-8 (Concluded)
TRAWL DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
R1	*Micropogonias undulatus*	16	111.29	6.96	4.62 - 10.31	60 - 78
15 July 2024	*Leiostomus xanthurus*	8	104.45	13.06	7.21 - 19.68	60 - 85
1542-1547	*Litopenaeus setiferus*	5	16.56	3.31	0.26 - 8.72	30 - 110
	Anchoa mitchilli	3	2.09	0.70	0.13 - 1.52	22 - 50
	Arius felis	1	79.44	79.44	-- - --	160 - --
	Bagre marinus	1	7.95	7.95	-- - --	75 - --
	Dasyatis sabina	1	136.10	136.10	-- - --	230 - --
	TOTAL	35				
R2	*Leiostomus xanthurus*	35	515.07	14.72	8.41 - 23.47	65 - 90
15 July 2024	*Bagre marinus*	26	69.41	2.67	1.21 - 10.17	40 - 85
1512-1517	*Anchoa mitchilli*	10	10.74	1.07	0.16 - 1.86	21 - 52
	Litopenaeus setiferus	7	11.44	1.63	0.28 - 3.04	40 - 80
	Micropogonias undulatus	4	32.60	8.15	3.18 - 10.93	50 - 80
	Chaetodipterus faber	1	1.74	1.74	-- - --	30 - --
	Sphoeroides parvus	1	3.06	3.06	-- - --	40 - --
	TOTAL	84				
R3	*Anchoa mitchilli*	10	66.90	6.69	0.24 - 3.28	30 - 61
15 July 2024	*Leiostomus xanthurus*	8	119.25	14.91	12.88 - 17.65	70 - 86
1448-1453	*Lagodon rhomboides*	4	41.24	10.31	7.42 - 12.74	60 - 70
	Micropogonias undulatus	2	11.39	5.70	1.18 - 10.21	45 - 80
	Caranx hippos	1	12.62	12.62	-- - --	75 - --
	Eucinostomus argenteus	1	1.75	1.75	-- - --	42 - --
	Litopenaeus setiferus	1	5.44	5.44	-- - --	90 - --
	TOTAL	27				
R4	*Litopenaeus setiferus*	13	17.72	1.36	0.38 - 3.86	40 - 85
15 July 2024	*Leiostomus xanthurus*	7	95.62	13.66	5.54 - 23.16	60 - 90
1607-1612	*Lagodon rhomboides*	5	57.88	11.58	5.19 - 27.86	55 - 85
	Micropogonias undulatus	5	28.41	5.68	0.77 - 10.57	40 - 80
	Bagre marinus	2	16.41	8.21	7.60 - 8.81	75 - 80
	Arius felis	1	90.70	90.70	-- - --	152 - --
	Callinectes sapidus	1	45.40	45.40	-- - --	76 - --
	Hemicaranx amblyrhynchus	1	4.04	4.04	-- - --	52 - --
	Paralichthys lethostigma	1	90.70	90.70	-- - --	102 - --
	Sphoeroides parvus	1	3.87	3.87	-- - --	45 - --
	TOTAL	37				

TABLE 5-9
TRAWL DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
B1	*Leiostomus xanthurus*	41	743.13	18.13	15.01 - 22.61	80 - 90
14 October 2024	*Anchoa mitchilli*	10	8.59	0.86	0.36 - 1.27	33 - 45
1747-1752	*Mugil cephalus*	3	117.64	39.21	37.58 - 42.34	110 - 120
	Arius felis	1	34.64	34.64	-- - --	125 - --
	Bagre marinus	1	20.75	20.75	-- - --	110 - --
	Lolliguncula brevis	1	1.62	1.62	-- - --	35 - --
	Micropogonias undulatus	1	18.72	18.72	-- - --	95 - --
	Penaeidae	1	0.36	0.36	-- - --	38 - --
	TOTAL	59				
B2	*Leiostomus xanthurus*	45	960.35	21.34	14.95 - 52.62	80 - 130
14 October 2024	*Anchoa mitchilli*	7	6.46	0.92	0.48 - 1.69	35 - 50
1718-1723	*Micropogonias undulatus*	4	75.83	18.96	14.47 - 23.11	90 - 100
	Lagodon rhomboides	3	70.33	23.44	14.80 - 34.71	75 - 100
	Bagre marinus	2	53.52	26.76	26.30 - 27.22	110 - --
	Brevoortia patronus	2	30.32	15.16	13.97 - 16.35	90 - 95
	Anchoa hepsetus	1	13.30	13.30	-- - --	98 - --
	TOTAL	64				
B3	*Leiostomus xanthurus*	100	1866.80	18.67	13.40 - 23.06	70 - 100
14 October 2024	*Anchoa mitchilli*	65	64.59	0.99	0.15 - 2.81	25 - 60
1646-1651	*Micropogonias undulatus*	7	140.76	20.11	15.54 - 25.67	90 - 105
	Bagre marinus	2	36.18	18.09	17.19 - 20.97	100 - --
	Bairdiella chrysoura	2	44.42	22.21	4.45 - 39.97	65 - 135
	Lagodon rhomboides	2	45.27	22.64	22.32 - 22.95	85 - --
	TOTAL	178				
B4	*Leiostomus xanthurus*	109	1906.09	17.49	13.06 - 27.91	75 - 100
14 October 2024	*Anchoa mitchilli*	41	40.25	0.98	0.41 - 1.76	31 - 52
1607-1612	*Micropogonias undulatus*	5	109.42	21.88	12.96 - 25.43	85 - 110
	Mugil cephalus	2	77.76	38.88	38.32 - 39.44	115 - 120
	Brevoortia patronus	1	12.44	12.44	-- - --	85 - --
	TOTAL	158				

TABLE 5-9 (Continued)
TRAWL DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
C1	*Leiostomus xanthurus*	84	1512.99	18.01	12.66 - 23.16	75 - 90
14 October 2024	*Anchoa mitchilli*	25	21.66	0.87	0.24 - 1.33	30 - 45
1734-1739	*Bagre marinus*	3	88.14	29.38	24.27 - 35.67	105 - 130
	Lagodon rhomboides	2	47.46	23.73	18.34 - 29.12	85 - 90
	Micropogonias undulatus	2	43.88	21.94	20.46 - 23.42	95 - 100
	Mugil cephalus	2	79.83	39.92	35.65 - 43.18	110 - 130
	Anchoa hepsetus	1	8.51	8.51	-- - --	80 - --
	Bairdiella chrysoura	1	25.16	25.16	-- - --	115 - --
	Lolliguncula brevis	1	1.05	1.05	-- - --	25 - --
	TOTAL	121				
C2	*Leiostomus xanthurus*	74	1335.75	18.05	13.57 - 23.89	80 - 90
14 October 2024	*Anchoa mitchilli*	19	16.09	0.85	0.03 - 1.37	19 - 50
1703-1708	*Micropogonias undulatus*	4	111.95	27.99	24.88 - 30.25	105 - 115
	Bagre marinus	1	19.87	19.87	-- - --	120 - --
	Lagodon rhomboides	1	21.19	21.19	-- - --	80 - --
	TOTAL	99				
C3	*Leiostomus xanthurus*	48	890.15	18.54	11.36 - 25.35	75 - 95
14 October 2024	*Anchoa mitchilli*	42	45.53	1.08	0.54 - 1.85	35 - 54
1625-1630	*Bagre marinus*	8	169.70	21.21	15.95 - 28.31	95 - 110
	Micropogonias undulatus	8	207.69	25.96	17.25 - 31.58	90 - 110
	Lagodon rhomboides	4	102.26	25.57	18.96 - 30.51	80 - 95
	Callinectes sapidus	2	12.35	6.18	2.51 - 9.84	35 - 45
	Arius felis	1	5.52	5.52	-- - --	65 - --
	TOTAL	113				
C4	*Anchoa mitchilli*	51	23.97	0.47	0.12 - 1.50	23 - 48
14 October 2024	*Leiostomus xanthurus*	31	523.20	16.88	10.78 - 23.66	70 - 90
1552-1557	*Lagodon rhomboides*	5	119.02	23.80	21.02 - 28.69	81 - 95
	Micropogonias undulatus	3	70.35	23.45	20.55 - 27.23	95 - 105
	Bagre marinus	1	20.50	20.50	-- - --	100 - --
	Farfantepenaeus aztecus	1	5.54	5.54	-- - --	95 - --
	TOTAL	92				

TABLE 5-9 (Concluded)
TRAWL DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
R1	*Leiostomus xanthurus*	24	549.51	22.90	17.25 - 36.16	80 - 105
14 October 2024	*Anchoa mitchilli*	22	25.46	1.16	0.44 - 2.11	30 - 54
1448-1453	*Bagre marinus*	2	52.98	26.49	24.63 - 28.35	115 - --
	Micropogonias undulatus	2	28.66	14.33	5.85 - 22.81	65 - 100
	Penaeidae	1	0.37	0.37	-- - --	40 - --
	TOTAL	51				
R2	*Leiostomus xanthurus*	27	670.65	24.84	16.33 - 36.40	82 - 105
14 October 2024	*Anchoa mitchilli*	17	5.88	0.35	0.06 - 0.86	19 - 45
1419-1424	*Micropogonias undulatus*	4	72.45	18.11	14.23 - 22.75	95 - 105
	Cynoscion arenarius	1	31.73	31.73	-- - --	120 - --
	TOTAL	49				
R3	*Anchoa mitchilli*	10	7.46	0.75	0.09 - 1.20	20 - 46
14 October 2024	*Leiostomus xanthurus*	8	209.69	26.21	21.26 - 36.75	90 - 105
1346-1351	*Micropogonias undulatus*	2	48.99	24.50	19.53 - 29.46	100 - 115
	Callinectes sapidus	1	181.40	181.40	-- - --	127 - --
	Lagodon rhomboides	1	24.07	24.07	-- - --	90 - --
	Symphurus plaguisa	1	19.37	19.37	-- - --	125 - --
	TOTAL	23				
R4	*Anchoa mitchilli*	65	75.00	1.15	0.07 - 1.93	19 - 52
14 October 2024	*Leiostomus xanthurus*	26	565.63	21.76	11.20 - 33.44	72 - 100
1521-1526	*Lagodon rhomboides*	6	117.43	19.57	13.68 - 25.41	75 - 90
	Farfantepenaeus aztecus	5	19.50	3.90	2.63 - 5.16	75 - 100
	Callinectes sapidus	2	362.90	181.45	181.40 - --	127 - 145
	Cynoscion arenarius	2	11.61	5.81	5.58 - 6.03	70 - --
	Arius felis	1	226.80	226.80	-- - --	292 - --
	Callinectes sapidus	1	3.68	3.68	-- - --	40 - --
	TOTAL	108				

TABLE 5-10
TRAWL DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
B1	*Anchoa mitchilli*	2	0.12	0.06	0.06 - --	20 - 21
3 February 2025	TOTAL	2				
1745-1750						
B2	*Brevoortia patronus*	1	0.06	0.06	-- - --	21 - --
3 February 2025	*Micropogonias undulatus*	1	0.04	0.04	-- - --	15 - --
1719-1724	*Palaemonetes* sp.	1	0.24	0.24	-- - --	30 - --
	TOTAL	3				
B3	*Micropogonias undulatus*	2	0.80	0.40	0.03 - 0.05	12 - 15
3 February 2025	*Brevoortia patronus*	1	0.06	0.06	-- - --	21 - --
1653-1658	TOTAL	3				
B4	*Anchoa mitchilli*	7	0.56	0.08	0.06 - 0.11	20 - 28
3 February 2025	*Micropogonias undulatus*	2	0.29	0.15	0.09 - 0.20	20 - 25
1629-1634	TOTAL	2				

TABLE 5-10 (Continued)
TRAWL DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
C1	*Micropogonias undulatus*	3	1.65	0.55	0.10 - 1.24	20 - 40
3 February 2025	*Palaemonetes* sp.	2	0.40	0.20	0.20 - --	25 - --
1730-1735	TOTAL	2				
C2	*Palaemonetes* sp.	7	1.91	0.27	0.17 - 0.53	25 - 40
3 February 2025	*Micropogonias undulatus*	5	0.63	0.13	0.03 - 0.48	10 - 35
1705-1710	*Anchoa mitchilli*	2	0.18	0.09	0.07 - 0.11	20 - 25
	TOTAL	14				
C3	*Micropogonias undulatus*	6	0.62	0.10	0.04 - 0.27	12 - 26
3 February 2025	*Palaemonetes* sp.	2	0.50	0.25	0.17 - 0.33	30 - 40
1645-1650	*Anchoa mitchilli*	1	0.60	0.60	-- - --	40 - --
	TOTAL	9				
C4	*Micropogonias undulatus*	5	6.60	1.32	0.42 - 1.89	30 - 45
3 February 2025	*Palaemonetes* sp.	2	0.98	0.49	0.49 - --	40 - --
1615-1620	*Anchoa mitchilli*	1	0.26	0.26	-- - --	30 - --
	TOTAL	8				

TABLE 5-10 (Concluded)
TRAWL DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
R1	*Anchoa mitchilli*	1	0.16	0.16	-- - --	25 - --
3 February 2025	TOTAL	1				
1531-1536						
R2	*Anchoa mitchilli*	10	1.25	0.13	0.09 - 0.19	20 - 30
3 February 2025	*Brevoortia patronus*	3	0.48	0.16	0.14 - 0.18	21 - 28
1508-1513	*Micropogonias undulatus*	2	1.67	0.84	0.53 - 1.14	32 - 36
	Leiostomus xanthurus	1	34.31	34.31	-- - --	110 - --
	TOTAL	16				
R3	*Leiostomus xanthurus*	4	112.56	28.14	25.82 - 30.89	100 - 105
3 February 2025	*Micropogonias undulatus*	1	1.65	1.65	-- - --	45 - --
1427-1432	TOTAL	5				
R4	*Palaemonetes* sp.	4	1.50	0.38	0.23 - 0.52	30 - 40
3 February 2025	*Micropogonias undulatus*	2	1.77	0.89	0.27 - 1.50	30 - 45
1553-1558	*Anchoa mitchilli*	1	0.15	0.15	-- - --	30 - --
	Callinectes sp.	1	0.66	0.66	-- - --	18 - --
	TOTAL	8				

TABLE 5-11
TRAWL DATA
TRIP 131- MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
B1	*Anchoa mitchilli*	100	61.97	0.62	0.34 - 1.33	31 - 46
31 March 2025	*Leiostomus xanthurus*	63	178.95	2.84	1.29 - 4.86	37 - 57
1742-1747	*Micropogonias undulatus*	56	138.93	2.48	0.83 - 6.16	36 - 65
	Brevoortia patronus	30	45.08	1.50	0.64 - 2.91	31 - 49
	Farfantepenaeus sp.	14	2.39	0.17	0.07 - 0.32	17 - 31
	Lolliguncula brevis	2	0.2	0.10	0.05 - 0.15	51 - 127
	TOTAL	265				
B2	*Micropogonias undulatus*	78	136.80	1.75	0.82 - 1.05	36 - 65
31 March 2025	*Leiostomus xanthurus*	58	235.83	4.07	2.10 - 27.70	45 - 105
1709-1714	*Anchoa mitchilli*	48	19.87	0.41	0.27 - 0.77	29 - 39
	Farfantepenaeus aztecus	28	6.06	0.22	0.07 - 0.73	19 - 42
	Callinectes sapidus	1	0.12	0.12	-- - --	12 - --
	Lolliguncula brevis	1	0.15	0.15	-- - --	114 - --
	TOTAL	214				
B3	*Leiostomus xanthurus*	131	381.91	2.92	1.65 - 7.52	41 - 66
31 March 2025	*Micropogonias undulatus*	128	245.71	1.92	0.29 - 5.68	27 - 67
1632-1637	*Anchoa mitchilli*	26	13.34	0.51	1.77 - 0.27	29 - 52
	Farfantepenaeus sp.	19	3.74	0.20	0.14 - 0.25	22 - 30
	Lagodon rhomboides	3	2.75	0.92	0.63 - 1.16	27 - 35
	Callinectes sapidus	1	5.10	5.10	-- - --	45 - --
	Lolliguncula brevis	1	0.15	0.15	-- - --	102 - --
	TOTAL	309				
B4	*Leiostomus xanthurus*	117	443.90	3.79	1.56 - 34.13	40 - 117
31 March 2025	*Micropogonias undulatus*	72	201.21	2.79	0.40 - 8.96	29 - 76
1555-1600	*Farfantepenaeus* sp.	36	18.26	0.51	0.09 - 9.93	19 - 126
	Anchoa mitchilli	21	7.84	0.37	0.23 - 1.00	29 - 43
	Palaemonetes sp.	7	2.17	0.31	0.27 - 0.34	25 - 29
	Brevoortia patronus	6	11.10	1.85	0.54 - 3.44	30 - 53
	Callinectes sapidus	3	3.84	1.28	0.32 - 3.16	12 - 43
	Lagodon rhomboides	3	5.65	1.88	0.30 - 3.93	23 - 48
	TOTAL	265				

TABLE 5-11 (Continued)
TRAWL DATA
TRIP 131- MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
C1	*Anchoa mitchilli*	50	18.82	0.38	0.30 - 0.80	31 - 41
31 March 2025	*Leiostomus xanthurus*	30	82.69	2.76	0.95 - 5.90	35 - 63
1726-1731	*Brevoortia patronus*	14	29.16	2.08	1.80 - 2.56	42 - 47
	Micropogonias undulatus	12	22.66	1.89	0.57 - 5.65	33 - 68
	Farfantepenaeus sp.	3	0.92	0.31	0.02 - 0.72	16 - 44
	TOTAL	109				
C2	*Anchoa mitchilli*	51	25.06	0.49	0.28 - 1.65	31 - 50
31 March 2025	*Micropogonias undulatus*	31	57.34	1.85	0.32 - 6.39	26 - 67
1650-1655	*Leiostomus xanthurus*	24	99.07	4.13	1.40 - 33.25	38 - 116
	Farfantepenaeus sp.	7	2.01	0.29	0.10 - 0.70	20 - 40
	Callinectes sapidus	2	1.52	0.76	0.51 - 0.71	21 - 22
	Lagodon rhomboides	2	1.32	0.66	0.48 - 0.84	26 - 31
	Palaemonetes sp.	1	0.20	0.20	-- - --	21 - --
	TOTAL	118				
C3	*Micropogonias undulatus*	92	227.92	2.48	0.46 - 13.27	29 - 80
31 March 2025	*Leiostomus xanthurus*	79	285.16	3.61	2.25 - 5.62	45 - 60
1612-1617	*Anchoa mitchilli*	69	30.51	0.44	0.28 - 1.25	29 - 43
	Farfantepenaeus sp.	29	7.19	0.25	0.09 - 0.74	19 - 40
	Lagodon rhomboides	3	4.38	1.46	1.13 - 1.63	34 - 41
	Brevoortia patronus	1	0.23	0.23	-- - --	27 - --
	Callinectes sapidus	1	0.47	0.47	-- - --	47 - --
	Paralichthys lethostigma	1	0.15	0.15	-- - --	51 - --
	TOTAL	275				
C4	*Brevoortia patronus*	298	198.09	0.66	0.36 - 1.66	26 - 42
31 March 2025	*Leiostomus xanthurus*	60	137.61	2.29	1.43 - 3.82	39 - 55
1532-1537	*Micropogonias undulatus*	24	36.95	1.54	0.22 - 4.46	22 - 64
	Farfantepenaeus sp.	10	1.33	0.13	0.07 - 0.21	16 - 25
	Anchoa mitchilli	8	2.46	0.31	0.23 - 0.42	27 - 35
	Callinectes sapidus	1	1.25	1.25	-- - --	24 - --
	Lagodon rhomboides	1	0.57	0.57	-- - --	27 - --
	TOTAL	402				

TABLE 5-11 (Concluded)
TRAWL DATA
TRIP 131- MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH RANGE (mm)
R1	*Micropogonias undulatus*	32	148.69	4.65	0.44 - 28.59	30 - 120
31 March 2025	*Anchoa mitchilli*	27	9.87	0.37	0.07 - 0.63	21 - 41
1433-1438	*Farfantepenaeus* sp.	19	11.65	0.61	0.12 - 5.08	22 - 78
	Leiostomus xanthurus	10	430.25	43.03	32.98 - 54.82	106 - 122
	Callinectes sapidus	1	0.14	0.14	-- - --	17 - --
	Palaemonetes sp.	1	0.28	0.28	-- - --	26 - --
	TOTAL	90				
R2	*Anchoa mitchilli*	35	16.44	0.47	0.33 - 0.82	32 - 41
31 March 2025	*Micropogonias undulatus*	29	123.33	4.25	0.22 - 16.02	23 - 94
1400-1405	*Farfantepenaeus* sp.	22	11.87	0.54	0.07 6.19	17 78
	Leiostomus xanthurus	7	284.39	40.63	3.26 - 59.20	51 - 123
	Pogonias cromis	1	284.39	284.39	3.26 - 59.20	51 - 123
	TOTAL	94				
R3	*Leiostomus xanthurus*	9	419.59	46.62	32.89 - 71.29	104 - 134
31 March 2025	*Anchoa mitchilli*	4	6.44	1.61	0.70 - 3.60	40 - 66
1324-1329	*Farfantepenaeus* sp.	1	0.09	0.09	-- - --	21 - --
	Gobiosoma bosc	1	1.00	1.00	-- - --	39 - --
	Lolliguncula brevis	1	8.62	8.62	-- - --	72 - --
	Micropogonias undulatus	1	7500.00		-- - --	914 - --
	TOTAL	17				
R4					-	-
31 March 2025	*Farfantepenaeus* sp.	96	73.09	0.76	0.08 - 8.65	20 - 79
1604-1609	*Micropogonias undulatus*	59	142.49	2.42	0.69 - 5.78	34 - 78
	Leiostomus xanthurus	27	47.99	1.78	0.84 - 2.77	35 - 50
	Anchoa mitchilli	16	8.61	0.54	0.06 - 1.72	28 - 54
	Lagodon rhomboides	5	2.50	0.50	0.32 - 0.74	23 - 30
	Lolliguncula brevis	1	10.88	10.88	-- - --	82 - --
	TOTAL	204				

TABLE 5-12
GILL NET DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
B1	*Brevoortia patronus*	36	2086.5	58.0	45.4 - --	146 - 178
18 July 2024	*Arius felis*	26	2222.6	85.5	45.4 - 181.4	168 - 298
1055-1208	*Dasyatis sabina*	14	13335.6	952.5	544.3 - 1451.5	635 - 810
	Bagre marinus	10	5488.5	548.9	90.7 - 1406.1	226 - 544
	Menticirrhus americanus	5	544.3	108.9	22.7 - 226.8	205 - 291
	Opisthonema oglinum	4	226.8	56.7	45.4 - 90.7	176 - 215
	Cynoscion nebulosus	3	499.0	166.3	90.7 - 226.8	252 - 345
	Rhinoptera bonasus	3	5851.3	1950.4	136.1 - 4490.6	578 - 1118
	Carcharhinus leucas	1	4399.9	4399.9	-- - --	822 - --
	Elops saurus	1	136.1	136.1	-- - --	275 - --
	Micropogonias undulatus	1	4.5	4.5	-- - --	106 - --
	TOTAL	104				
B2	*Arius felis*	29	2766.9	95.4	45.4 - 226.8	154 - 312
18 July 2024	*Brevoortia patronus*	23	1043.3	45.4	45.4 - --	130 - 165
0955-1042	*Opisthonema oglinum*	13	589.7	45.4	45.4 - --	174 - 201
	Bagre marinus	10	3220.5	322.1	45.4 - 907.2	210 - 476
	Dasyatis sabina	7	7212.1	1030.3	680.4 - 1451.5	660 - 754
	Menticirrhus americanus	7	771.1	110.2	45.4 - 181.4	200 - 251
	Rhinoptera bonasus	2	1406.1	703.1	680.4 - 725.8	630 - 658
	Callinectes sapidus	1	181.4	181.4	-- - --	155 - --
	Caranx hippos	1	22.7	22.7	-- - --	150 - --
	Carcharhinus leucas	1	2404.0	2404.0	-- - --	702 - --
	Elops saurus	1	136.1	136.1	-- - --	340 - --
	TOTAL	95				
B3	*Arius felis*	24	2086.5	86.9	45.4 - 136.1	155 - 279
18 July 2024	*Brevoortia patronus*	24	1088.6	45.4	45.4 - --	139 - 167
0825-0857	*Bagre marinus*	10	24403.3	2440.3	22.7 - 1315.4	112 - 516
	Rhinoptera bonasus	5	24403.3	4880.7	3719.5 - 5216.3	625 - 1092
	Callinectes sapidus	2	317.5	158.8	45.4 - 272.2	90 - 185
	Carcharhinus leucas	2	8073.9	4037.0	3900.9 - 4173.1	812 - 846
	Menticirrhus americanus	2	181.4	90.7	90.7 - --	232 - --
	Opisthonema oglinum	2	136.1	68.1	45.4 - 90.7	116 - 225
	Caranx hippos	1	45.4	45.4	-- - --	146 - --
	Cynoscion nebulosus	1	226.8	226.8	-- - --	295 - --
	Dasyatis sabina	1	997.9	997.9	-- - --	595 - --
	Elops saurus	1	136.1	136.1	-- - --	310 - --
	TOTAL	75				
B4	*Brevoortia patronus*	45	1859.7	41.3	45.4 - --	121 - 180
18 July 2024	*Arius felis*	35	4626.6	132.2	45.4 - 544.3	216 - 379
0900-0952	*Bagre marinus*	10	4121.9	412.2	4.5 - 1134.0	102 - 513
	Opisthonema oglinum	7	362.9	51.8	45.4 - 90.7	171 - 202
	Cynoscion nebulosus	5	1270.1	254.0	181.4 - 453.6	273 - 382
	Dasyatis sabina	5	5352.4	1070.5	952.5 - 1134.0	450 - 772
	Callinectes sapidus	2	272.2	136.1	90.7 - 181.4	135 - 156
	Carcharhinus leucas	1	2857.6	2857.6	-- - --	740 - --
	Elops saurus	1	181.4	181.4	-- - --	365 - --
	Leiostomus xanthurus	1	45.4	45.4	-- - --	167 - --
	Micropogonias undulatus	1	22.7	22.7	-- - --	115 - --
	Mugil cephalus	1	90.7	90.7	-- - --	230 - --
	Rhinoptera bonasus	1	2630.8	2630.8	-- - --	795 - --
	TOTAL	115				

TABLE 5-12 (Continued)
GILL NET DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
C1	*Arius felis*	55	5216.3	94.8	45.4 - 362.9	205 - 352
17 July 2024	*Brevoortia patronus*	15	680.4	45.4	45.4 - --	140 - 168
1220-1340	*Bagre marinus*	12	8187.3	682.3	22.7 - 1134.0	100 - 527
	Carcharhinus leucas	6	24947.6	4157.9	3356.6 - 7393.6	736 - 1067
	Dasyatis sabina	3	2993.7	997.9	816.5 - 1179.3	495 - 697
	Elops saurus	2	317.5	158.8	136.1 - 181.4	300 - 365
	Micropogonias undulatus	2	90.7	45.4	45.4 - --	170 - 180
	Opisthonema oglinum	2	90.7	45.4	45.4 - --	158 - 180
	Cynoscion nebulosus	1	181.4	181.4	-- - --	370 - --
	Menticirrhus americanus	1	136.1	136.1	-- - --	248 - --
	Paralichthys lethostigma	1	362.9	362.9	-- - --	360 - --
	Rhinoptera bonasus	1	2177.3	2177.3	-- - --	970 - --
	TOTAL	101				
C2	*Arius felis*	53	4626.6	87.3	45.4 - 226.8	205 - 327
17 July 2024	*Brevoortia patronus*	21	997.9	47.5	45.4 - --	145 - 175
1105-1211	*Dasyatis sabina*	15	13108.8	873.9	635.0 - 3402.0	590 - 825
	Bagre marinus	13	11158.4	858.3	90.7 - 1587.6	240 - 580
	Opisthonema oglinum	7	385.6	55.1	45.4 - 90.7	165 - 226
	Carcharhinus leucas	3	14197.4	4732.5	3991.6 - 5896.7	815 - 908
	Elops saurus	2	499.0	249.5	136.1 - 362.9	315 - 430
	Caranx hippos	1	22.7	22.7	-- - --	126 - --
	Cynoscion nebulosus	1	136.1	136.1	-- - --	290 - --
	Menticirrhus americanus	1	408.2	408.2	-- - --	335 - --
	Rhinoptera bonasus	1	3447.3	3447.3	-- - --	1041 - --
	TOTAL	118				
C3	*Arius felis*	40	4830.8	120.8	22.7 - 181.4	153 - 300
17 July 2024	*Bagre marinus*	22	16057.2	729.9	45.4 - 1406.1	215 - 551
0950-1100	*Brevoortia patronus*	19	861.8	45.4	45.4 - --	132 - 169
	Carcharhinus leucas	9	35561.6	3951.3	2131.9 - 6123.5	680 - 922
	Opisthonema oglinum	6	317.5	52.9	45.4 - 90.7	170 - 210
	Dasyatis sabina	5	2766.9	553.4	317.5 - 907.2	280 - 675
	Cynoscion nebulosus	4	771.1	192.8	90.7 - 816.5	270 - 350
	Lagodon rhomboides	2	45.4	22.7	22.7 - --	111 - 120
	Callinectes sapidus	1	22.7	22.7	-- - --	51 - --
	Elops saurus	1	136.1	136.1	-- - --	315 - --
	Menippe mercenaria	1	635.0	635.0	-- - --	135 - --
	Pogonias cromis	1	8164.7	8164.7	-- - --	762 - --
	TOTAL	111				
C4	*Arius felis*	46	4944.2	107.5	45.4 - 272.2	165 - 345
17 July 2024	*Bagre marinus*	21	5851.3	278.6	45.4 - 1542.2	218 - 564
0850-0948	*Brevoortia patronus*	15	680.4	45.4	45.4 - --	140 - 163
	Opisthonema oglinum	12	635.0	52.9	45.4 - 90.7	169 - 220
	Dasyatis sabina	7	12655.2	1807.9	725.8 - 6350.3	630 - 955
	Callinectes sapidus	2	317.5	158.8	90.7 - 226.8	162 - 190
	Carcharhinus leucas	2	8618.3	4309.2	3719.5 - 4898.8	785 - 815
	Cynoscion nebulosus	2	317.5	158.8	136.1 - 181.4	250 - 284
	Menticirrhus americanus	1	90.7	90.7	-- - --	215 - --
	TOTAL	108				

TABLE 5-12 (Concluded)
GILL NET DATA
TRIP 128 - JULY 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
R1	*Bagre marinus*	53	17191.2	324.4	45.4 - 1451.5	230 - 555
16 July 2024	*Arius felis*	48	5942.1	123.8	45.4 - 499.0	190 - 365
1110-1210	*Carcharhinus leucas*	8	37557.5	4694.7	2177.3 - 11339.8	760 - 1118
	Brevoortia patronus	5	226.8	45.4	45.4 - --	145 - 157
	Caranx hippos	1	45.4	45.4	-- - --	147 - --
	Cynoscion arenarius	1	45.4	45.4	-- - --	185 - --
	Dorosoma cepedianum	1	136.1	136.1	-- - --	275 - --
	Elops saurus	1	136.1	136.1	-- - --	325 - --
	Menticirrhus americanus	1	90.7	90.7	-- - --	228 - --
	Micropogonias undulatus	1	22.7	22.7	-- - --	136 - --
	Opisthonema oglinum	1	45.4	45.4	-- - --	205 - --
	TOTAL	121				
R2	*Bagre marinus*	68	18370.5	270.2	90.7 - 1224.7	235 - 530
16 July 2024	*Arius felis*	20	4294.8	214.7	45.4 - 362.9	208 - 360
0950-1050	*Brevoortia patronus*	5	226.8	45.4	45.4 - --	152 - 168
	Carcharhinus leucas	2	26353.2	13176.6	12247.0 - 14288.2	1295 - 1473
	Cynoscion arenarius	1	45.4	45.4	-- - --	196 - --
	Cynoscion nebulosus	1	272.2	272.2	-- - --	312 - --
	Dasyatis sabina	1	907.2	907.2	-- - --	688 - --
	Elops saurus	1	90.7	90.7	-- - --	310 - --
	Lepisosteus spatula	1	6259.6	6259.6	-- - --	1118 - --
	Menticirrhus americanus	1	136.1	136.1	-- - --	227 - --
	TOTAL	101				
R3	*Bagre marinus*	47	19504.5	415.0	90.7 - 1406.1	246 - 539
16 July 2024	*Arius felis*	35	3674.1	105.0	22.7 - 317.5	158 - 339
0840-0941	*Brevoortia patronus*	5	272.2	54.4	45.4 - 90.7	151 - 235
	Carcharhinus leucas	5	24720.8	4944.2	2313.3 - 13653.1	720 - 1295
	Menticirrhus americanus	3	544.3	181.4	136.1 - 272.2	230 - 275
	Cynoscion nebulosus	2	226.8	113.4	90.7 - 113.4	245 - 270
	Cynoscion arenarius	1	45.4	45.4	-- - --	200 - --
	Dasyatis sabina	1	1179.3	1179.3	-- - --	780 - --
	Elops saurus	1	136.1	136.1	-- - --	312 - --
	Micropogonias undulatus	1	45.4	45.4	-- - --	180 - --
	Opisthonema oglinum	1	45.4	45.4	-- - --	170 - --
	Pogonias cromis	1	4082.3	4082.3	-- - --	725 - --
	TOTAL	103				
R4	*Arius felis*	28	2948.4	105.3	45.4 - 362.9	168 - 338
16 July 2024	*Bagre marinus*	14	8164.7	583.2	90.7 - 1406.1	240 - 530
1220-1314	*Carcharhinus leucas*	5	17281.9	3456.4	2721.6 - 4263.8	750 - 874
	Dorosoma cepedianum	4	272.2	68.1	44.5 - 90.7	201 - 245
	Elops saurus	4	635.0	158.8	90.7 - 226.8	285 - 356
	Rhinoptera bonasus	2	5216.3	2608.2	2268.0 - 2948.4	910 - 950
	Opisthonema oglinum	1	45.4	45.4	-- - --	182 - --
	Pogonias cromis	1	4082.3	4082.3	-- - --	865 - --
	TOTAL	59				

TABLE 5-13
GILL NET DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
B1	*Brevoortia patronus*	38	1180.0	31.1	20.0 - 30.0	140 - 174
17 October 2024	*Bagre marinus*	20	11750.0	587.5	20.0 - 1126.0	171 - 520
1215-1325	*Arius felis*	12	1270.0	105.8	40.0 - 230.0	206 - 300
	Cynoscion arenarius	12	1270.0	105.8	60.0 - 190.0	207 - 258
	Menticirrhus americanus	8	1180.0	147.5	70.0 - 260.0	219 - 280
	Micropogonias undulatus	2	80.0	40.0	-- - 40.0	175 - --
	Opisthonema oglinum	2	70.0	35.0	30.0 - 40.0	170 - 180
	Callinectes sapidus	1	40.0	40.0	-- - --	145 - --
	Dasyatis sabina	1	980.0	980.0	-- - --	710 - --
	Lagodon rhomboides	1	10.0	10.0	-- - --	129 - --
	Leiostomus xanthurus	1	50.0	50.0	-- - --	180 - --
	Rhinoptera bonasus	1	300.0	300.0	-- - --	604 - --
	TOTAL	99				
B2	*Brevoortia patronus*	38	1290.0	33.9	10.0 - 40.0	124 - 175
17 October 2024	*Bagre marinus*	10	6930.0	693.0	20.0 - 1200.0	173 - 505
1000-1040	*Cynoscion arenarius*	7	930.0	132.9	60.0 - 260.0	211 - 275
	Arius felis	5	370.0	74.0	40.0 - 120.0	218 - 240
	Menticirrhus americanus	5	710.0	142.0	100.0 - 160.0	210 - 260
	Opisthonema oglinum	2	100.0	50.0	40.0 - 60.0	174 - 232
	Callinectes sapidus	1	250.0	250.0	-- - --	178 - --
	Lagodon rhomboides	1	10.0	10.0	-- - --	126 - --
	Leiostomus xanthurus	1	60.0	60.0	-- - --	194 - --
	Micropogonias undulatus	1	40.0	40.0	-- - --	185 - --
	Pogonias chromis	1	7260.0	7260.0	-- - --	795 - --
	TOTAL	72				
B3	*Brevoortia patronus*	49	1660.0	33.9	30.0 - 40.0	150 - 180
17 October 2024	*Bagre marinus*	16	12350.0	771.9	20.0 - 1320.0	169 - 531
1100-1200	*Menticirrhus americanus*	13	2440.0	187.7	80.0 - 280.0	221 - 287
	Arius felis	8	1120.0	140.0	50.0 - 440.0	207 - 373
	Cynoscion arenarius	4	430.0	107.5	40.0 - 180.0	185 - 272
	Dasyatis sabina	2	1380.0	690.0	680.0 - 700.0	649 - 725
	Dorosoma cepedianum	2	460.0	230.0	160.0 - 300.0	173 - 240
	Lagodon rhomboides	2	20.0	10.0	-- - 10.0	125 - 135
	Opisthonema oglinum	1	30.0	30.0	-- - --	173 - --
	Rhinoptera bonasus	1	1950.0	1950.0	-- - --	890 - --
	Scomberomorus maculatus	1	420.0	420.0	-- - --	305 - --
	TOTAL	99				
B4	*Brevoortia patronus*	47	1670.0	35.5	-- - 30.0	158 - 176
17 October 2024	*Bagre marinus*	13	8400.0	646.2	30.0 - 1280.0	170 - 534
1340-1438	*Menticirrhus americanus*	13	2550.0	196.2	60.0 - 260.0	208 - 285
	Arius felis	8	1330.0	166.3	100.0 - 340.0	233 - 335
	Cynoscion arenarius	7	990.0	141.4	50.0 - 280.0	185 - 316
	Lagodon rhomboides	7	80.0	11.4	10.0 - 20.0	118 - 135
	Dorosoma cepedianum	2	200.0	100.0	80.0 - 120.0	210 - 215
	Micropogonias undulatus	1	100.0	100.0	-- - --	184 - --
	Opisthonema oglinum	1	40.0	40.0	-- - --	202 - --
	Paralichthys lethostigma	1	300.0	300.0	-- - --	306 - --
	Scomberomorus maculatus	1	200.0	200.0	-- - --	313 - --
	TOTAL	101				

TABLE 5-13 (Continued)
GILL NET DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
C1	*Bagre marinus*	21	11580.0	551.4	10.0 - 1060.0	127 - 510
16 October 2024	*Arius felis*	15	1070.0	71.3	20.0 - 370.0	178 - 354
1225-1350	*Arius felis*	13	1280.0	98.5	20.0 - 250.0	165 - 312
	Brevoortia patronus	7	210.0	30.0	-- - 30.0	160 - 174
	Cynoscion arenarius	5	790.0	158.0	100.0 - 300.0	233 - 336
	Lagodon rhomboides	5	60.0	12.0	10.0 - 20.0	125 - 133
	Menticirrhus americanus	3	350.0	116.7	80.0 - 140.0	235 - 256
	Cynoscion nebulosus	2	400.0	200.0	120.0 - 280.0	259 - 331
	Pogonias chromis	2	1700.0	850.0	7500.0 - 9500.0	840 - 1000
	Scomberomorus maculatus	2	740.0	370.0	360.0 - 380.0	277 - 400
	Anchoa hepsetus	1	10.0	10.0	-- - --	115 - --
	Callinectes sapidus	1	220.0	220.0	-- - --	174 - --
	Carcharhinus leucas	1	5900.0	5900.0	-- - --	940 - --
	Dasyatis sabina	1	760.0	760.0	-- - --	735 - --
	Leiostomus xanthurus	1	40.0	40.0	-- - --	175 - --
	Micropogonias undulatus	1	70.0	70.0	-- - --	195 - --
	TOTAL	81				
C2	*Brevoortia patronus*	23	680.0	29.6	20.0 - 40.0	147 - 180
16 October 2024	*Bagre marinus*	16	9040.0	565.0	10.0 - 1240.0	140 - 510
1130-1215	*Arius felis*	12	2030.0	169.2	10.0 - 350.0	100 - 323
	Cynoscion nebulosus	4	1610.0	402.5	180.0 - 820.0	273 - 440
	Cynoscion arenarius	3	110.0	36.7	80.0 - 200.0	218 - 265
	Lagodon rhomboides	3	60.0	20.0	10.0 - 30.0	121 - 163
	Leiostomus xanthurus	2	120.0	60.0	50.0 - 70.0	180 - 206
	Anchoa hepsetus	1	10.0	10.0	-- - --	115 - --
	Callinectes sapidus	1	280.0	280.0	-- - --	168 - --
	Caranx hippos	1	10.0	10.0	-- - --	125 - --
	Carcharhinus leucas	1	7000.0	7000.0	-- - --	962 - --
	Dasyatis sabina	1	950.0	950.0	-- - --	620 - --
	Dorosoma cepedianum	1	100.0	100.0	-- - --	217 - --
	Menticirrhus americanus	1	300.0	300.0	-- - --	320 - --
	Opisthonema oglinum	1	30.0	30.0	-- - --	185 - --
	Paralichthys lethostigma	1	1050.0	1050.0	-- - --	432 - --
	Peprilus burti	1	20.0	20.0	-- - --	147 - --
	Pogonias chromis	1	7500.0	7500.0	-- - --	860 - --
	TOTAL	74				
C3	*Brevoortia patronus*	41	1900.0	46.3	20.0 - 40.0	149 - 188
16 October 2024	*Bagre marinus*	28	14900.0	532.1	20.0 - 1440.0	150 - 542
0930-1025	*Arius felis*	13	2210.0	170.0	20.0 - 370.0	172 - 327
	Cynoscion arenarius	7	930.0	132.9	20.0 - 240.0	156 - 280
	Menticirrhus americanus	3	660.0	220.0	160.0 - 320.0	230 - 305
	Cynoscion nebulosus	2	620.0	310.0	220.0 - 400.0	294 - 356
	Dasyatis sabina	2	2920.0	1460.0	820.0 - 2100.0	646 - 865
	Lagodon rhomboides	2	20.0	10.0	-- - 10.0	120 - 135
	Opisthonema oglinum	2	50.0	25.0	20.0 - 30.0	176 - 191
	Anchoa hepsetus	1	10.0	10.0	-- - --	125 - --
	Callinectes sapidus	1	220.0	220.0	-- - --	145 - --
	Dorosoma cepedianum	1	40.0	40.0	-- - --	210 - --
	Pogonias chromis	1	160.0	160.0	-- - --	253 - --
	Rhinoptera bonasus	1	2100.0	2100.0	-- - --	927 - --
	TOTAL	105				
C4	*Bagre marinus*	24	9170.0	382.1	10.0 - 1180.0	142 - 515
16 October 2024	*Arius felis*	18	3540.0	196.7	20.0 - 380.0	165 - 345
1425-1512	*Lagodon rhomboides*	11	310.0	28.2	20.0 - 30.0	125 - 172
	Cynoscion arenarius	5	640.0	128.0	30.0 - 400.0	186 - 256
	Menticirrhus americanus	5	930.0	186.0	120.0 - 230.0	218 - 262
	Brevoortia patronus	4	70.0	17.5	10.0 - 20.0	135 - 160
	Carcharhinus leucas	4	27470.0	6867.5	3300.0 - 6600.0	865 - 968
	Cynoscion nebulosus	3	730.0	243.3	200.0 - 280.0	275 - 315
	Anchoa hepsetus	1	900.0	900.0	-- - --	112 - --
	Dasyatis sabina	1	900.0	900.0	-- - --	705 - --
	Leiostomus xanthurus	1	20.0	20.0	-- - --	160 - --
	Micropogonias undulatus	1	100.0	100.0	-- - --	204 - --
	Scomberomorus maculatus	1	210.0	210.0	-- - --	227 - --
	TOTAL	79				

TABLE 5-13 (Concluded)
GILL NET DATA
TRIP 129 - OCTOBER 2024

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
R1	*Bagre marinus*	71	23030.0	324.4	90.0 - 1420.0	240 - 540
15 October 2024	*Arius felis*	23	3180.0	138.3	20.0 - 440.0	163 - 358
1400-1514	*Brevoortia patronus*	16	450.0	28.1	20.0 - 40.0	133 - 177
	Lagodon rhomboides	7	110.0	15.7	10.0 - 20.0	123 - 145
	Cynoscion arenarius	6	510.0	85.0	70.0 - 140.0	212 - 247
	Carcharhinus leucas	3	33600.0	11200.0	7100.0 - 14500.0	965 - 1230
	Dasyatis sabina	2	1850.0	925.0	900.0 - 950.0	724 - 737
	Menticirrhus americanus	2	170.0	85.0	40.0 - 130.0	190 - 231
	Callinectes sapidus	1	280.0	280.0	-- - --	167 - --
	Micropogonias undulatus	1	100.0	100.0	-- - --	205 - --
	TOTAL	132				
R2	*Arius felis*	47	6330.0	134.7	70.0 - 380.0	210 - 447
15 October 2024	*Bagre marinus*	30	11670.0	389.0	100.0 - 1120.0	242 - 492
1040-1200	*Brevoortia patronus*	23	700.0	30.4	20.0 - 40.0	150 - 175
	Cynoscion arenarius	10	1340.0	134.0	80.0 - 250.0	198 - 270
	Menticirrhus americanus	4	520.0	130.0	100.0 - 150.0	233 - 251
	Carcharhinus leucas	2	13400.0	6700.0	6500.0 - 6900.0	940 - 970
	Cynoscion nebulosus	2	750.0	375.0	300.0 - 450.0	312 - 352
	Scomberomorus maculatus	2	830.0	415.0	250.0 - 580.0	337 - 448
	Dasyatis sabina	1	500.0	500.0	-- - --	590 - --
	Lepisosteus spatula	1	7100.0	7100.0	-- - --	1310 - --
	Opisthonema oglinum	1	40.0	40.0	-- - --	186 - --
	TOTAL	123				
R3	*Arius felis*	37	4520.0	122.2	30.0 - 440.0	210 - 351
15 October 2024	*Bagre marinus*	24	17990.0	749.6	10.0 - 1220.0	145 - 518
0855-1000	*Brevoortia patronus*	7	260.0	37.1	30.0 - 40.0	152 - 176
	Lagodon rhomboides	6	200.0	33.3	20.0 - 50.0	120 - 158
	Menticirrhus americanus	6	101.0	16.8	130.0 - 230.0	210 - 278
	Cynoscion arenarius	5	670.0	134.0	40.0 - 200.0	212 - 295
	Sphyrna tiburo	2	3320.0	1660.0	1640.0 - 1680.0	727 - 738
	Carcharhinus leucas	1	7300.0	7300.0	-- - --	1010 - --
	Chaetodipterus faber	1	100.0	100.0	-- - --	190 - --
	Cynoscion nebulosus	1	600.0	600.0	-- - --	410 - --
	Opisthonema oglinum	1	60.0	60.0	-- - --	181 - --
	Paralichthys lethostigma	1	300.0	300.0	-- - --	302 - --
	Peprilus burti	1	280.0	280.0	-- - --	246 - --
	Scomberomorus maculatus	1	500.0	500.0	-- - --	463 - --
	Trinectes maculatus	1	4.5	4.5	-- - --	100 - --
	TOTAL	95				
R4	*Bagre marinus*	8	4300.0	537.5	20.0 - 1020.0	152 - 492
15 October 2024	*Arius felis*	5	890.0	178.0	80.0 - 380.0	215 - 325
1529-1605	*Dorosoma cepedianum*	3	150.0	50.0	-- - 50.0	183 - 185
	Brevoortia patronus	2	70.0	35.0	30.0 - 40.0	163 - 180
	Callinectes sapidus	2	580.0	290.0	220.0 - 360.0	165 - 188
	Micropogonias undulatus	2	240.0	120.0	60.0 - 180.0	185 - 231
	Pogonias chromis	2	16550.0	8275.0	7580.0 - 9000.0	890 - 975
	Cynoscion arenarius	1	30.0	30.0	-- - --	185 - --
	Cynoscion nebulosus	1	360.0	360.0	-- - --	330 - --
	Dasyatis sabina	1	1050.0	1050.0	-- - --	820 - --
	Lagodon rhomboides	1	10.0	10.0	-- - --	105 - --
	Menippe mercenaria	1	500.0	500.0	-- - --	140 - --
	TOTAL	29				

TABLE 5-14
GILL NET DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
B1	*Arius felis*	2	360.0	180.0	120.0 - 240.0	242 - 332
6 February 2025	*Brevoortia patronus*	1	50.0	50.0	-- - --	180 - --
0835-0905	*Opisthonema oglinum*	1	60.0	60.0	-- - --	195 - --
	TOTAL	4				
B2	No fish in sample.				-	-
6 February 2025					-	-
0910-0915					-	-
B3	*Arius felis*	2	420.0	210.0	140 - 280	245 - 320
6 February 2025	*Opisthonema oglinum*	1	60.0	60.0	-- - --	195 - --
0855-0905	TOTAL	3				
B4	*Callinectes sapidus*	1	120.0	120.0	-- - --	175 - --
6 February 2025	*Opisthonema oglinum*	1	60.0	60.0	-- - --	197 - --
0840-0850	TOTAL	2				

TABLE 5-14
GILL NET DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
C1	*Brevoortia patronus*	9	550.0	61.1	40.0 - 180.0	150 - 230
5 February 2025	*Arius felis*	7	1000.0	142.9	80.0 - 240.0	235 - 300
1020-1030	*Cynoscion arenarius*	3	420.0	140.0	10.0 - 120.0	243 - 284
	Menticirrhus americanus	2	470.0	235.0	200.0 - 270.0	283 - 295
	Cynoscion nebulosus	1	200.0	200.0	-- - --	286 - --
	Pogonias cromis	1	13300.0	13300.0	-- - --	895 - --
	TOTAL	23				
C2	*Brevoortia patronus*	3	160.0	53.3	50.0 - 60.0	161 - 184
5 February 2025	*Arius felis*	2	620.0	310.0	220.0 - 400.0	303 - 346
1005-1012	*Cynoscion nebulosus*	2	290.0	145.0	130.0 - 160.0	276 - 292
	Cynoscion arenarius	1	110.0	110.0	-- - --	247 - --
	Leiostomus xanthurus	1	50.0	50.0	-- - --	182 - --
	Pogonias cromis	1	9300.0	9300.0	-- - --	870 - --
	TOTAL	10				
C3	*Arius felis*	3	900.0	300.0	280.0 - 320.0	317 - 324
5 February 2025	*Menticirrhus americanus*	2	160.0	80.0	140.0 - 200.0	210 - 250
0940-0955	*Alosa chrysochloris*	1	100.0	100.0	-- - --	233 - --
	TOTAL	6				
C4	*Arius felis*	6	1030.0	171.7	100.0 - 320.0	538 - 334
5 February 2025	*Brevoortia patronus*	3	140.0	46.7	40.0 - 50.0	150 - 181
0905-0932	*Callinectes sapidus*	3	880.0	293.3	220.0 - 360.0	165 - 205
	Pogonias cromis	2	20600.0	10300.0	9200.0 - 11400.0	850 - 918
	Dorosoma cepedianum	1	70.0	70.0	-- - --	188 - --
	TOTAL	15				

TABLE 5-14
GILL NET DATA
TRIP 130 - FEBRUARY 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
R1	*Brevoortia patronus*	66	2630.0	39.8	30.0 - 60.0	120 - 180
4 February 2025	*Arius felis*	5	1050.0	210.0	110.0 - 280.0	243 - 330
1050-1112	TOTAL	71				
R2	*Brevoortia patronus*	53	2390.0	45.1	30.0 - 60.0	138 - 180
4 February 2025	*Arius felis*	25	4380.0	175.2	60.0 - 320.0	225 - 331
0955-1025	*Cynoscion nebulosus*	3	710.0	236.7	70.0 - 420.0	210 - 355
	Dorosoma cepedianum	1	50.0	50.0	-- - --	185 - --
	TOTAL	82				
R3	*Pogonias cromis*	14	106900.0	7635.7	4400 - 10800.0	660 - 890
4 February 2025	*Arius felis*	7	1540.0	220.0	100 - 300.0	215 - 318
0910-0945	*Brevoortia patronus*	2	150.0	75.0	50.0 - 100.0	160 - 185
	Cynoscion arenarius	2	210.0	105.0	60 - 150	191 - 262
	Menticirrhus americanus	2	300.0	150.0	140 - 160	250 - 253
	TOTAL	27				
R4	*Arius felis*	1	420.0	420.0	-- - --	356 - --
4 February 2025	*Callinectes sapidus*	1	200.0	200.0	-- - --	175 - --
1025-1045	*Opisthonema oglinum*	1	80.0	80.0	-- - --	190 - --
	TOTAL	3				

TABLE 5-15
GILL NET DATA
TRIP 131 - MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
B1	*Arius felis*	48	8730.0	181.9	90.0 - 500.0	211 - 357
3 April 2025	*Bagre marinus*	37	24930.0	673.8	300.0 - 1720.0	343 - 550
0850-0945	*Leiostomus xanthurus*	5	190.0	38.0	30.0 - 50.0	155 - 170
	Brevoortia patronus	3	80.0	26.7	20.0 - 30.0	162 - 180
	Cynoscion nebulosus	2	640.0	320.0	220.0 - 420.0	294 - 365
	Callinectes sapidus	1	350.0	350.0	-- - --	200 - --
	Dasyatis sabina	1	1500.0	1500.0	-- - --	778 - --
	Dorosoma cepedianum	1	1800.0	1800.0	-- - --	256 - --
	Menticirrhus americanus	1	1500.0	1500.0	-- - --	230 - --
	Pogonias cromis	1	1340.0	1340.0	-- - --	488 - --
	Rhinoptera bonasus	1	1800.0	1800.0	-- - --	820 - --
	TOTAL	101				
B2	*Arius felis*	21	3420.0	162.9	40.0 - 360.0	186 - 351
3 April 2025	*Bagre marinus*	21	17190.0	818.6	130.0 - 1180.0	275 - 495
1010-1057	*Brevoortia patronus*	8	340.0	42.5	30.0 - 60.0	136 - 190
	Leiostomus xanthurus	5	220.0	44.0	40.0 - 50.0	151 - 168
	Dorosoma cepedianum	4	580.0	145.0	120.0 - 160.0	243 - 269
	Rhinoptera bonasus	3	11000.0	3666.7	2500.0 - 5500.0	625 - 820
	Carcharhinus leucas	1	6500.0	6500.0	-- - --	1200 - --
	Cynoscion arenarius	1	100.0	100.0	-- - --	230 - --
	Cynoscion nebulosus	1	110.0	110.0	-- - --	217 - --
	Dasyatis sabina	1	600.0	600.0	-- - --	425 - --
	Menticirrhus americanus	1	100.0	100.0	-- - --	220 - --
	Sphyrna tiburo	1	3050.0	3050.0	-- - --	885 - --
	TOTAL	68				
B3	*Arius felis*	45	6540.0	145.3	60.0 - 420.0	218 - 355
3 April 2025	*Bagre marinus*	26	19700.0	757.7	230.0 - 1380.0	337 - 544
1315-1418	*Leiostomus xanthurus*	12	510.0	42.5	30.0 - 60.0	149 - 176
	Brevoortia patronus	10	490.0	49.0	30.0 - 120.0	155 - 247
	Rhinoptera bonasus	6	10640.0	1773.3	1050.0 - 3700.0	582 - 975
	Dorosoma cepedianum	1	180.0	180.0	-- - --	265 - --
	Menticirrhus americanus	1	160.0	160.0	-- - --	233 - --
	TOTAL	101				
B4	*Arius felis*	28	4480.0	160.0	60.0 - 520.0	210 - 390
3 April 2025	*Bagre marinus*	26	17770.0	683.5	120.0 - 1440.0	212 - 543
1120-1227	*Leiostomus xanthurus*	19	730.0	38.4	30.0 - 50.0	147 - 181
	Brevoortia patronus	9	380.0	42.2	30.0 - 100.0	139 - 230
	Dorosoma cepedianum	8	1270.0	158.8	100.0 - 220.0	237 - 320
	Menticirrhus americanus	2	300.0	150.0	100.0 - 200.0	215 - 268
	Rhinoptera bonasus	2	9300.0	4650.0	3500.0 - 5800.0	710 - 750
	Callinectes sapidus	1	200.0	200.0	-- - --	160 - --
	Carcharhinus leucas	1	4720.0	4720.0	-- - --	905 - --
	Trinectes maculatus	1	50.0	50.0	-- - --	135 - --
	TOTAL	97				

TABLE 5-15 (Continued)
GILL NET DATA
TRIP 131 - MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
C1	*Arius felis*	51	6570.0	128.8	30.0 - 380.0	217 - 325
2 April 2025	*Bagre marinus*	36	24800.0	688.9	160.0 - 1240.0	280 - 533
0835-1010	*Leiostomus xanthurus*	20	550.0	27.5	20.0 - 40.0	150 - 173
	Brevoortia patronus	4	120.0	30.0	20.0 - 50.0	156 - 211
	Callinectes sapidus	3	1000.0	333.3	300.0 - 380.0	120 - 205
	Cynoscion nebulosus	2	360.0	180.0	160.0 - 200.0	294 - 312
	Rhinoptera bonasus	2	2500.0	1250.0	1000.0 - 1500.0	520 - 715
	Dorosoma cepedianum	1	150.0	150.0	-- - --	273 - --
	Opisthonema oglinum	1	20.0	20.0	-- - --	180 - --
	Trinectes maculatus	1	20.0	20.0	-- - --	105 - --
	TOTAL	121				
C2	*Arius felis*	38	4620.0	121.6	40.0 - 380.0	212 - 347
2 April 2025	*Leiostomus xanthurus*	24	950.0	39.6	30.0 - 50.0	150 - 173
1012-1200	*Bagre marinus*	13	11380.0	875.4	320.0 - 1200.0	362 - 521
	Brevoortia patronus	7	260.0	37.1	10.0 - 110.0	133 - 242
	Rhinoptera bonasus	6	29390.0	4898.3	1850.0 - 7740.0	165 - 944
	Bairdiella chrysoura	2	150.0	75.0	50.0 - 100.0	175 - 206
	Carcharhinus leucas	2	12800.0	6400.0	5000.0 - 7800.0	910 - 1120
	Dasyatis sabina	1	630.0	630.0	-- - --	596 - --
	Opisthonema oglinum	1	30.0	30.0	-- - --	174 - --
	Remora remora	1	10.0	10.0	-- - --	195 - --
	Sphyrna tiburo	1	1680.0	1680.0	-- - --	740 - --
	Trinectes maculatus	1	20.0	20.0	-- - --	115 - --
	TOTAL	97				
C3	*Arius felis*	51	7270.0	142.5	20.0 - 650.0	168 - 410
2 April 2025	*Bagre marinus*	35	28030.0	800.9	150.0 - 1700.0	305 - 548
1240-1436	*Leiostomus xanthurus*	8	300.0	37.5	30.0 - 50.0	152 - 169
	Rhinoptera bonasus	7	7200.0	1028.6	680.0 - 1320.0	626 - 852
	Brevoortia patronus	5	190.0	38.0	20.0 - 60.0	148 - 200
	Cynoscion nebulosus	2	380.0	190.0	160.0 - 220.0	263 - 277
	Sphyrna tiburo	2	4030.0	2015.0	1880.0 - 2150.0	774 - 820
	Callinectes sapidus	1	180.0	180.0	-- - --	170 - --
	Carcharhinus leucas	1	7300.0	7300.0	-- - --	1020 - --
	Dorosoma cepedianum	1	150.0	150.0	-- - --	250 - --
	TOTAL	113				
C4	*Arius felis*	40	5170.0	129.3	20.0 - 380.0	173 - 364
2 April 2025	*Bagre marinus*	34	28500.0	838.2	400.0 - 1780.0	377 - 573
1445-1614	*Leiostomus xanthurus*	9	310.0	34.4	30.0 - 40.0	152 - 175
	Brevoortia patronus	5	190.0	38.0	30.0 - 40.0	163 - 175
	Pogonias cromis	3	19400.0	6466.7	2050.0 - 9300.0	540 - 905
	Cynoscion nebulosus	2	840.0	420.0	180.0 - 660.0	280 - 420
	Carcharhinus leucas	1	4250.0	4250.0	-- - --	900 - --
	Cynoscion arenarius	1	120.0	120.0	-- - --	230 - --
	TOTAL	95				

TABLE 5-15 (Concluded)
GILL NET DATA
TRIP 131 - MARCH/APRIL 2025

STATION	SPECIES	TOTAL NUMBER	TOTAL WEIGHT (g)	MEAN WEIGHT (g)	WEIGHT RANGE (g)	STANDARD LENGTH (mm)
R1	*Bagre marinus*	50	38240.0	764.8	100.0 - 1900.0	277 - 606
1 April 2025	*Arius felis*	36	4790.0	133.1	20.0 - 350.0	169 - 343
1313-1505	*Leiostomus xanthurus*	8	470.0	58.8	40.0 - 80.0	167 - 180
	Rhinoptera bonasus	6	27750.0	4625.0	2450.0 - 7500.0	710 - 1010
	Brevoortia patronus	2	50.0	25.0	20.0 - 30.0	160 - 165
	Carcharhinus leucas	1	4500.0	4500.0	-- - --	800 - --
	Cynoscion nebulosus	1	250.0	250.0	-- - --	320 - --
	Sphyrna lewini	1	480.0	480.0	-- - --	475 - --
	TOTAL	105				
R2	*Arius felis*	46	4300.0	93.5	20.0 - 230.0	172 - 335
1 April 2025	*Bagre marinus*	23	20120.0	874.8	130.0 - 1900.0	298 - 616
1030-1205	*Leiostomus xanthurus*	13	530.0	40.8	20.0 - 50.0	130 - 175
	Rhinoptera bonasus	11	35740.0	3249.1	1000.0 - 5500.0	450 - 1200
	Cynoscion nebulosus	8	1820.0	227.5	100.0 - 600.0	240 - 395
	Brevoortia patronus	6	260.0	43.3	20.0 - 100.0	140 - 237
	Menticirrhus americanus	6	850.0	141.7	60.0 - 260.0	196 - 273
	Dasyatis sabina	2	1900.0	950.0	600.0 - 1300.0	605 - 715
	Bairdiella chrysoura	1	50.0	50.0	-- - --	185 - --
	Callinectes sapidus	1	400.0	400.0	-- - --	180 - --
	Micropogonias undulatus	1	20.0	20.0	-- - --	160 - --
	Pogonias cromis	1	8100.0	8100.0	-- - --	825 - --
	TOTAL	119				
R3	*Arius felis*	49	9710.0	198.2	160.0 - 520.0	272 - 353
1 April 2025	*Bagre marinus*	9	10480.0	1164.4	830.0 - 1500.0	427 - 524
0850-1008	*Cynoscion nebulosus*	6	1650.0	275.0	180.0 - 400.0	264 - 338
	Pogonias cromis	3	22200.0	7400.0	7000.0 - 8000.0	820 - 865
	Rhinoptera bonasus	3	6800.0	2266.7	1300.0 - 4000.0	750 - 1130
	Menticirrhus americanus	2	180.0	90.0	160.0 - 200.0	221 - 254
	Callinectes sapidus	1	250.0	250.0	-- - --	173 - --
	Leiostomus xanthurus	1	50.0	50.0	-- - --	165 - --
	Lepisosteus spatula	1	7320.0	7320.0	-- - --	410 - --
	Trinectes maculatus	1	20.0	20.0	-- - --	80 - --
	TOTAL	76				
R4	*Bagre marinus*	21	18940.0	901.9	360.0 - 1740.0	382 - 548
1 April 2025	*Arius felis*	16	3780.0	236.3	40.0 - 520.0	207 - 380
1610-1658	*Carcharhinus leucas*	4	25320.0	6330.0	4970.0 - 7640.0	910 - 936
	Cynoscion nebulosus	2	320.0	160.0	130.0 - 140.0	243 - 256
	Leiostomus xanthurus	2	70.0	35.0	30.0 - 40.0	160 - 170
	Opisthonema oglinum	2	50.0	25.0	20.0 - 30.0	185 - 191
	Dasyatis sabina	1	1350.0	1350.0	-- - --	665 - --
	TOTAL	48				

TABLE 5-16
ICHTHYOPLANKTON DATA
TRIP 128 - JULY 2024

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density $\#/100m^3$
B1	*Anchoa mitchili*	2	23.04	2.64	2.11
B2	No fish in sample	–	–	–	–
B3	No fish in sample	--	–	–	–
B4	*Anchoa mitchili*	2	24.56	2.55	2.41
	Blennidae sp.	1	3.25	–	1.20
C1	*Anchoa mitchili*	1	19.18	–	2.04
C2	Blennidae sp.	7	16.88	0.31	9.59
	Anchoa mitchili	1	3.60	–	1.37
C3	No fish in sample	–	–	–	–
C4	*Anchoa mitchili*	1	5.00	–	1.54
	Gobiidae sp.	1	21.21	–	1.54
R1	No fish in sample	–	–	–	–
R2	No fish in sample	–	–	–	–
R3	No fish in sample	–	–	–	–
R4	No fish in sample	–	–	–	–

TABLE 5-17
ICHTHYOPLANKTON DATA
TRIP 129 - OCTOBER 2024

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density #/100m^3
B1	*Cynoscion nebulosus*	1	6.35	–	1.05
B2	*Anchoa mitchili*	2	8.90	5.80	2.47
	Microgobius thalassinus	2	4.75	0.21	2.47
	Gobiidae sp.	1	5.10	–	1.23
B3	No fish in sample	–	–	–	–
B4	*Anchoa mitchili*	9	20.97	1.84	6.72
	Blennidae sp.	1	6.82	–	0.75
	Brevoortia patronus	1	18.66	–	0.75
C1	*Anchoa mitchili*	1	20.90	–	1.28
	Syngnathidae sp.	1	44.95	–	1.28
C2	No fish in sample	–	–	–	–
C3	*Anchoa mitchili*	1	16.82	–	2.08
C4	*Anchoa mitchili*	4	18.85	1.84	4.60
R1	No fish in sample	–	–	–	–
R2	Blennidae sp.	1	8.06	–	1.19
R3	No fish in sample	–	–	–	–
R4	No fish in sample	–	–	–	–

TABLE 5-18
ICHTHYOPLANKTON DATA
TRIP 130 - FEBRUARY 2025

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density #/100m^3
B1	*Brevoortia patronus*	1	22.50	–	1.14
B2	*Brevoortia patronus*	8	21.66	0.53	7.84
B3	*Lagodon rhomboides*	5	13.55	1.05	5.49
	Brevoortia patronus	4	19.37	2.49	4.40
	Micropogonias undulatas	1	10.42	–	1.10
B4	*Lagodon rhomboides*	1	13.82	–	1.11
	Leiostomus xanthurus	1	12.15	–	1.11
C1	*Brevoortia patronus*	4	23.34	3.89	4.55
C2	*Lagodon rhomboides*	1	13.38	–	1.08
C3	*Brevoortia patronus*	1	19.08	–	1.05
C4	*Leiostomus xanthurus*	4	13.15	1.36	3.85
	Lagodon rhomboides	1	14.13	–	0.96
	Micropogonias undulatas	1	13.08	–	0.96
R1	*Lagodon rhomboides*	1	12.81	–	1.09
R2	*Lagodon rhomboides*	4	12.72	0.44	4.82
	Brevoortia patronus	2	17.44	8.74	2.41
R3	*Brevoortia patronus*	10	20.32	2.32	14.29
	Ophichthus gomesi	1	54.72	–	1.43
R4	*Micropogonias undulatas*	2	14.25	0.20	2.67
	Lagodon rhomboides	1	14.24	–	1.33
	Leiostomus xanthurus	1	11.87	–	1.33

TABLE 5-19
ICHTHYOPLANKTON DATA
TRIP 131 - MARCH/APRIL 2025

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density #/100m^3
B1	*Brevoortia patronus*	29	9.00	7.33	27.10
	Lagodon rhomboides	14	12.50	0.85	13.08
	Gobiidae sp.	4	2.58	0.43	3.74
	Gobiesox strumosus	3	4.83	0.47	2.80
	Menidia beryllina	3	4.00	0.89	2.80
	Tetradontidae sp.	2	2.70	0.14	1.87
	Blennidae sp.	1	2.40	–	0.93
B2	*Brevoortia patronus*	21	5.30	2.47	22.58
	Gobiesox strumosus	9	7.18	1.11	9.68
	Lagodon rhomboides	7	12.57	0.62	7.53
	Blennidae sp.	3	3.27	1.08	3.23
	Tetradontidae sp.	2	3.15	1.06	2.15
	Elops saurus	1	32.50	–	1.08
	Gobiidae sp.	1	2.40	–	1.08
	Lolliguncula brevis	1	2.80	–	1.08
	Menidia beryllina	1	2.80	–	1.08
B3	*Brevoortia patronus*	39	18.70	4.79	40.21
	Lagodon rhomboides	7	12.68	0.59	7.22
	Tetradontidae sp.	6	5.38	1.51	6.19
	Blennidae sp.	3	3.57	0.35	3.09
	Menidia beryllina	2	7.85	0.78	2.06
	Gobiesox strumosus	1	8.00	–	1.03
	Gobiidae sp.	1	3.40	–	1.03
	Scieanops ocellatus	1	5.80	–	1.03
B4	*Brevoortia patronus*	25	17.95	6.75	23.58
	Lagodon rhomboides	4	13.23	0.58	3.77
	Blennidae sp.	2	3.15	1.20	1.89
	Tetradontidae sp.	2	3.05	1.20	1.89

TABLE 5-19 (Continued)
ICHTHYOPLANKTON DATA
TRIP 131 - MARCH/APRIL 2025

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density #/100m^3
C1	*Brevoortia patronus*	35	7.71	3.89	36.84
	Lagodon rhomboides	7	12.92	0.59	7.37
	Blennidae sp.	1	8.20	–	1.05
	Gobiesox strumosus	1	5.35	–	1.05
	Gobiidae sp.	1	4.10	–	1.05
	Tetradontidae sp.	1	8.81	–	1.05
C2	*Brevoortia patronus*	25	6.90	1.10	25.51
	Lagodon rhomboides	16	12.42	0.64	16.33
	Gobiesox strumosus	9	7.10	1.90	9.18
	Blennidae sp.	4	4.28	1.17	4.08
	Gobiidae sp.	2	3.23	0.33	2.04
	Tetradontidae sp.	2	5.08	0.95	2.04
	Menidia beryllina	1	7.18	–	1.02
C3	*Brevoortia patronus*	19	8.30	4.16	19.00
	Blennidae sp.	7	3.84	0.72	7.00
	Tetradontidae sp.	3	4.97	1.64	3.00
	Gobiidae sp.	2	4.05	0.21	2.00
	Lagodon rhomboides	1	12.90	–	1.00
C4	*Brevoortia patronus*	9	8.73	8.23	8.11
	Lagodon rhomboides	3	12.72	0.75	2.70
	Menidia beryllina	2	4.85	0.21	1.80
	Gobiesox strumosus	1	3.00	–	0.90

TABLE 5-19 (Concluded)
ICHTHYOPLANKTON DATA
TRIP 131 - MARCH/APRIL 2025

Station	Species	Total Number	Avg Length (mm)	Standard Deviation	Density #/100m^3
R1	*Brevoortia patronus*	12	7.49	1.08	11.43
	Gobiesox strumosus	2	5.35	2.33	1.90
	Tetradontidae sp.	2	3.65	0.64	1.90
R2	*Gobiesox strumosus*	16	6.26	1.45	15.69
	Brevoortia patronus	6	9.07	3.70	5.88
	Blennidae sp.	3	4.67	0.74	2.94
	Lagodon rhomboides	1	12.73	–	0.98
R3	*Brevoortia patronus*	14	6.89	1.21	13.59
	Gobiesox strumosus	10	6.16	1.51	9.71
	Blennidae sp.	6	4.20	0.96	5.83
R4	*Brevoortia patronus*	25	13.97	8.43	24.51
	Lagodon rhomboides	5	12.70	0.07	4.90
	Blennidae sp.	1	2.20	–	0.98

TABLE 5-20
PHYTOPLANKTON TAXA COLLECTED AT STATION SERIES
October 2024

Station Group	B1, B2, B3, B4	R1 (1-4)*	R2 (1-4)*	R3 (1-4)*	R4 (1-4)*
Division Bacillariophyta					
Actinoptychus senarius (cells) A	*	*	*	*	
Bacillaria paxillifera (colonies) A				*	
Campylodiscus (cells) A	*				
Chaetoceos minimus (cells) B	*	*	*		
Chaetoceros (cells) A	*		*		
Chaetoceros didymus (cells) A	*		*		
Coscinodiscus (cells) A	*	*	*	*	*
Cylindrotheca closterium (cells) A	*	*	*	*	*
Diploneis (cells) A			*		*
Ditylum (cells) A	*				
Entomoneis (cells) A		*			
Gyrosigma (cells) A	*	*	*	*	*
Lithodesmium undulatum (cells) A					*
Melosira (cells) A		*		*	
Nitzschia (sigmoidea?) cells B	*	*	*	*	
Rhizosolenia setigera (cells) A		*		*	
Skeletonema costatum (filaments) A	*	*		*	*
Surirella (cells) A	*				
Terpsinoe (cells) A	*	*	*	*	
Thalassionema (cells) A	*			*	*
Trieres mobiliensis (cells) A			*	*	
Zygoceros rhombus (cells) A			*	*	
Unidentified centric diatom (cells)	*	*		*	*
Unidentified large pennate diatom (cells)	*				
Unidentified small pennate diatoms (cells)	*	*	*	*	*
Unidentified diatom (cell)				*	
Division Chlorophyta					
Kirchneriella (cells) A	*	*	*		*
Monoraphidium contortum (cells) B					*
Pyramimonas (cells) B	*	*			
Unidentified small unicells B	*	*	*	*	*
Division Cryptophyta					
Unidentified cryptomonads (cells) B	*	*	*		*

TABLE 5-20 (Concluded)
PHYTOPLANKTON TAXA COLLECTED AT STATION SERIES
October 2024

Station Group	B1, B2, B3, B4	R1 (1-4)*	R2 (1-4)*	R3 (1-4)*	R4 (1-4)*
Division Cyanophyta					
Aphanocapsa delicatissima (colonies) B			*	*	
Glaucospira (filaments) B					*
Limnothrix (filaments) B	*	*	*	*	*
Merismopedia convoluta (colonies) A	*				
Merismopedia elegans colonies	*				
Microcrois (colonies) B	*				
Oscillatoria (filaments) B	*				
Pseudoanabaena (filaments) A	*	*	*	*	*
Romeria (filaments) B			*		
Synechococcus (cells) A	*	*	*	*	*
Synechocystis (cells) B	*	*	*	*	*
Division Euglenophyta					
Euglenophyte (*Eutreptia* and/or *Euglena*) (cells) A	*				
Division Haptophyta					
Unidentified coccolithophore (cells) B	*		*	*	*
Division Pyrrophyta					
Gymnodinium (cells) A	*	*			
Gymnodinium sanguineum (cells) A	*	*			*
Gyrodinium estuariale (cells) A	*	*	*	*	*
Gyrodinium spirale (cells) A	*	*	*	*	*
Oxyphysis oxytoxoides (cells) A	*		*	*	
Unidentified dinoflagellate, armored (cells) A	*	*	*		*
Unidentied Algae					
Unidentified algal cells, no flagella B	*	*	*	*	*
Unidentified algal cells, flagellated A	*	*	*	*	*
No. of Taxa	**39**	**28**	**29**	**28**	**25**

* Number of replicates indicated in parentheses next to each R station.

A - The taxonomic identification is certain.

B - The taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.

C - There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, or there is some aspect of the identification that does not completely match the identification. The specimens in this group may also be identified in the scientific literature as taxa of uncertain taxonomic position.

TABLE 5-21
ZOOPLANKTON TAXA COLLECTED AT STATION SERIES
October 2024

Station	B1, B2, B3, B4	R1 (1-4)*	R2 (1-4)*	R3 (1-4)*	R4 (1-4)*
Kingdom Protista					
Euplotes A	*	*	*	*	*
Eutintinnus tubulosus B	*			*	*
Favella A	*				
Metacylis A				*	*
Tintinnopsis tubulosa B			*		*
Trichodina ctenophorii A	*	*	*	*	*
Unidentified ciliated protozoan A	*	*	*	*	*
Phylum Mollusca					
Bivalve larvae (veliger) A	*	*	*	*	*
Gastropod larvae (veliger) A		*	*	*	*
Phylum Annelida					
Polychaete larvae, late trochophore larva B	*	*	*	*	*
Polychaete larvae, early segmented larva B	*	*	*	*	*
Polychaete larvae, presettlement larva A		*		*	
Class Crustacea					
Nauplii A	*	*	*	*	*
Subclass Copepoda					
Calanoid copepodite A	*	*	*		
Harpactacoid copepodite A		*			
Halicyclops copepodite A	*				
Calanoid copepod A				*	
Cyclopoid copepod A	*		*		
Subclass Cirripedia					
Balanus nauplii A	*	*		*	*
Phylum Rotifera					
Brachionus rubens A			*	*	*
Brachionus urceolaris A			*		
Synchaeta pectinata B	*	*	*	*	*
Trichocerca B		*			
Unidentified rotifer A	*	*		*	*

TABLE 5-21 (Concluded)
ZOOPLANKTON TAXA COLLECTED AT STATION SERIES
October 2024

Station	**B1, B2, B3, B4**	**R1 (1-4)***	**R2 (1-4)***	**R3 (1-4)***	**R4 (1-4)***
Phylum Nematoda (unidentified nematode A)	*		*	*	
Phylum Ctenophora					
Pleurobrachia pileus A	*		*		
Planula B	*	*			
Unidentified organism	*	*	*	*	*
No. of Taxa	**19**	**17**	**17**	**18**	**16**

* Number of replicates indicated in parentheses next to each R station.

A - the taxonomic identification is certain

B - the taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.

C - There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, or there is some aspect of the identification that does not completely match the identification. The specimens in this group may also be identified in the scientific literature as taxa of uncertain taxonomic position.

TABLE 5-22
MACROINVERTEBRATE TAXA COLLECTED AT STATION SERIES
July 2024 - March/April 2025

Station Groups	A1-A4	B1-B4	C1-C4	D2	R1-R4
ANNELIDA					
POLYCHAETA					
Family Chaetopteridae					
Spiochaetopterus costarum	*	*	*	*	
EUNCIDIA					
Family Onuphidae					
Diopatra cuprea	*	*	*		*
Unid. Onuphidae	*				
PHYLLODOCIDA					
Family Glyceridae					
Unid. Glyceridae			*		
Family Goniadidae					
Glycinde multidens	*	*	*	*	*
Family Hesionidae					
Podarkeopsis levifuscina		*			*
Family Nereididae					
Alitta succinea	*		*		*
Laeonereis culveri	*	*			*
Unid. Nereididae	*	*			
Family Pilargidae					
Hermundura vivianneae	*	*	*	*	*
Family Phyllodocidae					
Unid. Phyllodocidae			*		
SPIONIDA					
Family Spionidae					
Paraprionospio yokoyamai	*				*
Polydora cornuta	*				
Polydora sp.		*			
Streblospio gynobranchiata	*	*	*		
TEREBELLIDA					
Family Cirratulidae					
Aphelochaeta sp.		*		*	
Family Pectinariidae					
Pectinaria gouldii	*	*	*		
Family Capitellidae					
Capitella capitata	*	*			
Heteromastus filiformis	*	*	*		
Mediomastus ambiseta	*	*	*	*	*
Unid. Capitellidae			*		
Family Cossuridae					
Cossura delta	*	*	*		
Family Maldanidae					
Maldane sarsi			*	*	
Family Orbiniidae					
Leitoscoloplos sp.	*	*	*	*	*
Leitoscoloplos fragilis	*	*	*		*

TABLE 5-22 (Continued)
MACROINVERTEBRATE TAXA COLLECTED AT STATION SERIES
July 2024 - March/April 2025

Station Groups	A1-A4	B1-B4	C1-C4	D2	R1-R4
ARTHROPODA					
MALACOSTRACA					
AMPHIPODA					
Family Ampeliscidae					
Ampelisca abdita			*		
Ampelisca sp.	*	*	*	*	*
Ampelisca vadorum		*			
Family Gammaridae					
Gammarus mucronatus				*	
Family Haustoriidae					
Unid. Haustoriidae		*			
AORIDAE					
Grandidierella bonnieroides				*	
CUMACEA					
Family Bodotriidae					
Cyclaspis varians			*		
Family Diastylidae					
Oxyurostylis smithi			*		
Oxyurostylis sp.		*			
DECAPODA					
Family Panopeidae					
Dyspanopeus texanus	*				
Family Portunidae					
Unid. Portunidae					*
ISOPODA					
HYSSURIDAE					
Xenanthura brevitelson					*
Family Idoteidae					
Edotia montosa	*		*		
MOLLUSCA					
BIVALVIA					
Unid. Bivalvia	*	*	*		*
Family Lyonsiidae					
Lyonsia floridana	*	*	*		
ADAPEDONTA					
Family Pharidae					
Ensis megistus		*			
Ensis megistus coseli	*				
Family Solenidae					
Solen viridis	*				

TABLE 5-22 (Continued)
MACROINVERTEBRATE TAXA COLLECTED AT STATION SERIES
July 2024 - March/April 2025

Station Groups	A1-A4	B1-B4	C1-C4	D2	R1-R4
CARDIIDA					
Family Semelidae					
Ervilia concentrica		*			
Family Solecurtidae					
Tagelus plebeius	*	*	*		
Family Tellinidae					
Ameritella mitchelli	*	*	*	*	*
GALEOMMATIDA					
Family Lasaeidae					
Kelliopsis texasiana		*			
Kurtiella planulata	*				
MYTILIDA					
Family Mytilidae					
Arcuatula papyria			*		
Ischadium recurvum	*				*
NUCULANIDA					
Family Nuculanidae					
Saccella acuta			*		
VENEROIDA					
Family Mactridae					
Mulinia lateralis	*	*	*	*	*
GASTROPODA					
CEPHALASPIDEA					
Family Tornatinidae					
Acteocina canaliculata	*	*	*	*	*
LITTORINIMORPHA					
Family Calyptreidae					
Crepipatella dilatata	*				*
Family Hydrobiidae					
Unid. Hydrobiidae	*		*		*
Family Naticidae					
Neverita duplicata					*
Family Vitrinellidae					
Unid. Vitrinellidae	*	*			
NEOGASTROPODA					
Family Mangeliidae					
Pyrgocythara plicosa					*

TABLE 5-22 (Concluded)
MACROINVERTEBRATE TAXA COLLECTED AT STATION SERIES
July 2024 - March/April 2025

Station Groups	A1-A4	B1-B4	C1-C4	D2	R1-R4
MISC TAXA					
BRYOZOA					
Amathia gracilis		*	*		
Biflustra arborescens	*				*
CHORDATA					
Molgula sp.	*	*	*	*	*
CNIDARIA					
Unid. Actiniaria			*		
Unid. Hydroidolina		*			
ECHINODERMATA					
Microphiopholis atra		*			
Unid. Ophiuroidea					*
NEMERTEA					
Cerebratulus lacteus	*	*	*		
Tubulanus pellucidus	*	*	*	*	*
Unid. Nemertea	*				
Unid. Palaeonemertea	*	*	*	*	*
PORIFERA					
Cliona celata					*
Number of Taxa	**35**	**33**	**29**	**15**	**23**

TABLE 5-23
TAXA RICHNESS, DENSITY, DIVERSITY, AND EQUITABILITY SUMMARIZED FOR MACROINVERTEBRATE COLLECTION RESULTS POOLED OVER STATION SERIES
July 2024 - March/April 2025

Station	A1–A4	B1–B4	C1–C4	R1–R4	Average
July 2024					
Number of Taxa	15	12	8	12	12
Density (No./m^2)	359	1,134	560	459	628
Diversity (H’)	1.109	0.844	0.528	0.869	0.838
Equitability (e)	0.943	0.782	0.584	0.805	0.779
October 2024					
Number of Taxa	5	6	1	7	5
Density (No./m^2)	72	158	43	129	101
Diversity (H’)	0.699	0.778	0.000	0.845	0.581
Equitability (e)	1.000	1.130	0.000	1.275	0.851
February 2025					
Number of Taxa	28	29	24	11	23
Density (No./m^2)	1,363	3,215	3,588	531	2,174
Diversity (H’)	1.273	1.065	1.004	0.951	1.073
Equitability (e)	0.88	0.728	0.727	0.913	0.812
March/April 2025					
Number of Taxa	16	23	18	17	19
Density (No./m^2)	947	1,005	1,148	1,306	1,102
Diversity (H’)	1.007	1.128	1.019	0.642	0.949
Equitability (e)	0.836	0.828	0.812	0.522	0.750

TABLE 5-24

LEPTOCHEIRUS PULMULOSUS
SURVIVAL AFTER 10-DAY EXPOSURE TO THE LAVACA BAY SOLID PHASE
TRIP 131 STATION B2

Replicate	Control	B2
1	20	19
2	18	18
3	20	20
4	20	18
5	18	19
TOTAL	96	94
MEAN X	19.2	18.8
% SURVIVAL	96.0	94.0
COEF VAR	5.71	4.45

TABLE 5-25

MENIDIA BERYLLINA
SURVIVAL AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B2
TRIP 131

Replicate	Control	B2
1	9	10
2	10	10
3	10	9
4	10	10
5	10	8
TOTAL	49	47
MEAN X	9.8	9.4
% SURVIVAL	98.0	94.0
COEF VAR	4.56	9.52

TABLE 5-26

MENIDIA BERYLLINA
SURVIVAL AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B4
TRIP 131

Replicate	Control	B4
1	10	10
2	10	9
3	10	10
4	10	10
5	10	9
TOTAL	50	48
MEAN X	10.0	9.6
% SURVIVAL	100.0	96.0
COEF VAR	0.00	5.71

TABLE 5-27

AMERICAMYSIS BAHIA
SURVIVAL AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B2
TRIP 131

Replicate	Control	B2
1	5	5
2	5	5
3	5	5
4	5	5
5	5	5
6	5	5
7	5	4
8	5	5
9	5	5
10	5	5
TOTAL	50	49
MEAN X	5.0	4.9
% SURVIVAL	100.0	98.0
COEF VAR	0.00	6.45

TABLE 5-28

AMERICAMYSIS BAHIA
SURVIVAL AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B4
TRIP 131

Replicate	Control	B4
1	5	5
2	5	5
3	4	5
4	5	5
5	5	5
6	5	4
7	5	5
8	5	5
9	5	5
10	5	5
TOTAL	49	49
MEAN X	4.9	4.9
% SURVIVAL	98.0	98.0
COEF VAR	6.45	6.45

TABLE 5-29

STATISTICAL ANALYSIS OF *MENIDIA BERYLLINA*
GROWTH AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B2
TRIP 131

Replicate	Control	B2
1	0.46	0.55
2	0.61	0.67
3	0.66	0.47
4	0.53	0.62
5	0.60	0.39
TOTAL	2.86	2.70
MEAN X	0.571	0.541
COEF VAR	13.62	21.22

STUDENTS T-TEST

T VALUE

CALCULATED	0.4934
TABULATED	1.8595
	NS

S: DIFFERENCE IN MEANS IS SIGNIFICANT AT P=0.05
NS: DIFFERENCE IN MEANS IS NOT SIGNIFICANT AT P=0.05

TABLE 5-30

STATISTICAL ANALYSIS OF *MENIDIA BERYLLINA*
GROWTH AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B4
TRIP 131

Replicate	Control	B4
1	0.78	0.82
2	0.66	0.65
3	0.70	0.80
4	0.96	0.99
5	0.69	0.72
TOTAL	3.79	3.97
MEAN X	0.757	0.794
COEF VAR	15.69	16.09

TABLE 5-31

STATISTICAL ANALYSIS OF *AMERICAMYSIS BAHIA*
GROWTH AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B2
TRIP 131

Replicate	Control	B2
1	0.13	0.50
2	0.18	0.26
3	0.30	0.38
4	0.25	0.36
5	0.36	0.51
6	0.36	0.42
7	0.35	0.33
8	0.35	0.40
9	0.34	0.33
10	0.29	0.18
TOTAL	2.91	3.68
MEAN X	0.291	0.368
COEF VAR	27.72	27.08

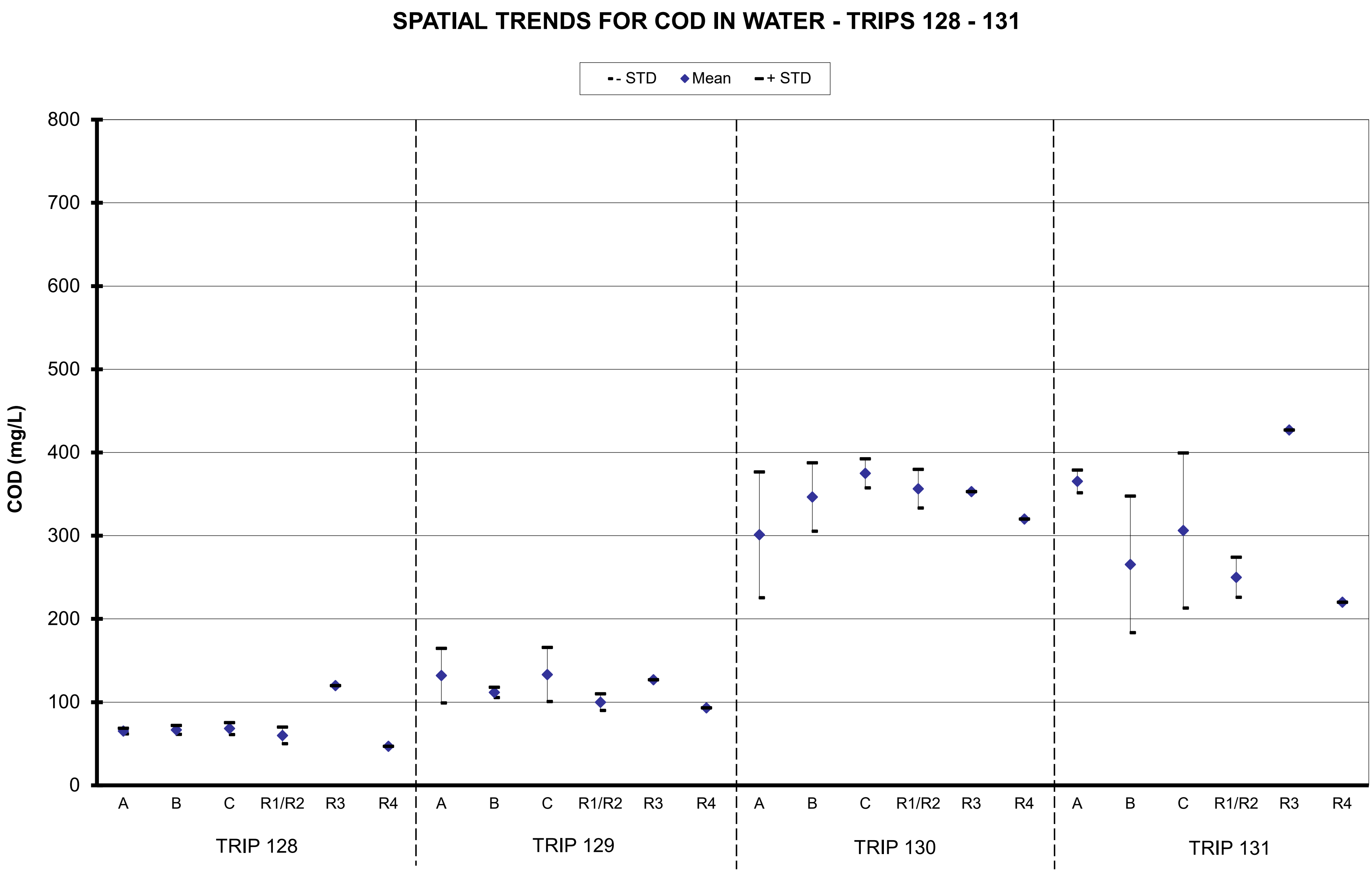
TABLE 5-32

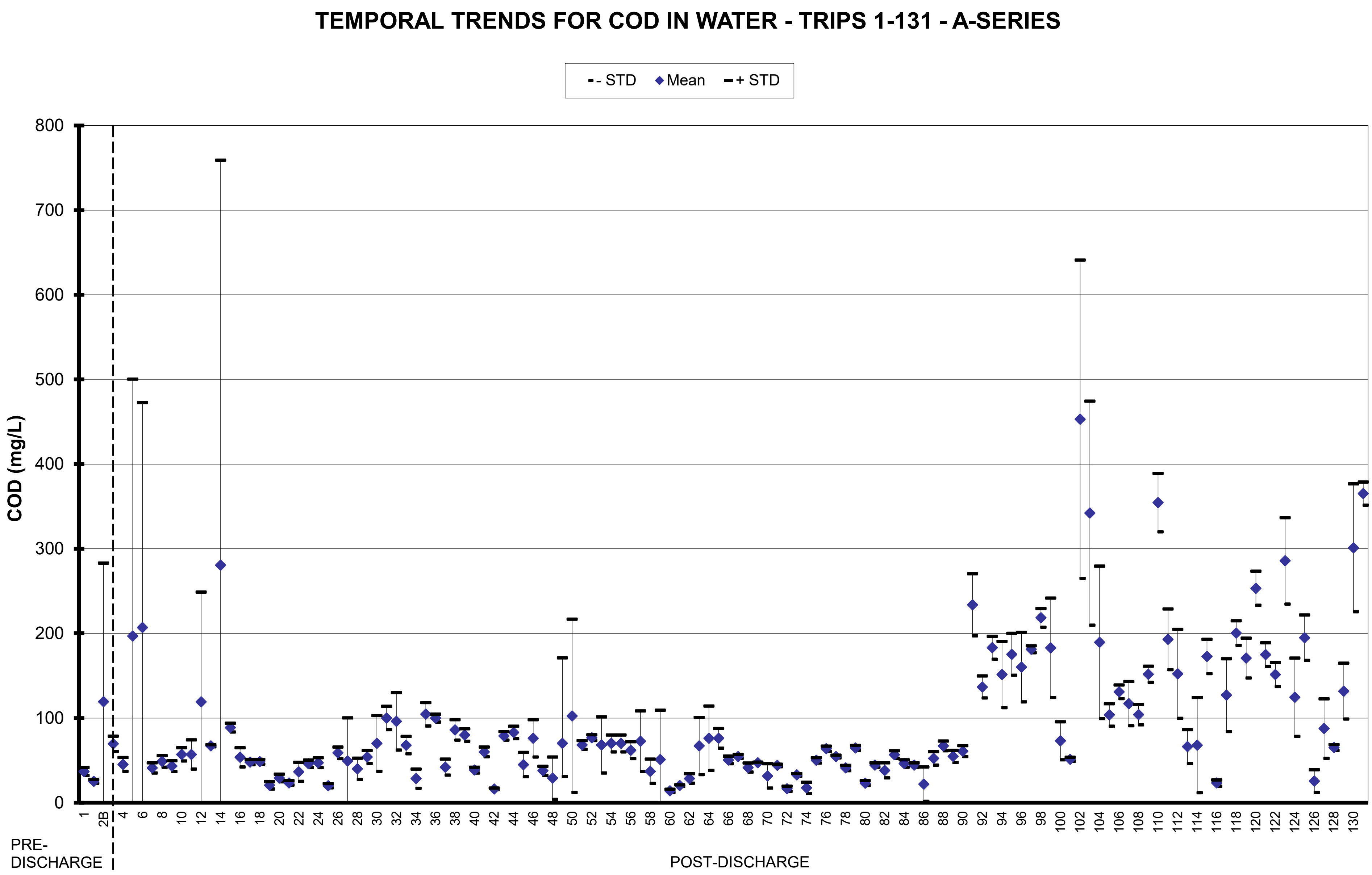
STATISTICAL ANALYSIS OF *AMERICAMYSIS BAHIA*
GROWTH AFTER 7-DAY EXPOSURE
TO THE LAVACA BAY SITE WATER AT STATION B4
TRIP 131

Replicate	Control	B4
1	0.35	0.32
2	0.32	0.31
3	0.24	0.43
4	0.27	0.33
5	0.30	0.46
6	0.34	0.33
7	0.29	0.37
8	0.33	0.38
9	0.41	0.35
10	0.36	0.41
TOTAL	3.20	3.69
MEAN X	0.320	0.369
COEF VAR	15.04	13.45

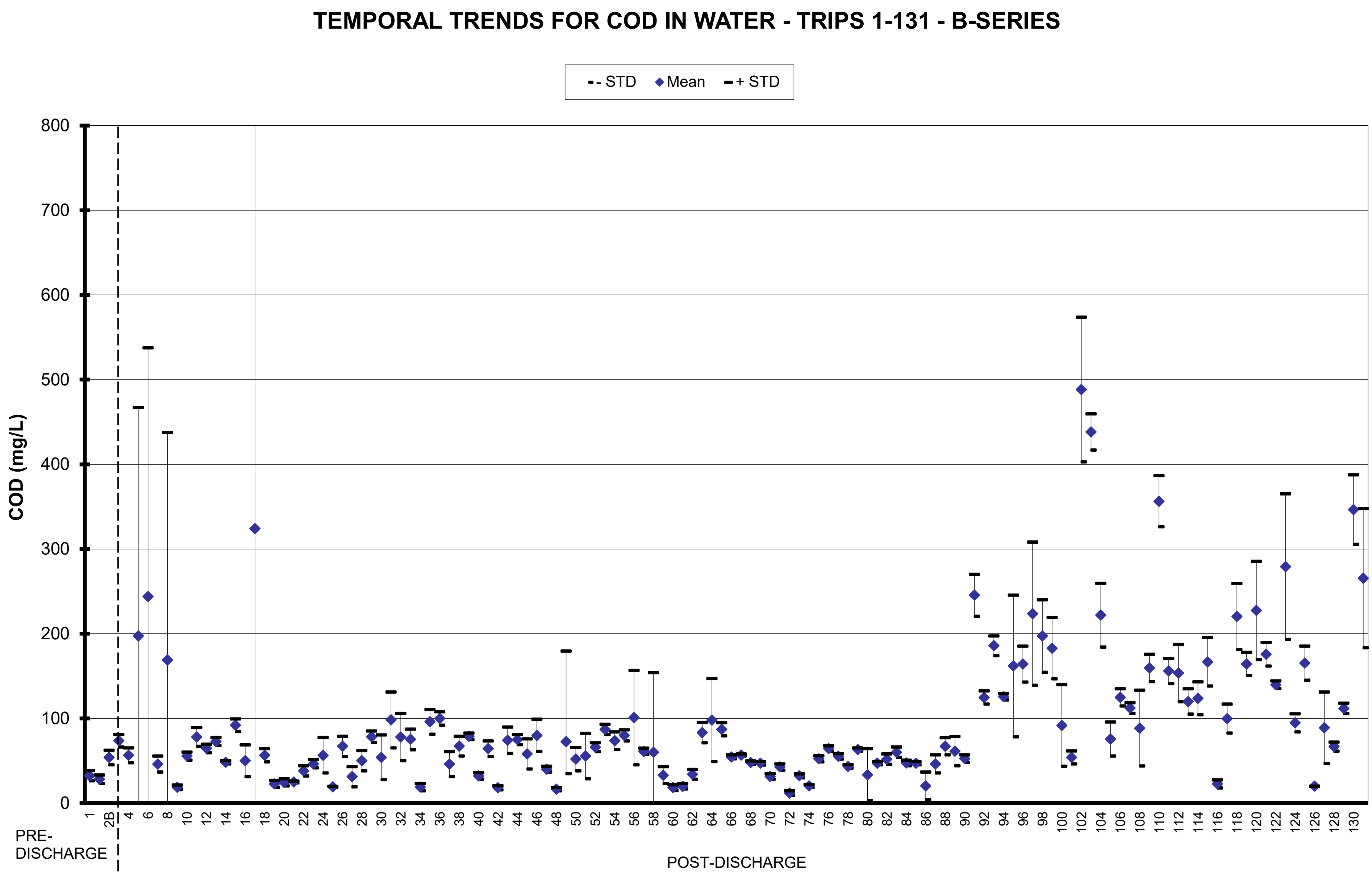
Attachment A

Spatial and Temporal Trend Analyses, Water

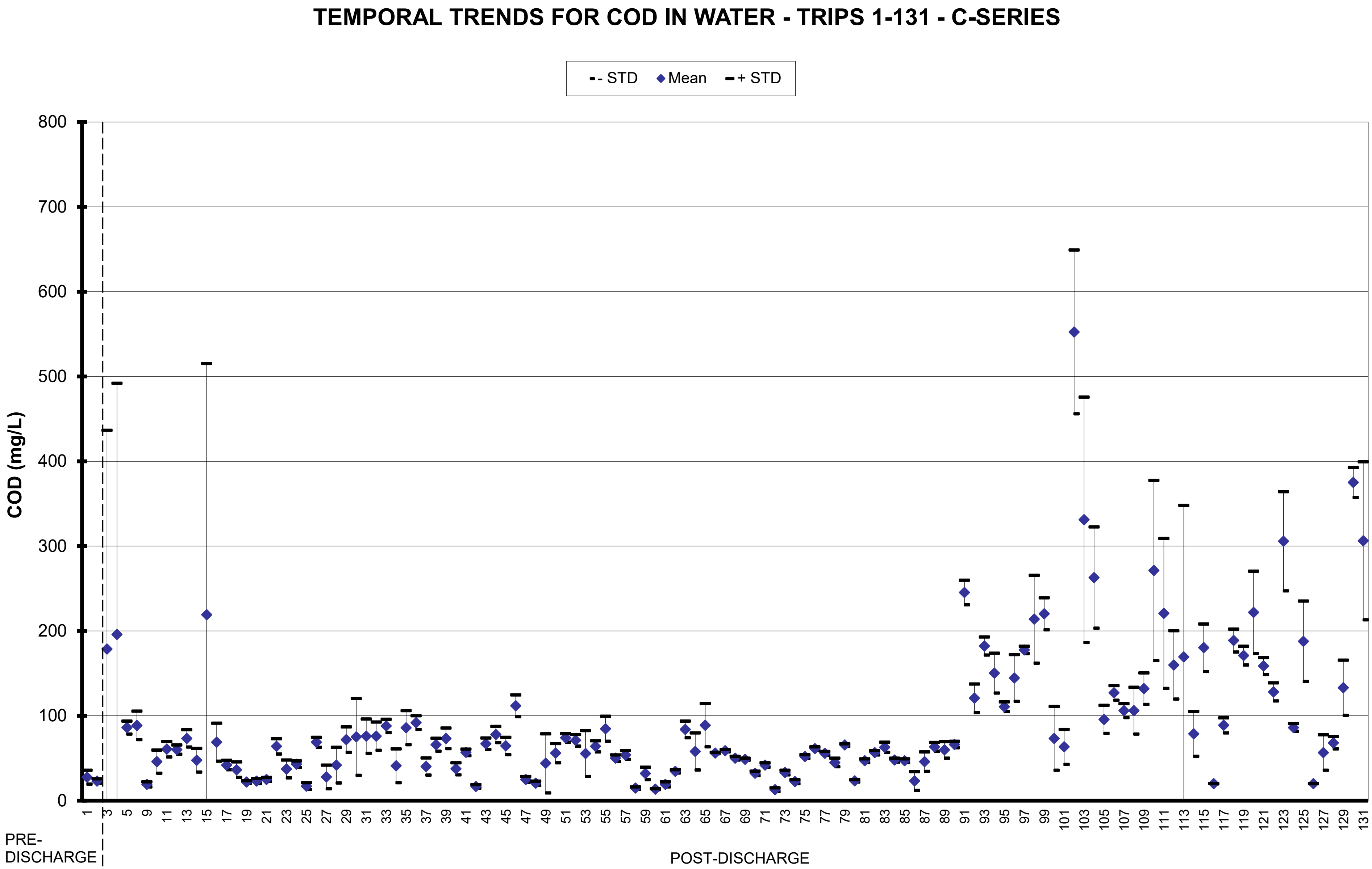

SPATIAL TRENDS FOR COD IN WATER - TRIPS 128 - 131
- STD
Mean
+ STD
COD (mg/L)
800
700
600
500
400
300
200
100
0
A
B
C
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131



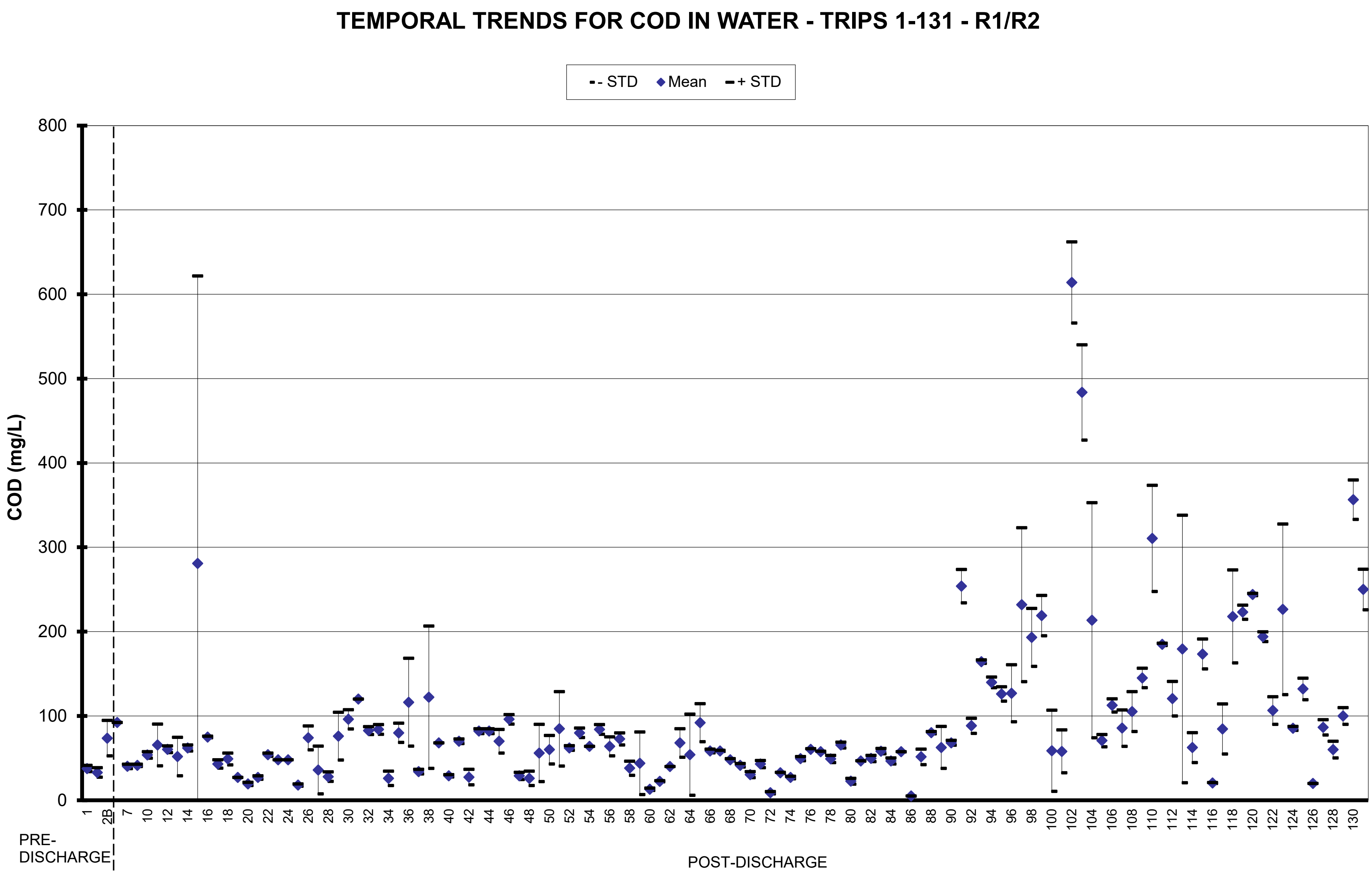
TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
COD (mg/L)
800
700
600
500
400
300
200
100
0
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE



TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
COD (mg/L)
800
700
600
500
400
300
200
100
0
PRE-
DISCHARGE
POST-DISCHARGE

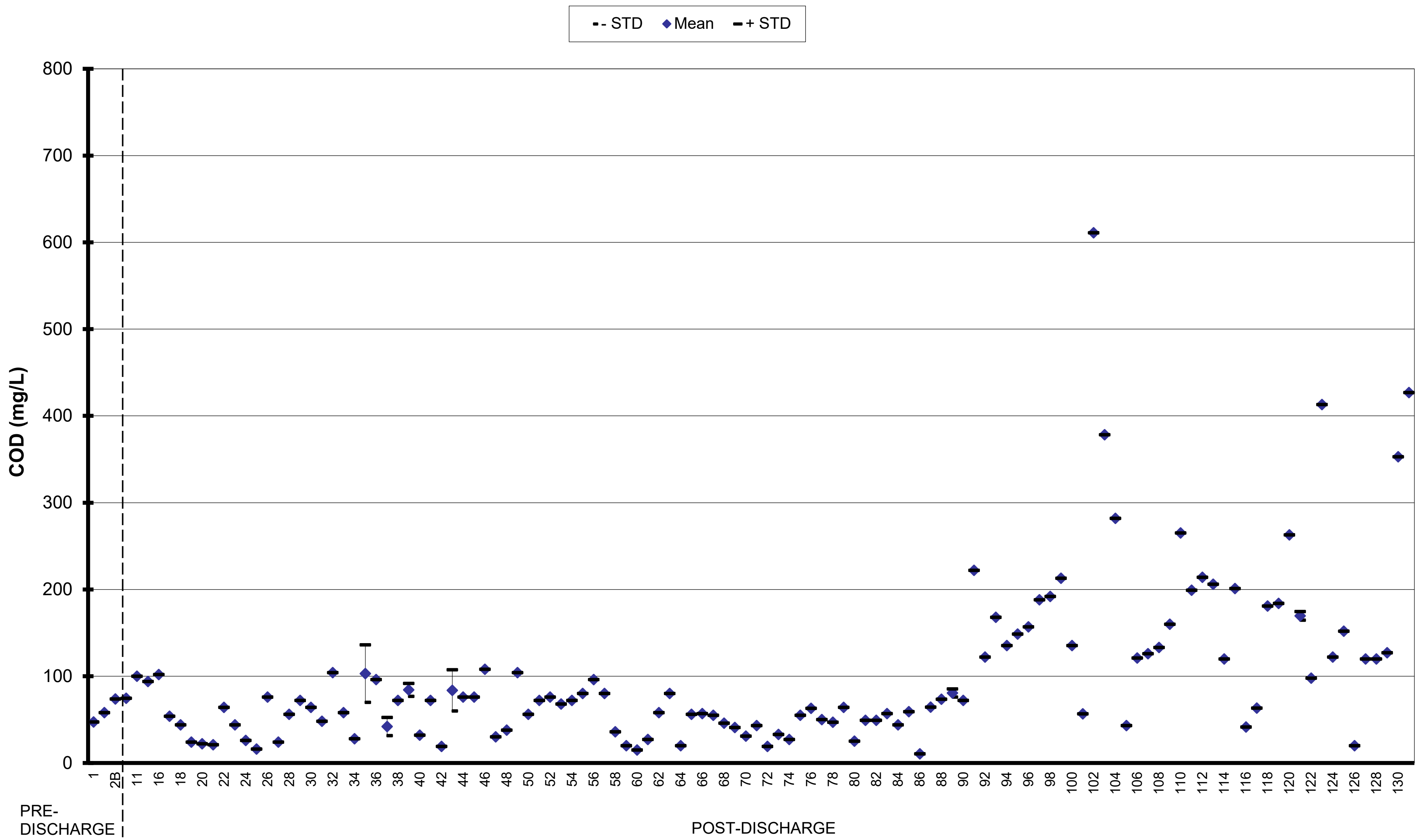


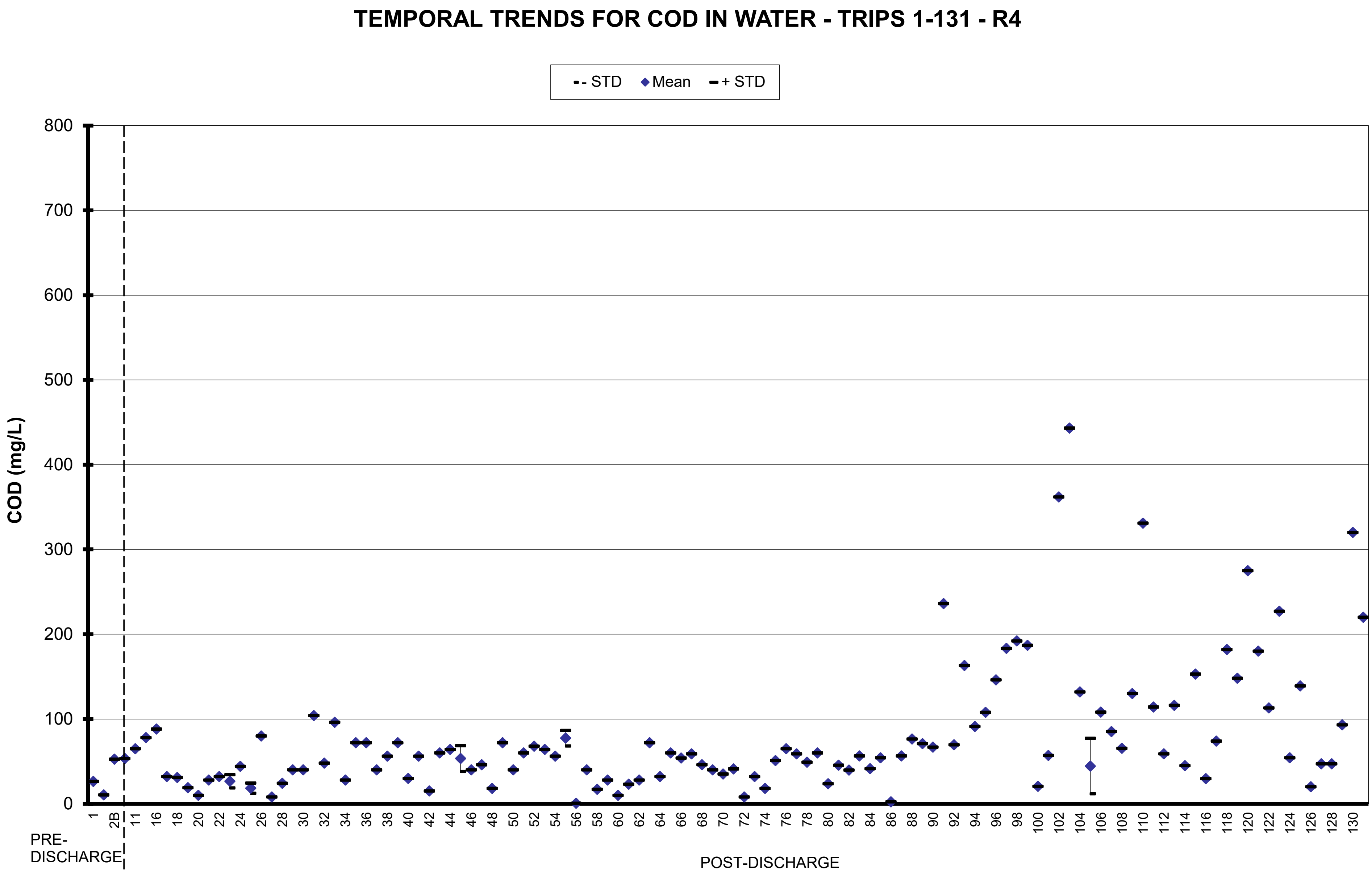
TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
COD (mg/L)
800
700
600
500
400
300
200
100
0
PRE-DISCHARGE
POST-DISCHARGE

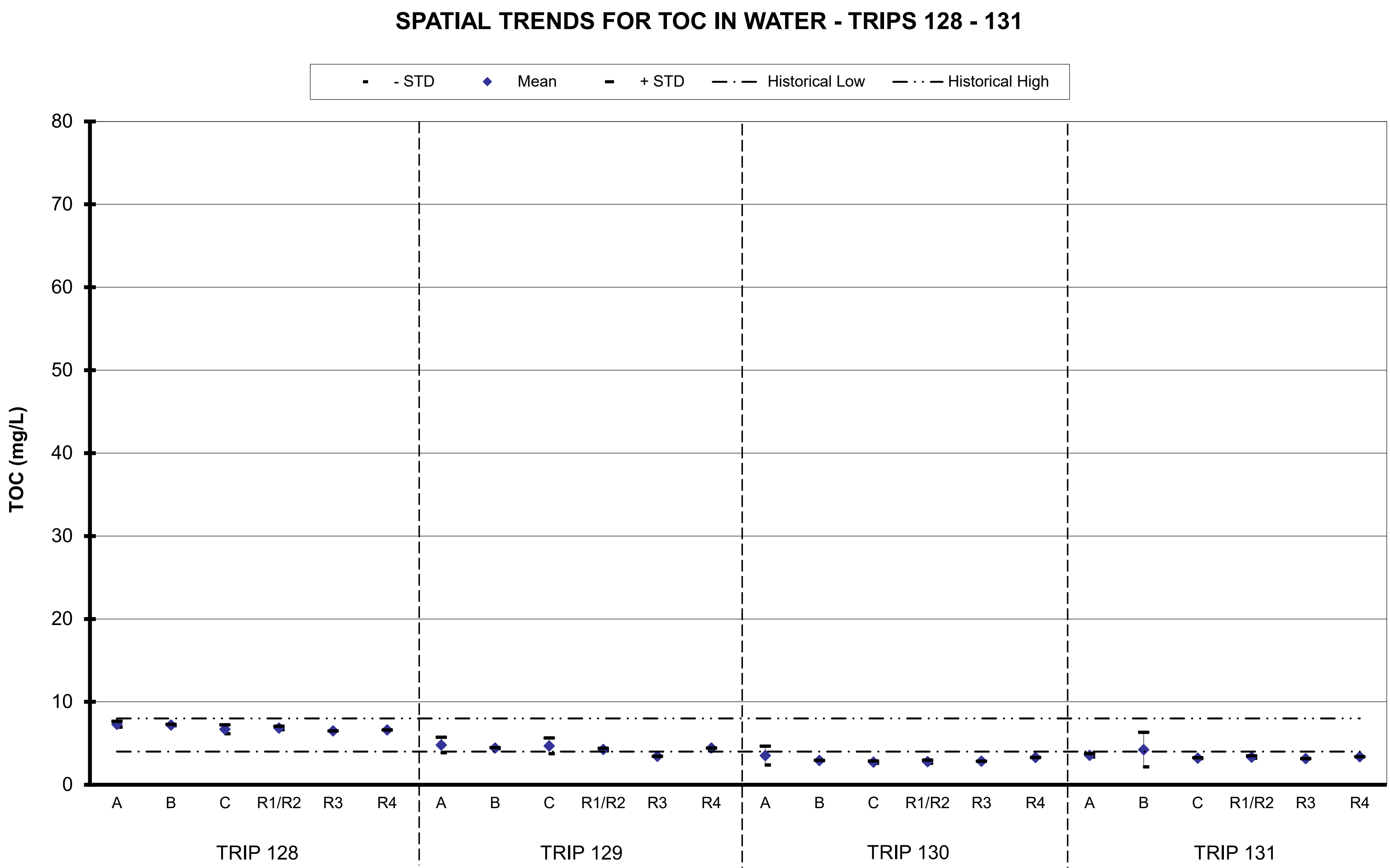


TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
COD (mg/L)
800
700
600
500
400
300
200
100
0
PRE-DISCHARGE
POST-DISCHARGE

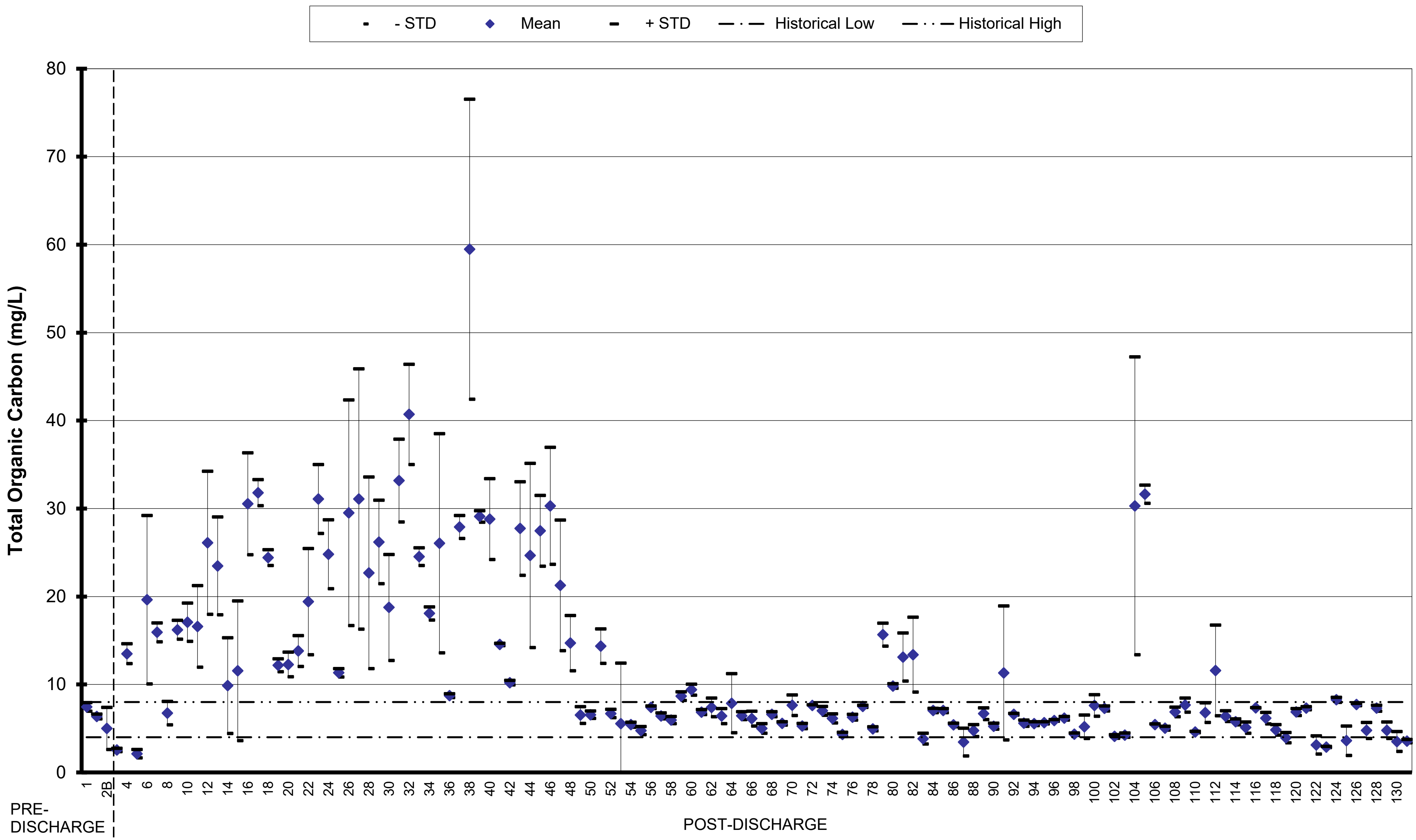
TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - R3

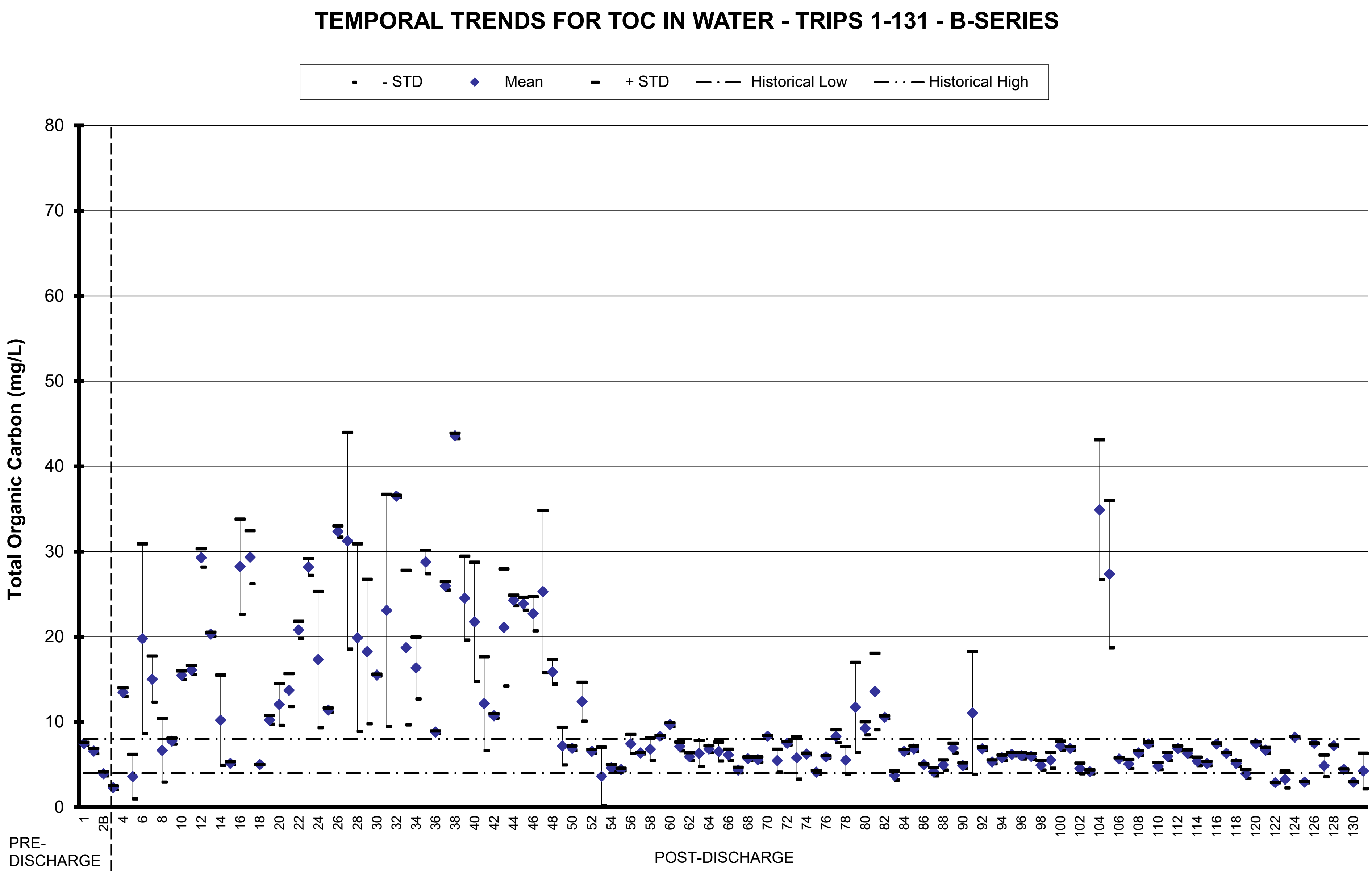


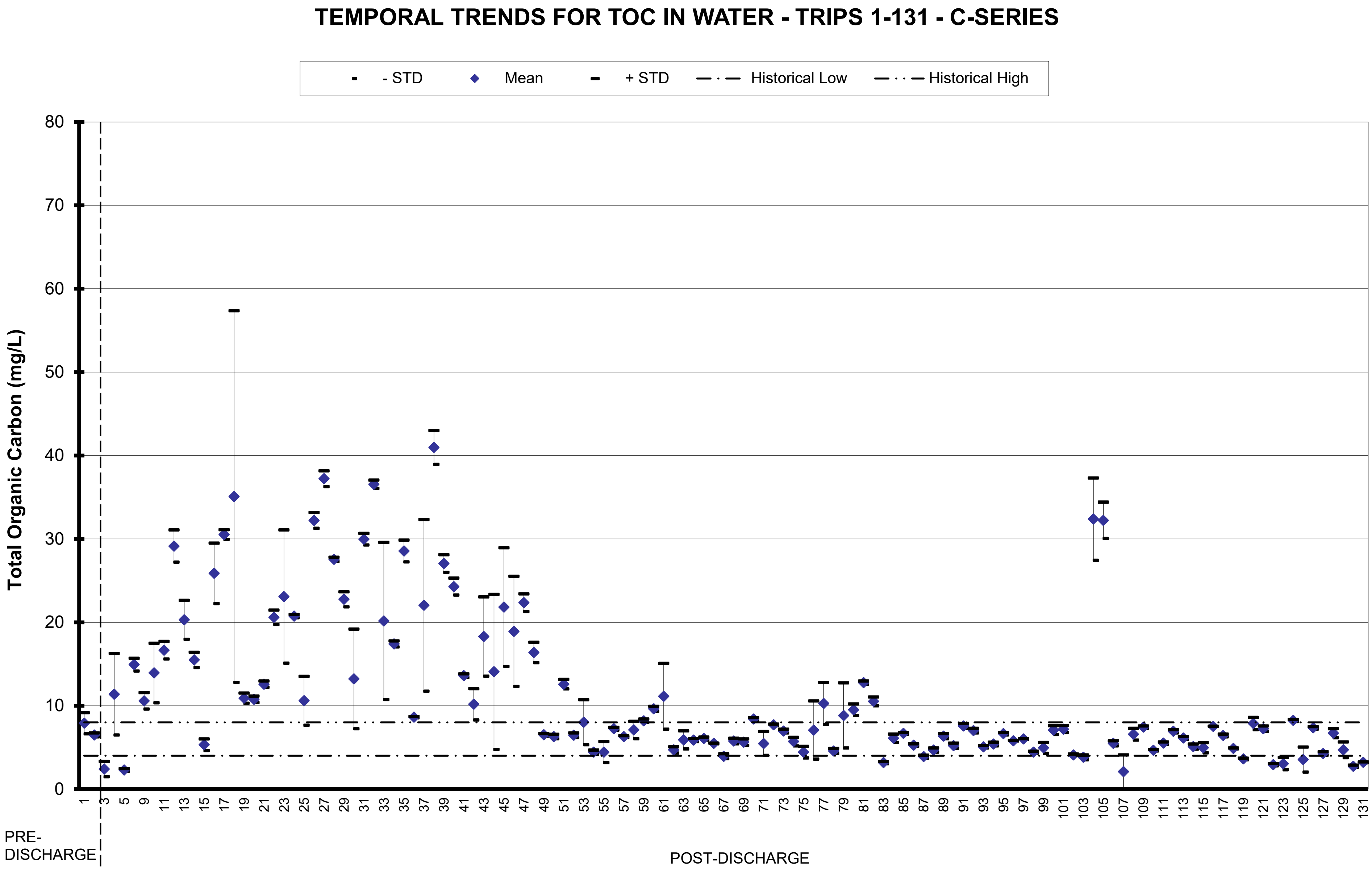

TEMPORAL TRENDS FOR COD IN WATER - TRIPS 1-131 - R4
- STD
Mean
+ STD
COD (mg/L)
0
100
200
300
400
500
600
700
800
PRE-
DISCHARGE
POST-DISCHARGE


SPATIAL TRENDS FOR TOC IN WATER - TRIPS 128 - 131
- STD
Mean
+ STD
Historical Low
Historical High
TOC (mg/L)
80
70
60
50
40
30
20
10
0
A
B
C
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - A-SERIES

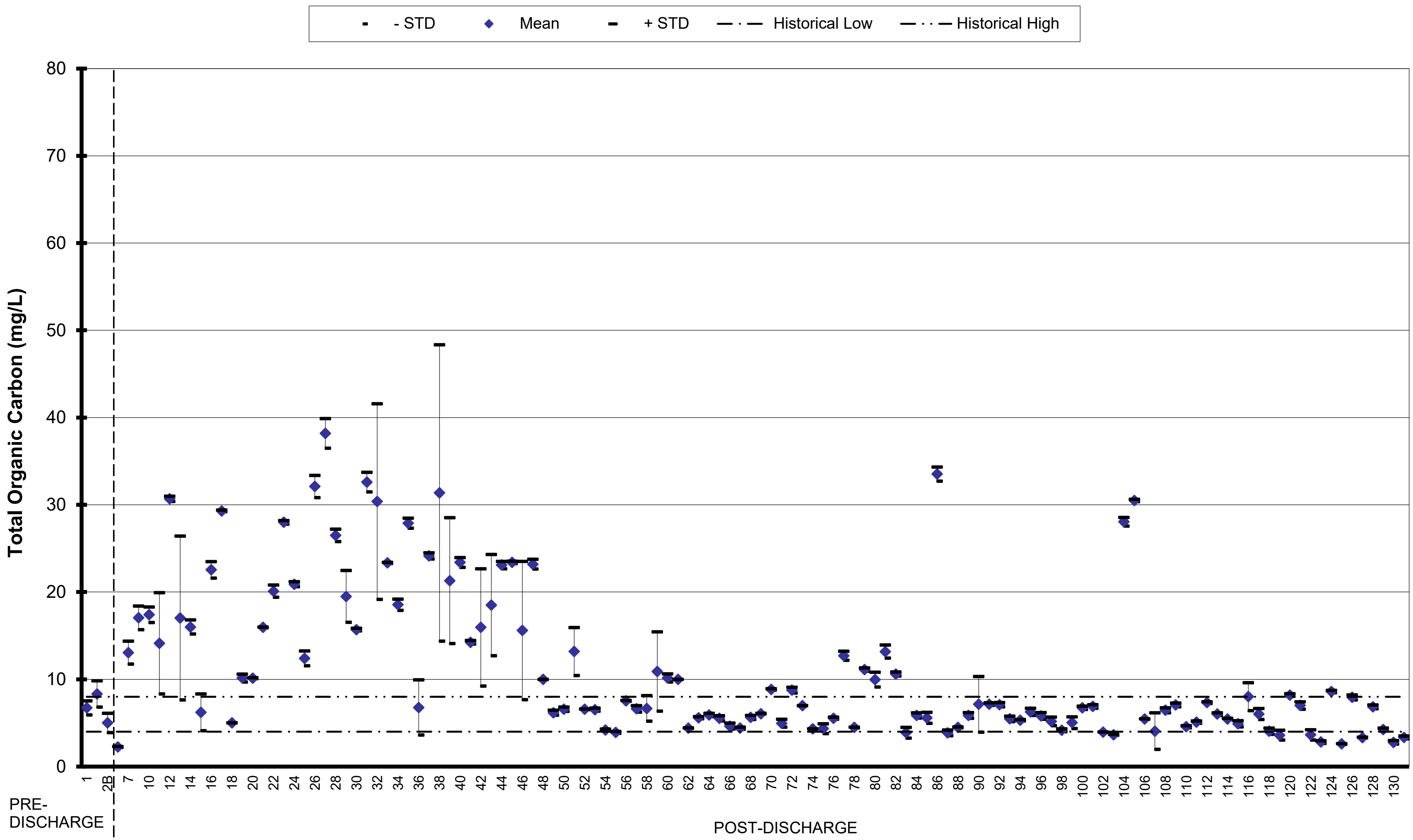


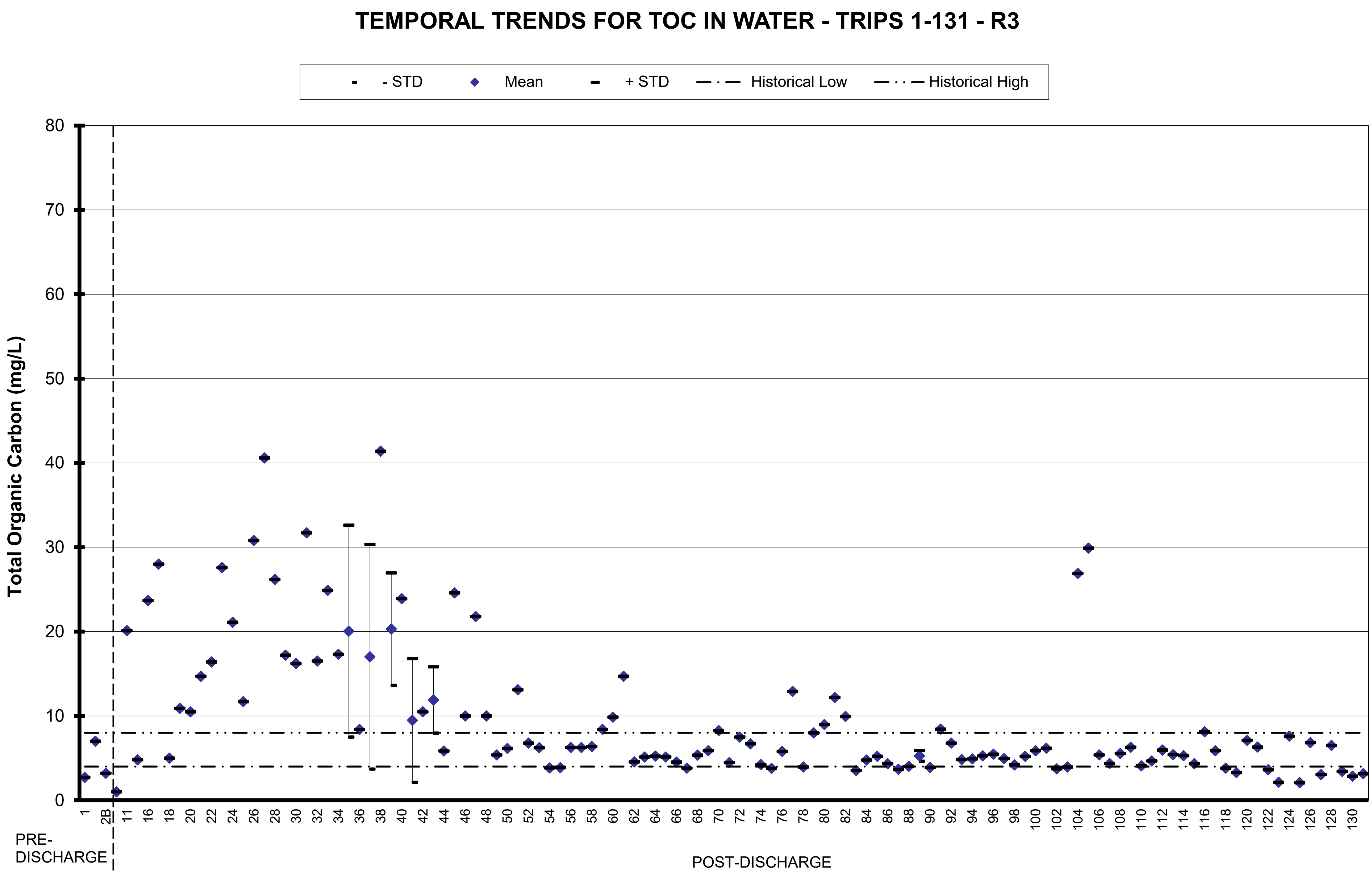

TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
Historical Low
Historical High
Total Organic Carbon (mg/L)
0
10
20
30
40
50
60
70
80
PRE-
DISCHARGE
POST-DISCHARGE



TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
Historical Low
Historical High
Total Organic Carbon (mg/L)
0
10
20
30
40
50
60
70
80
PRE-
DISCHARGE
POST-DISCHARGE

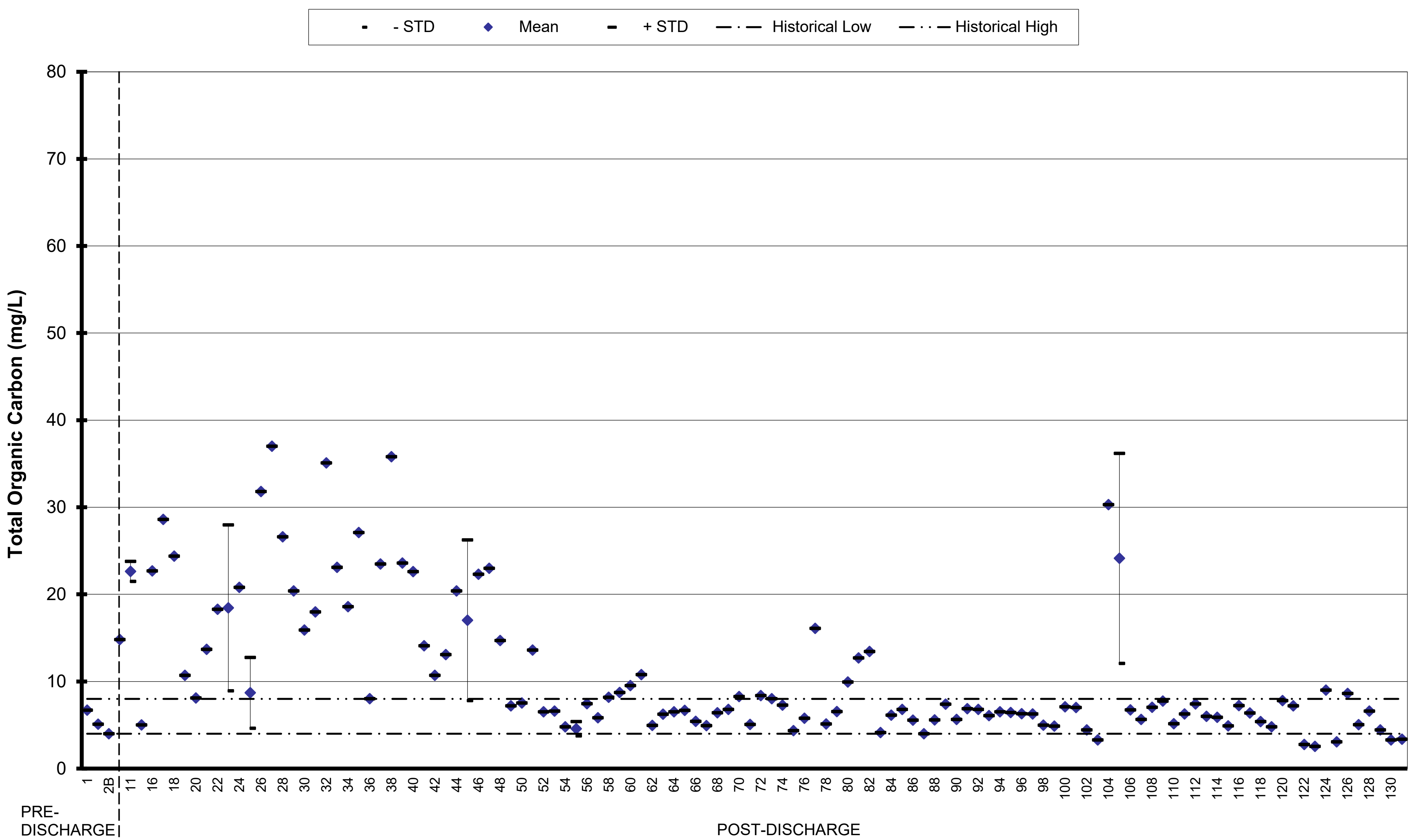
TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - R1/R2

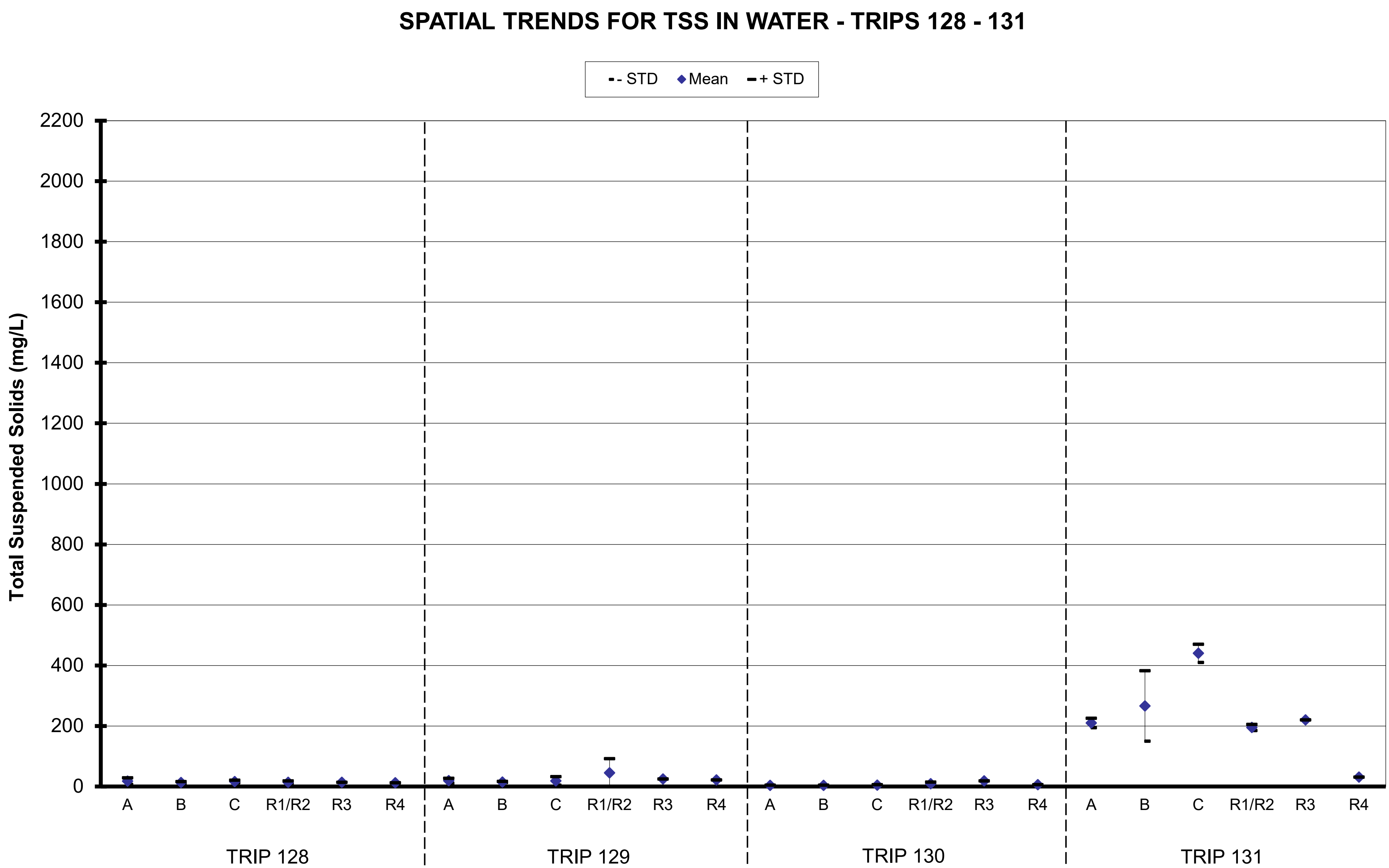




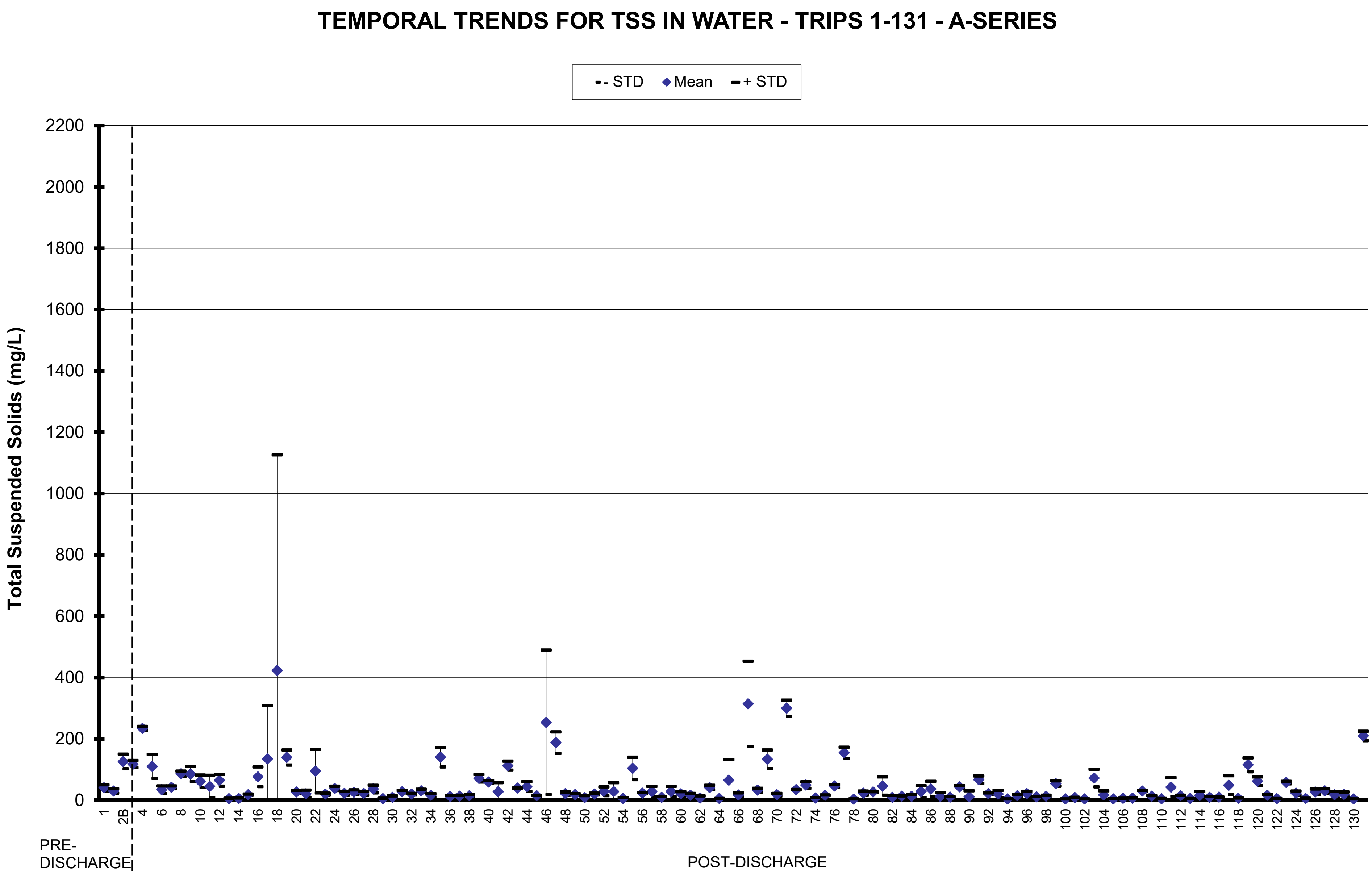
TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - R3
- STD
Mean
+ STD
Historical Low
Historical High
Total Organic Carbon (mg/L)
0
10
20
30
40
50
60
70
80
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS FOR TOC IN WATER - TRIPS 1-131 - R4

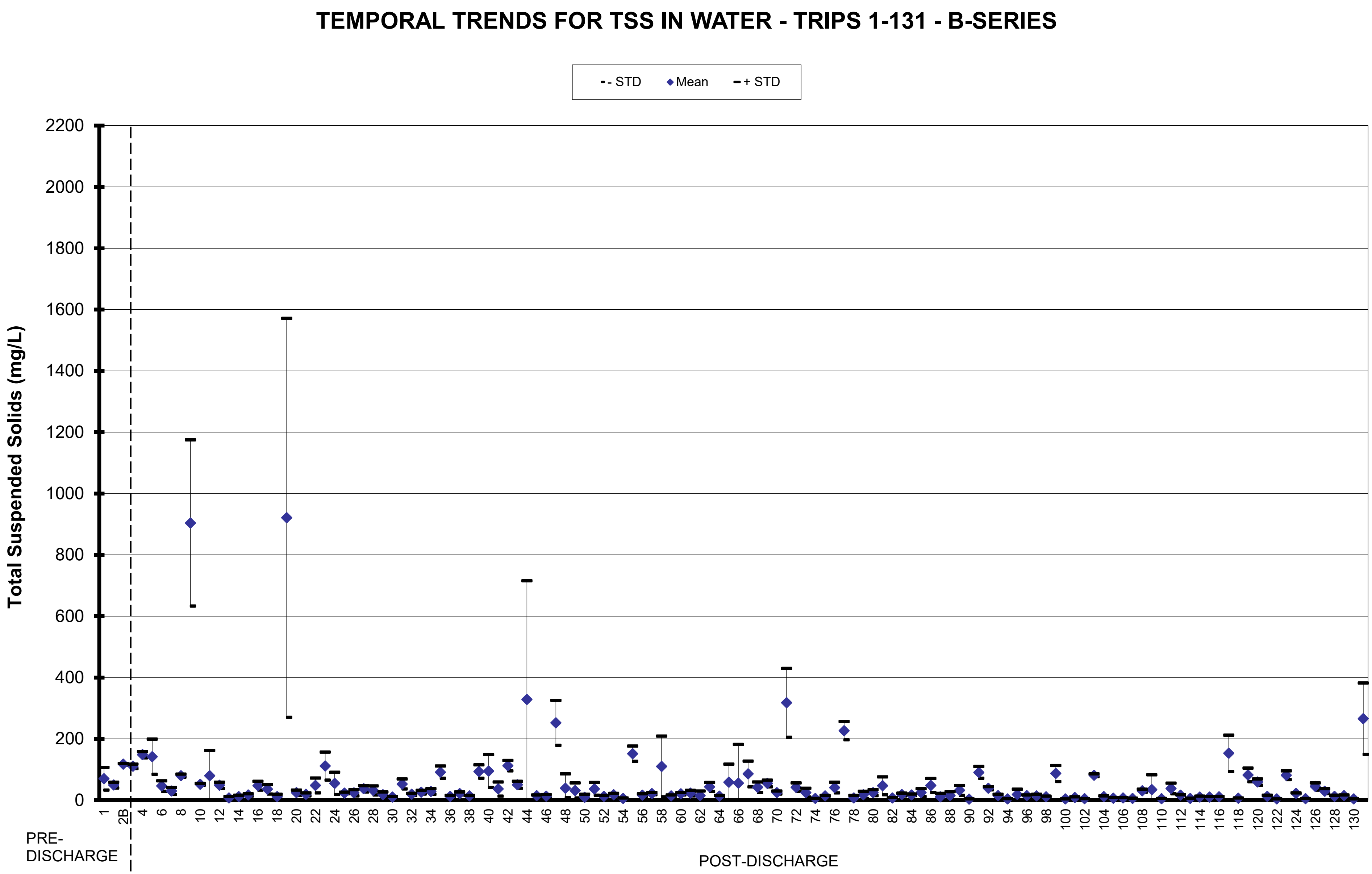


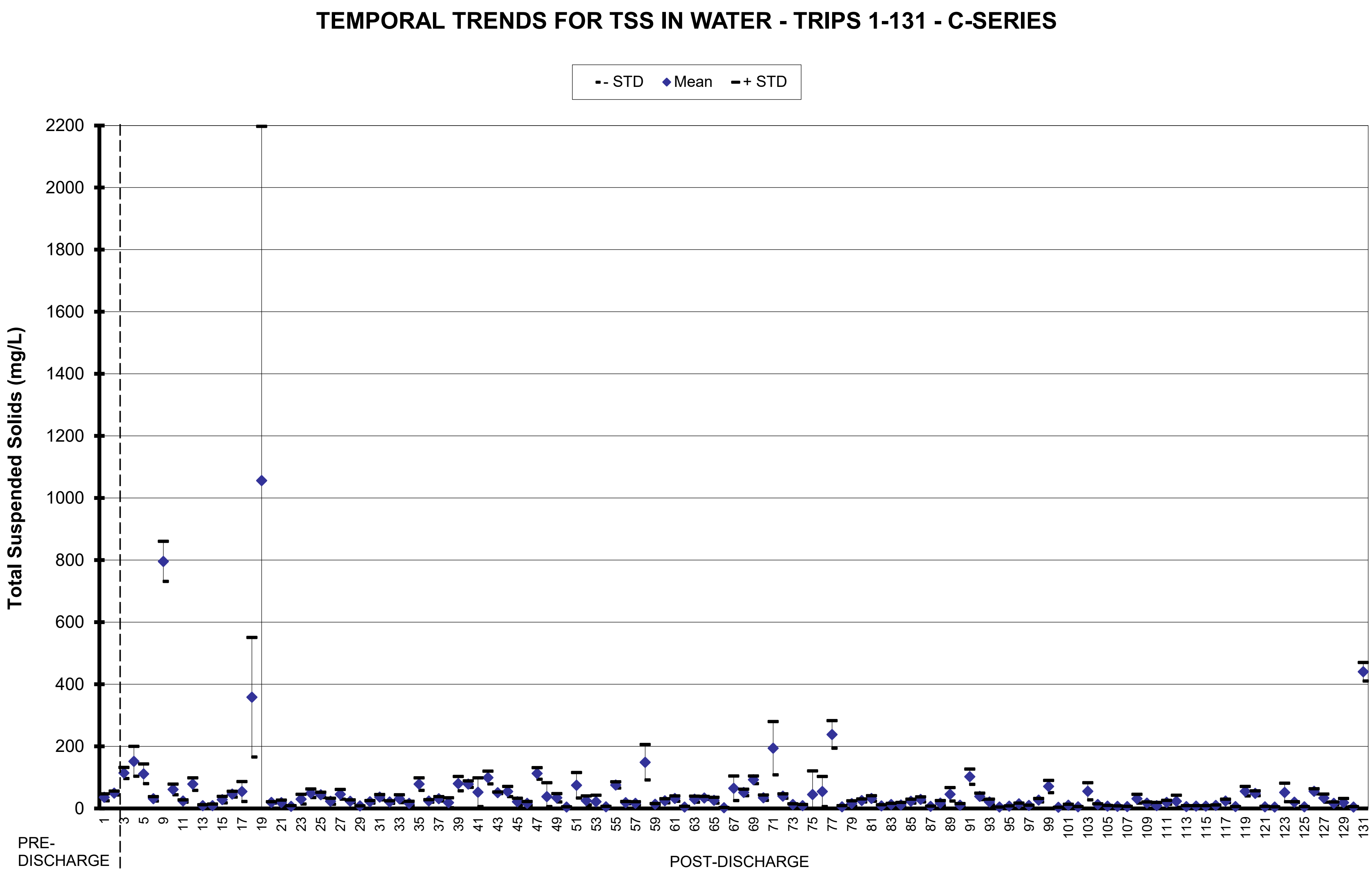


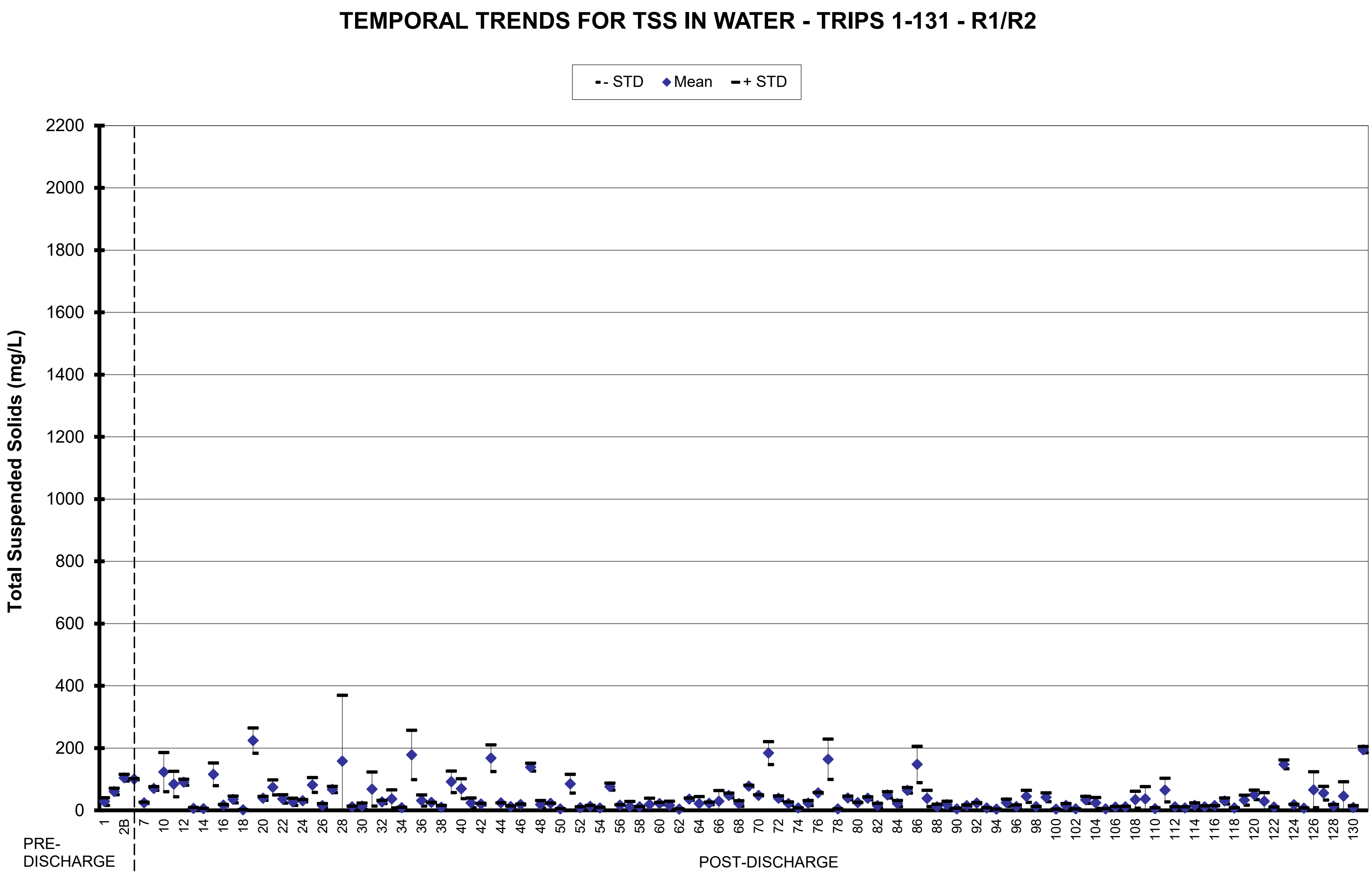
SPATIAL TRENDS FOR TSS IN WATER - TRIPS 128 - 131
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
A B C R1/R2 R3 R4
TRIP 128
A B C R1/R2 R3 R4
TRIP 129
A B C R1/R2 R3 R4
TRIP 130
A B C R1/R2 R3 R4
TRIP 131



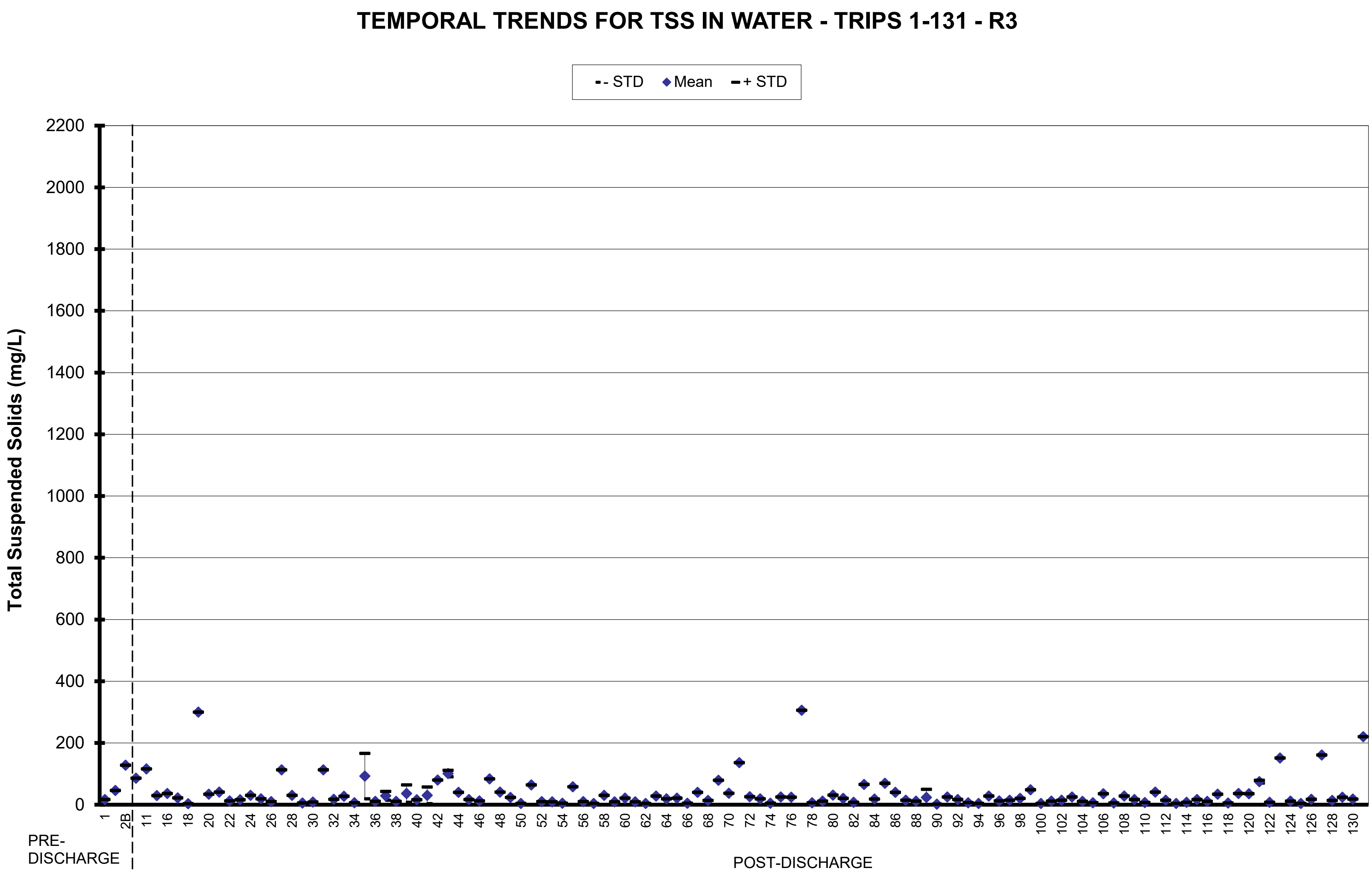
TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
PRE-
DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
PRE-DISCHARGE
POST-DISCHARGE

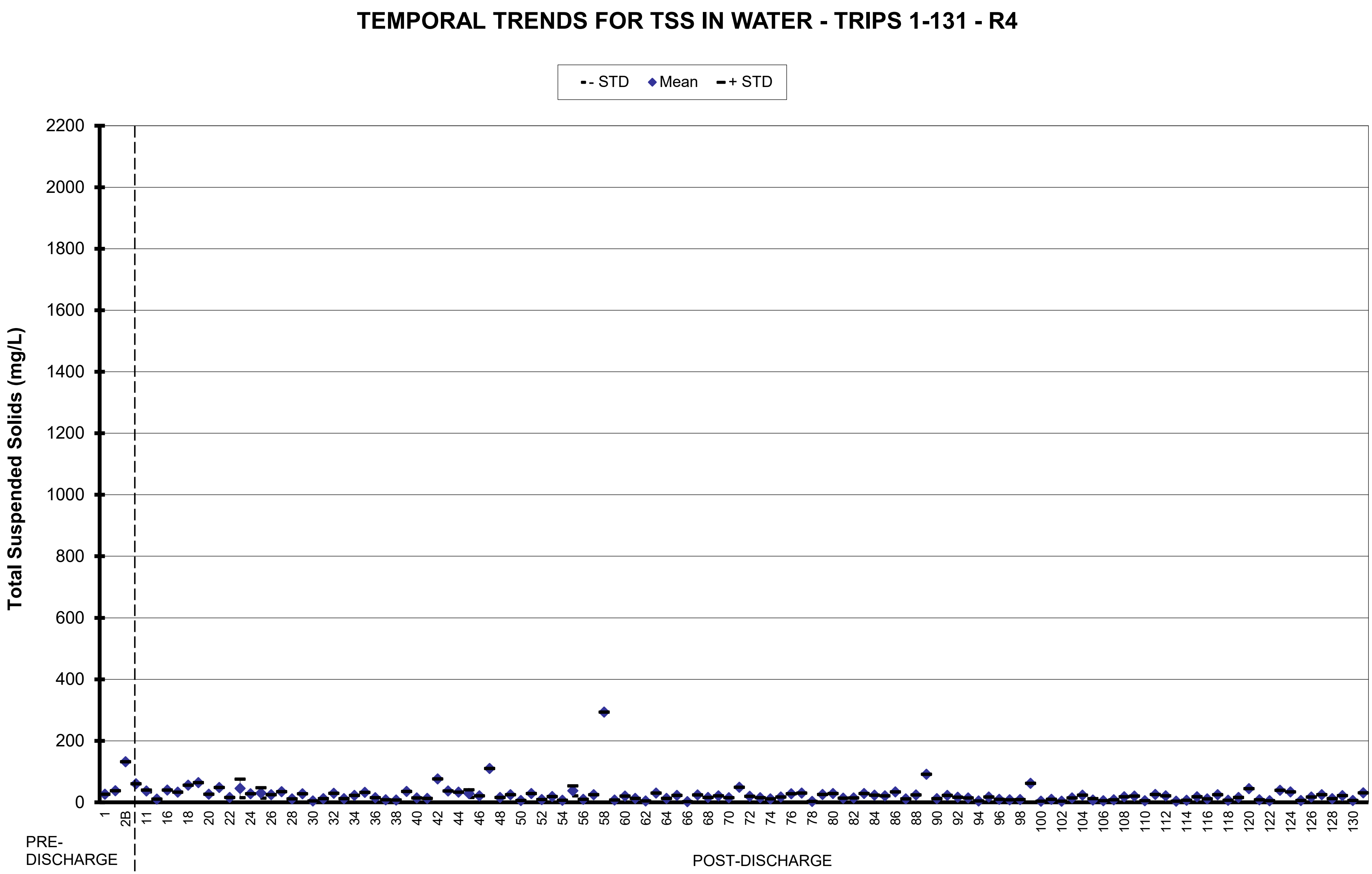

TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
PRE-DISCHARGE
POST-DISCHARGE



TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
PRE-DISCHARGE
POST-DISCHARGE



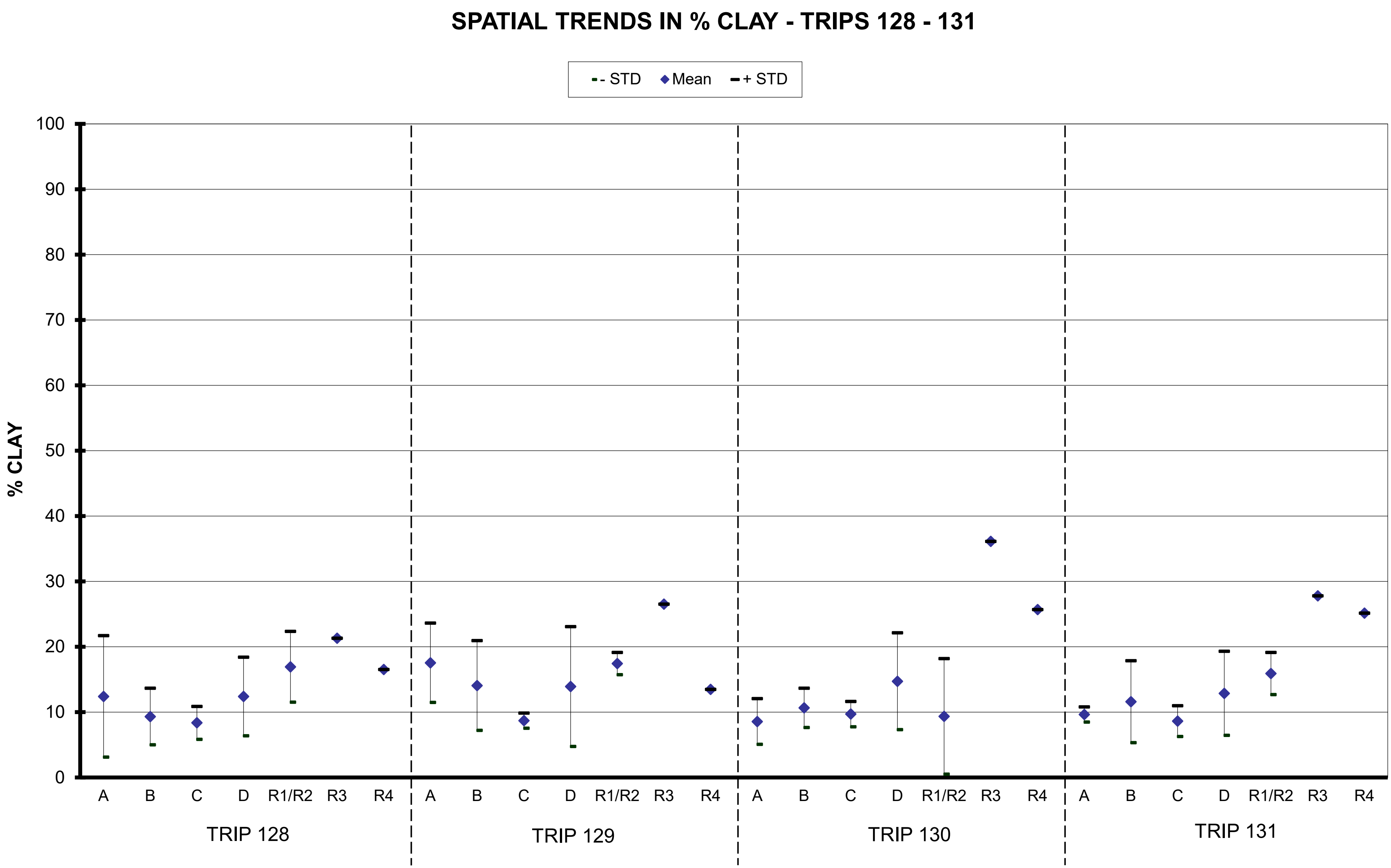
TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - R3
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
PRE-DISCHARGE
POST-DISCHARGE

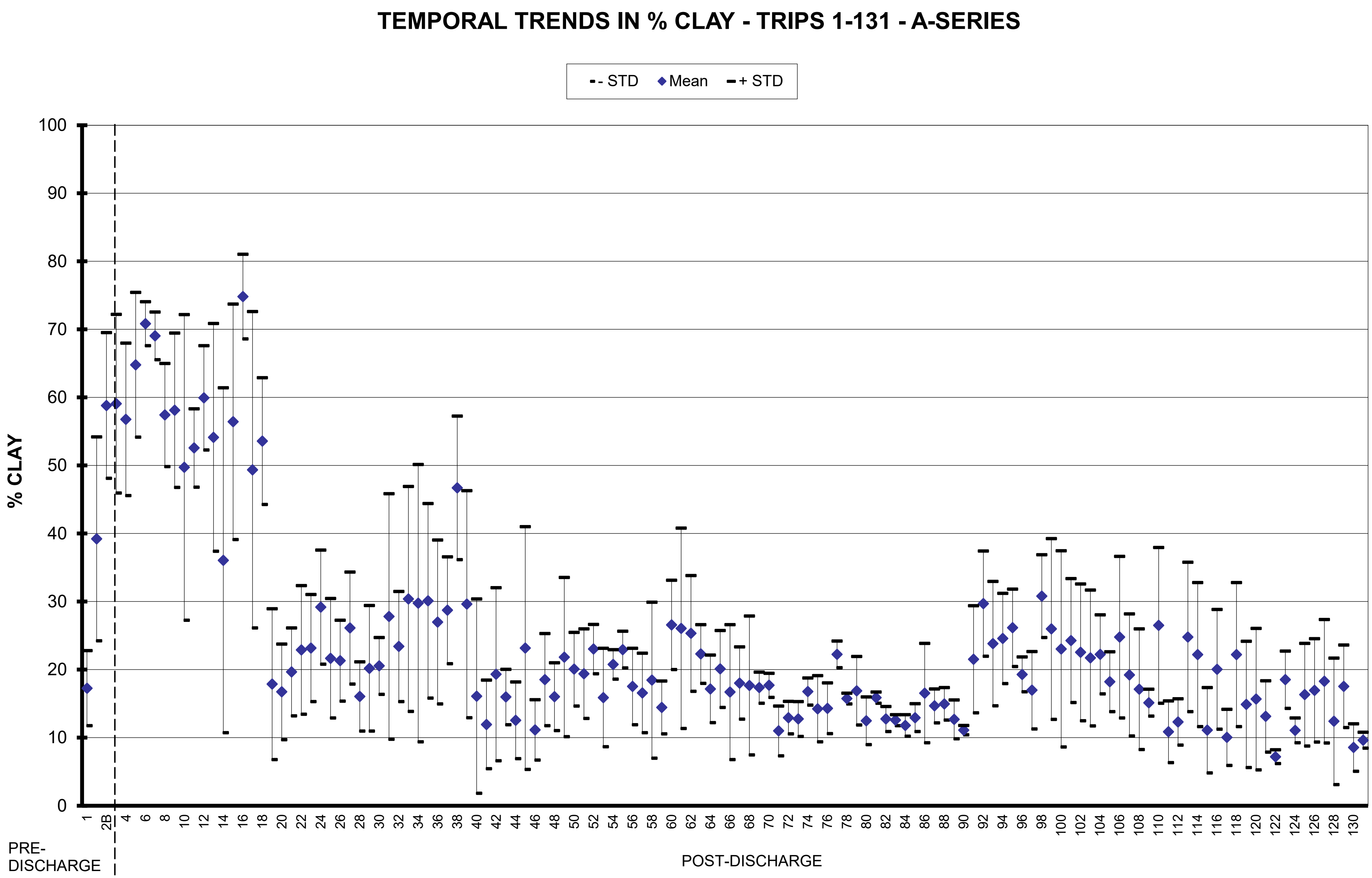


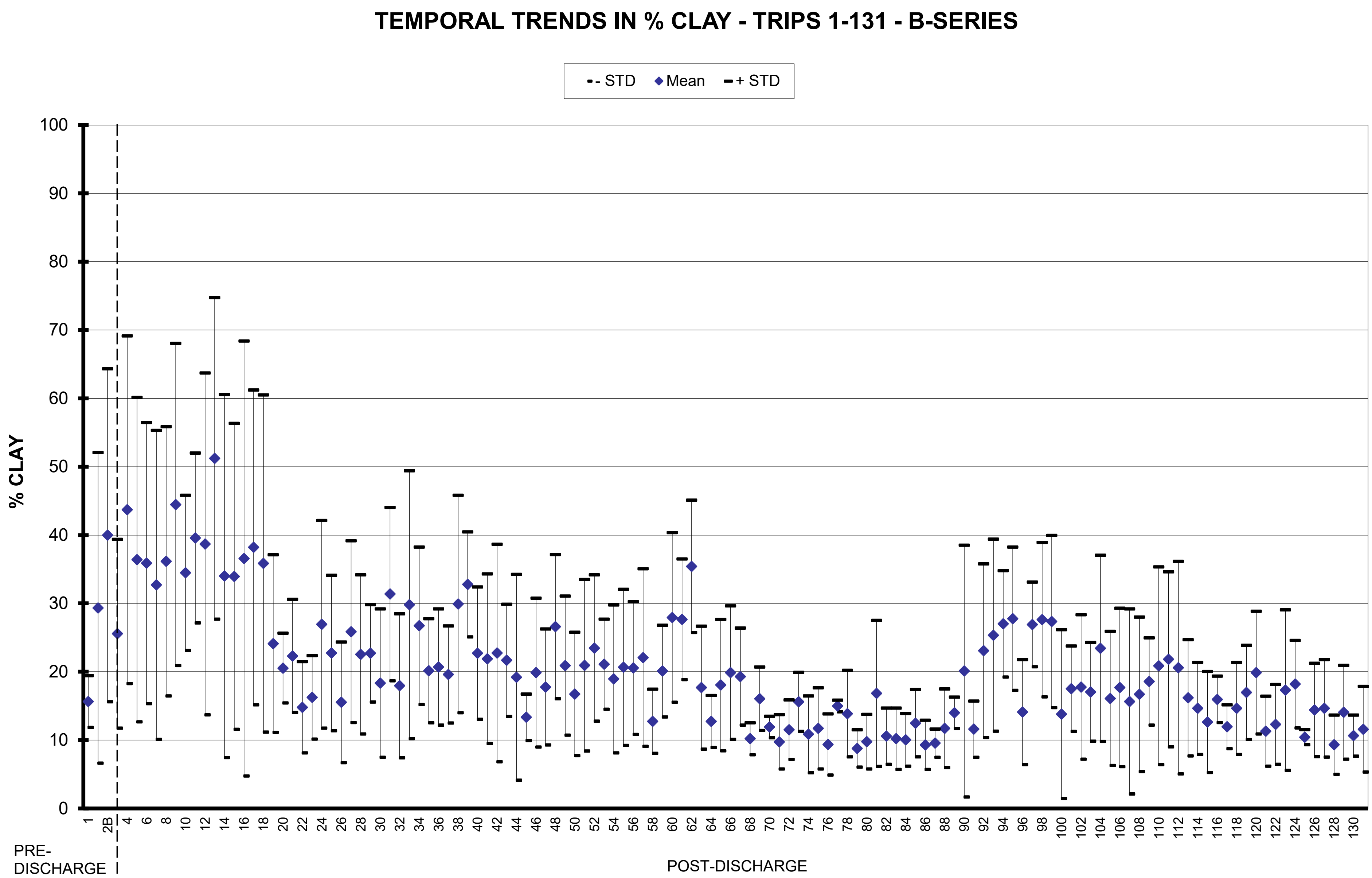
TEMPORAL TRENDS FOR TSS IN WATER - TRIPS 1-131 - R4
- STD
Mean
+ STD
Total Suspended Solids (mg/L)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

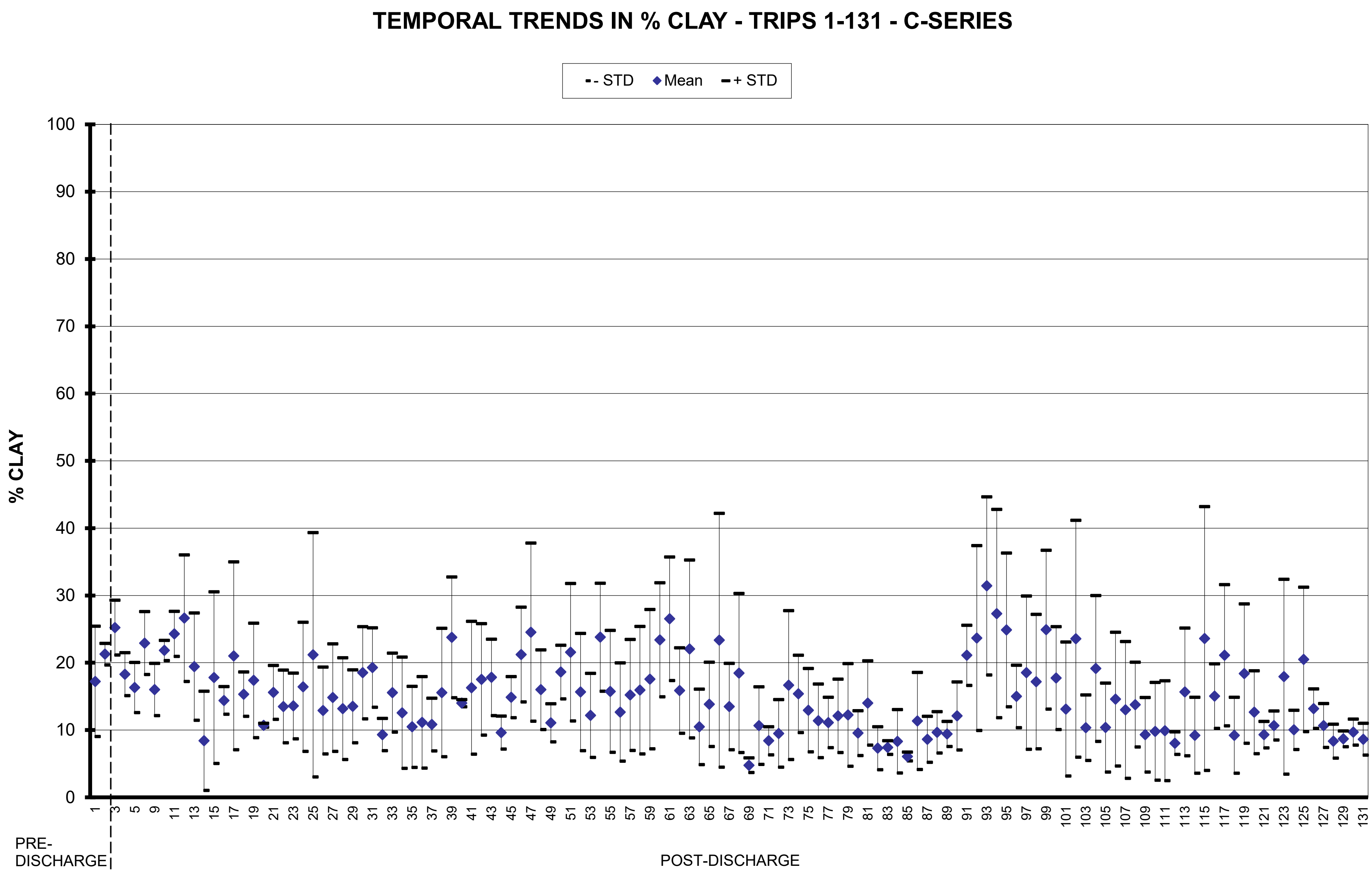
Attachment B

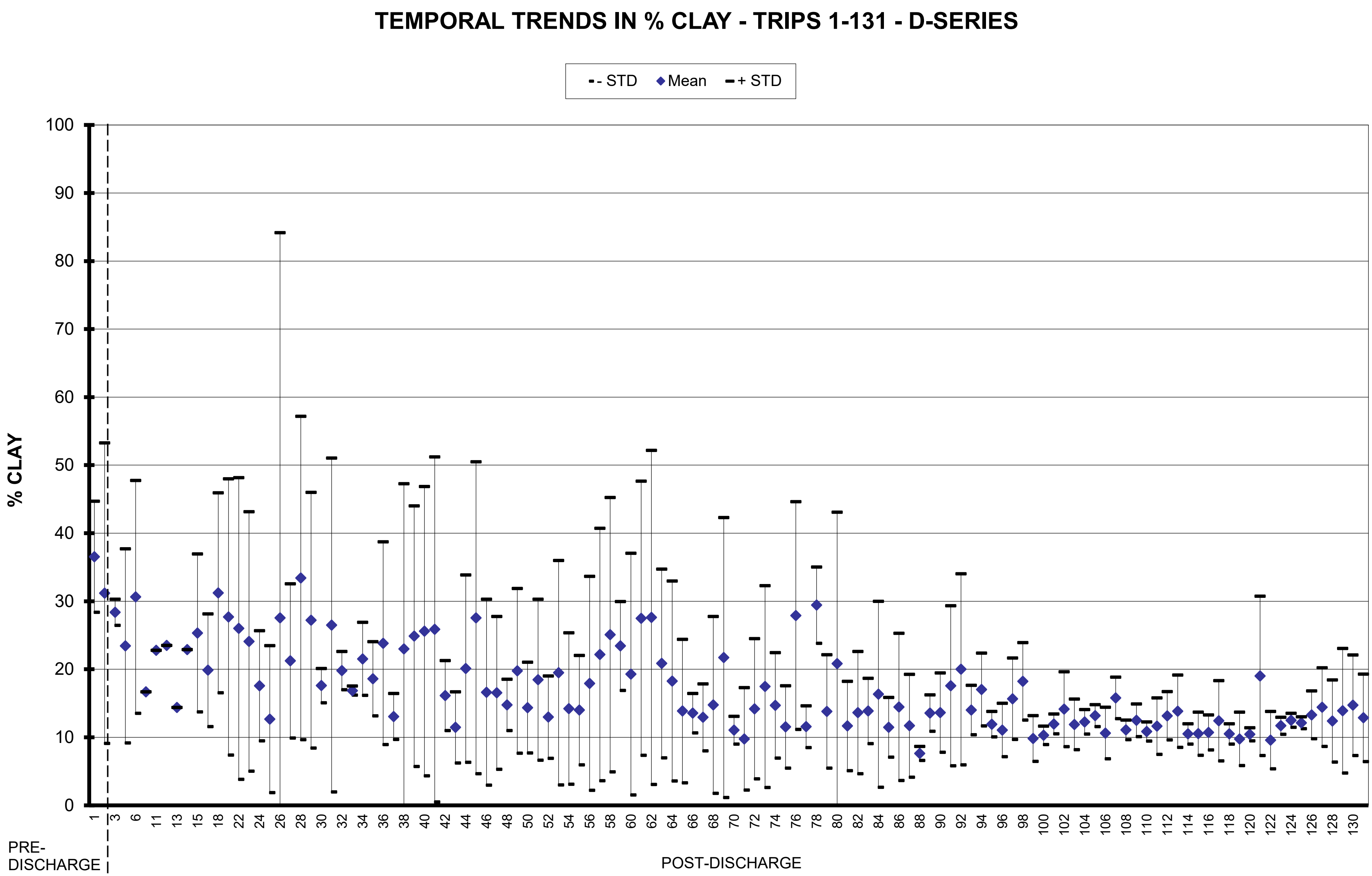
Spatial and Temporal Trend Analyses, Sediment

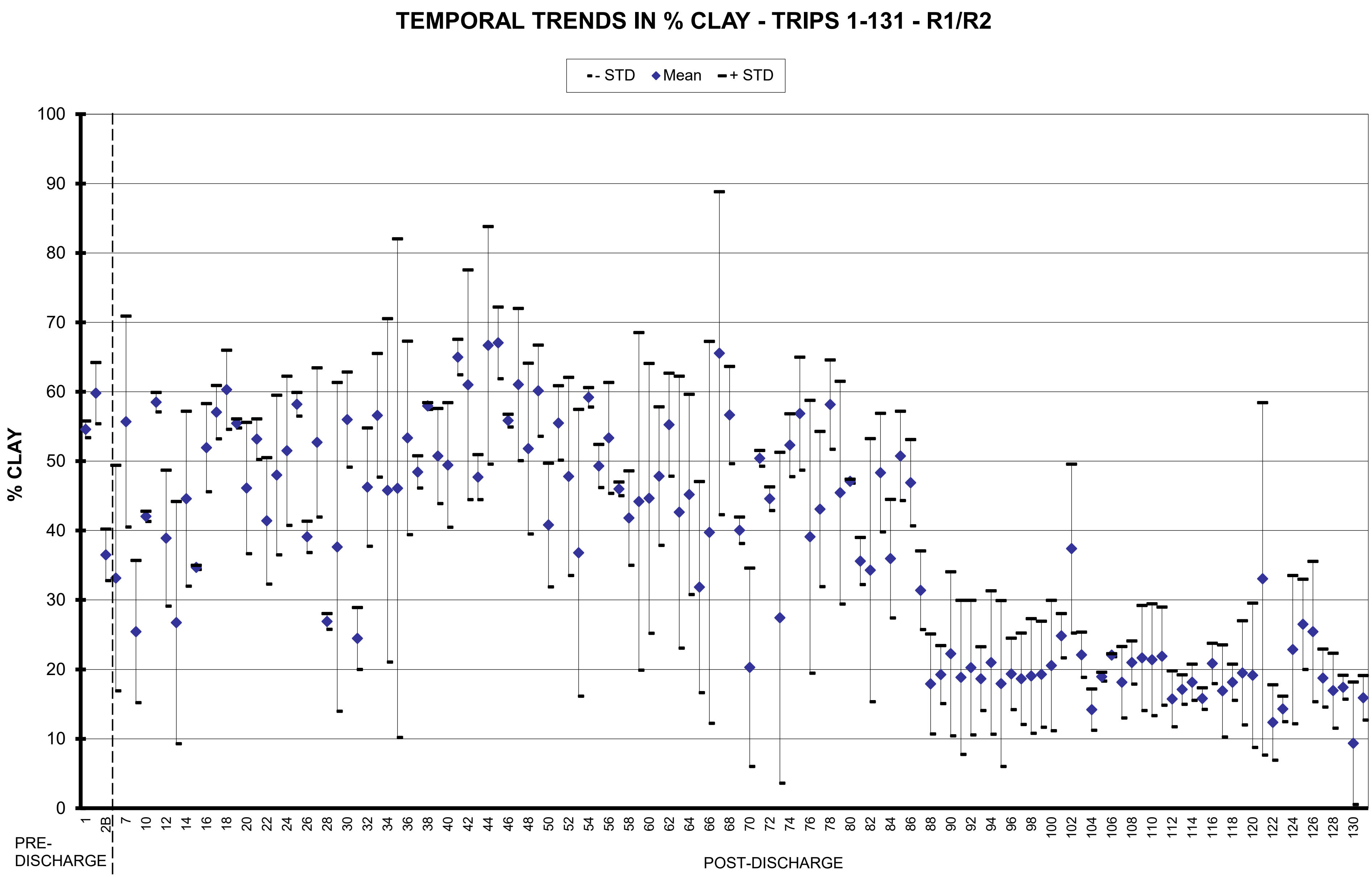

SPATIAL TRENDS IN % CLAY - TRIPS 128 - 131
- STD
Mean
+ STD
% CLAY
100
90
80
70
60
50
40
30
20
10
0
A B C D R1/R2 R3 R4
TRIP 128
A B C D R1/R2 R3 R4
TRIP 129
A B C D R1/R2 R3 R4
TRIP 130
A B C D R1/R2 R3 R4
TRIP 131


TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
% CLAY
PRE-
DISCHARGE
POST-DISCHARGE

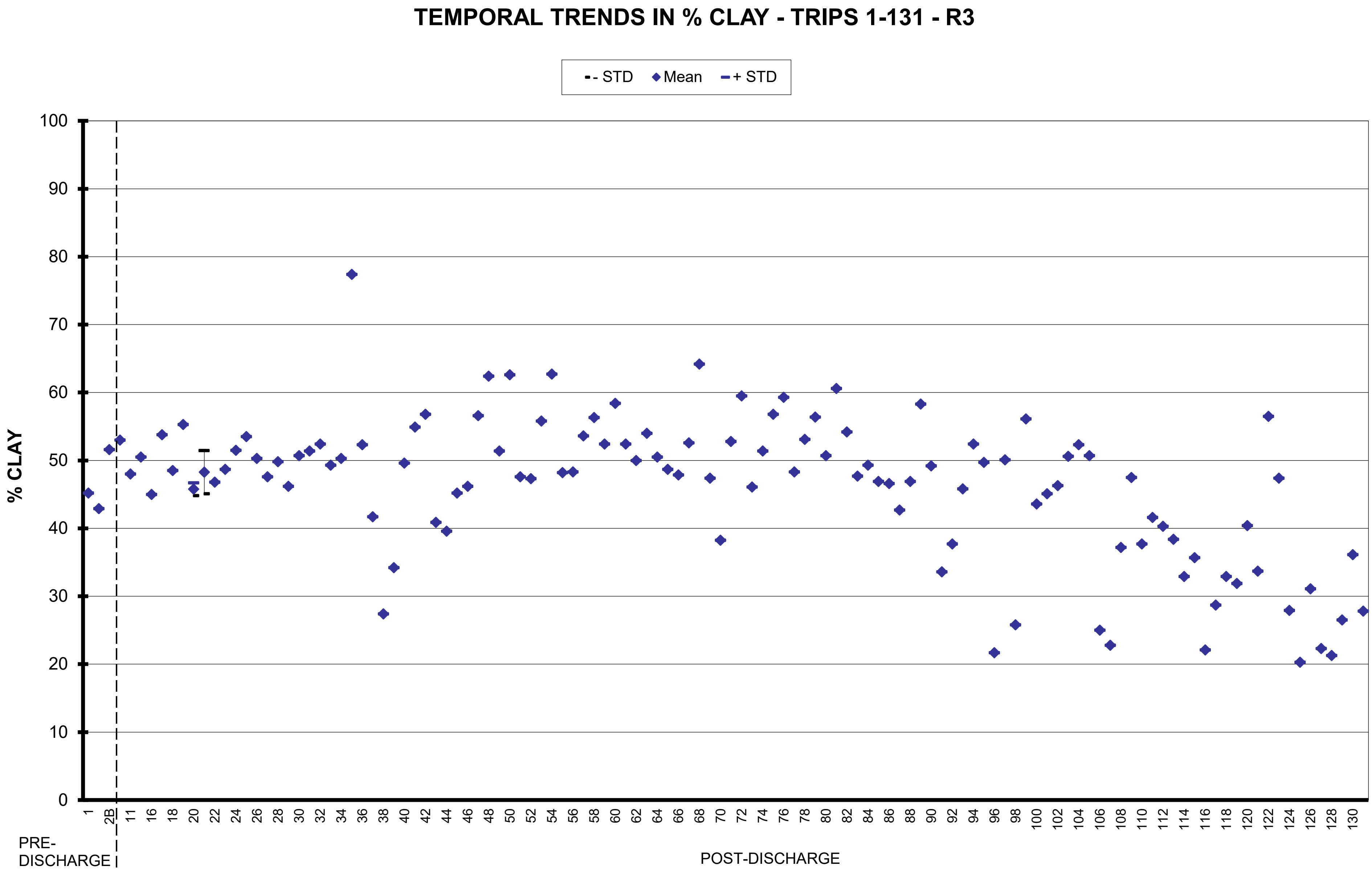

TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
% CLAY
PRE-
DISCHARGE
POST-DISCHARGE

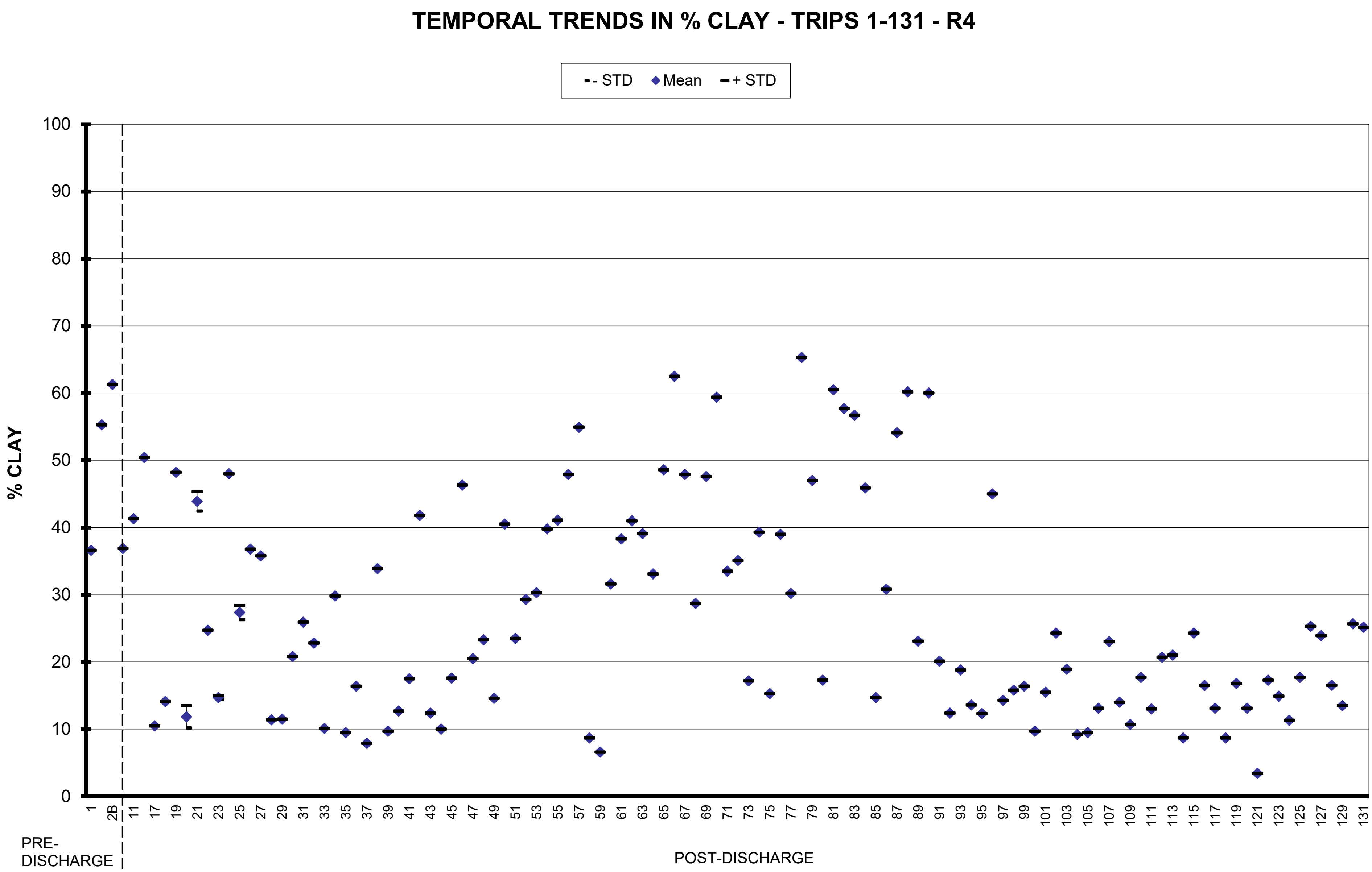

TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
% CLAY
0
10
20
30
40
50
60
70
80
90
100
PRE-
DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - D-SERIES
- STD
Mean
+ STD
% CLAY
PRE-DISCHARGE
POST-DISCHARGE

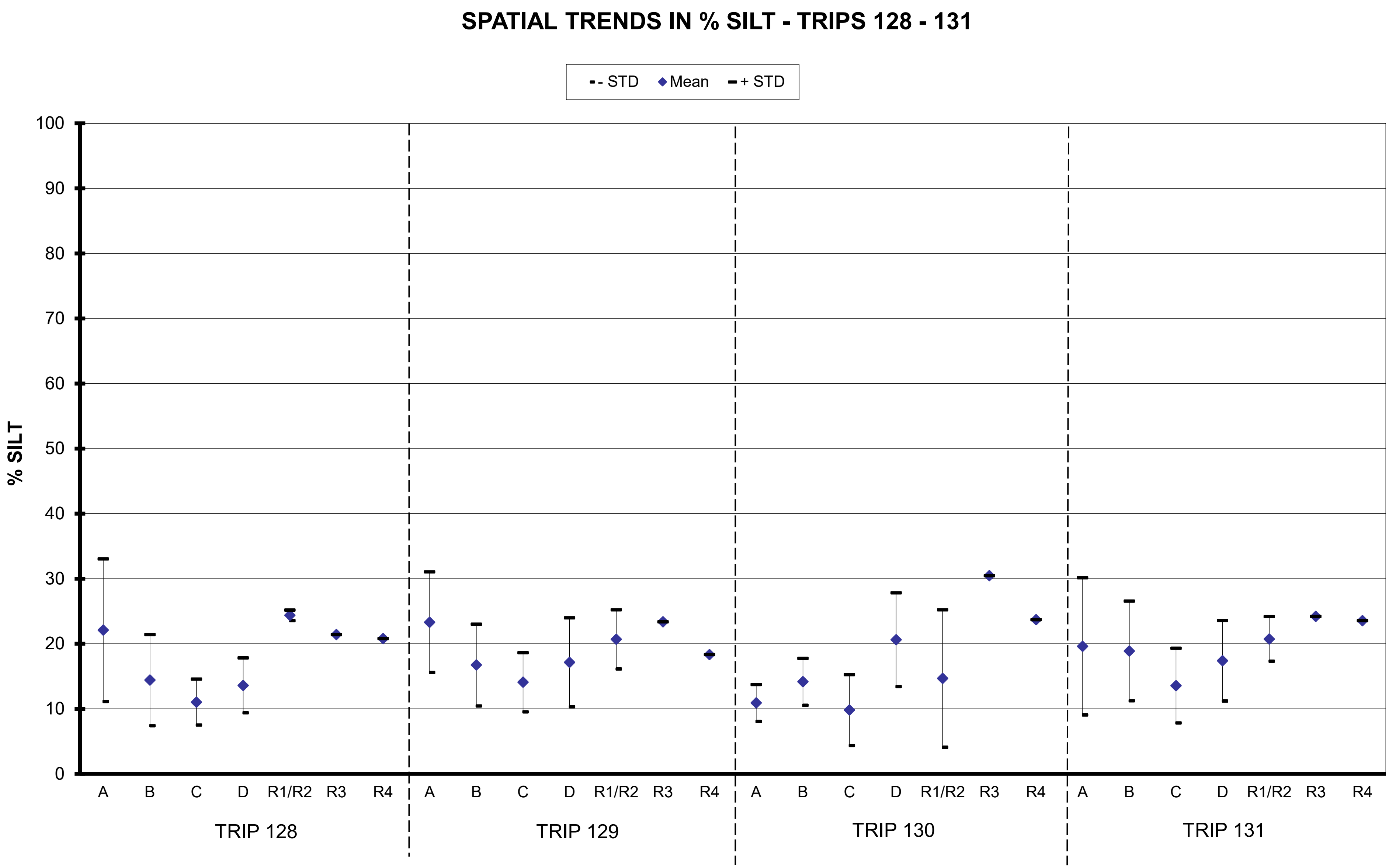


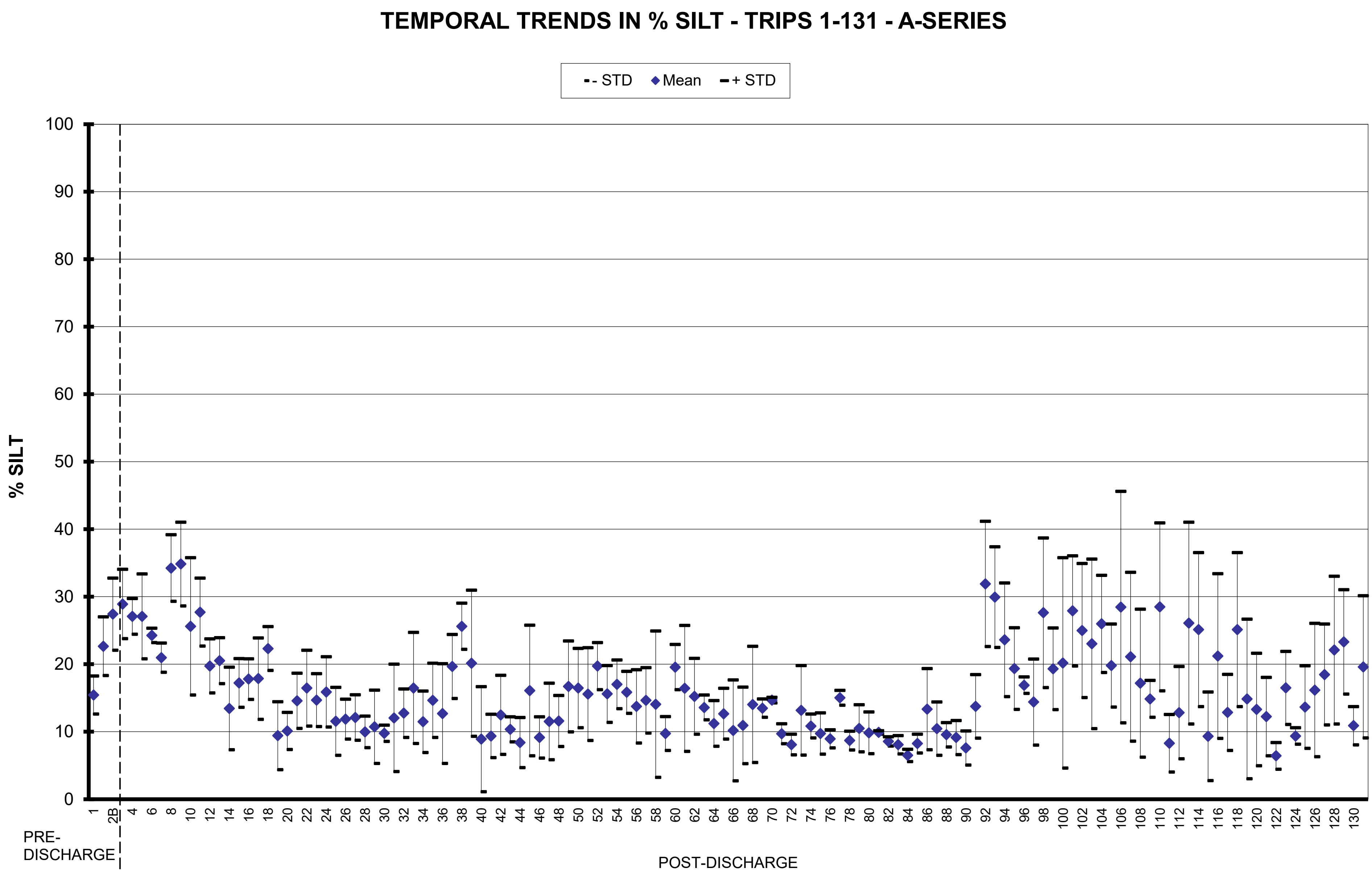
TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
% CLAY
100
90
80
70
60
50
40
30
20
10
0
1
2B
7
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-DISCHARGE
POST-DISCHARGE

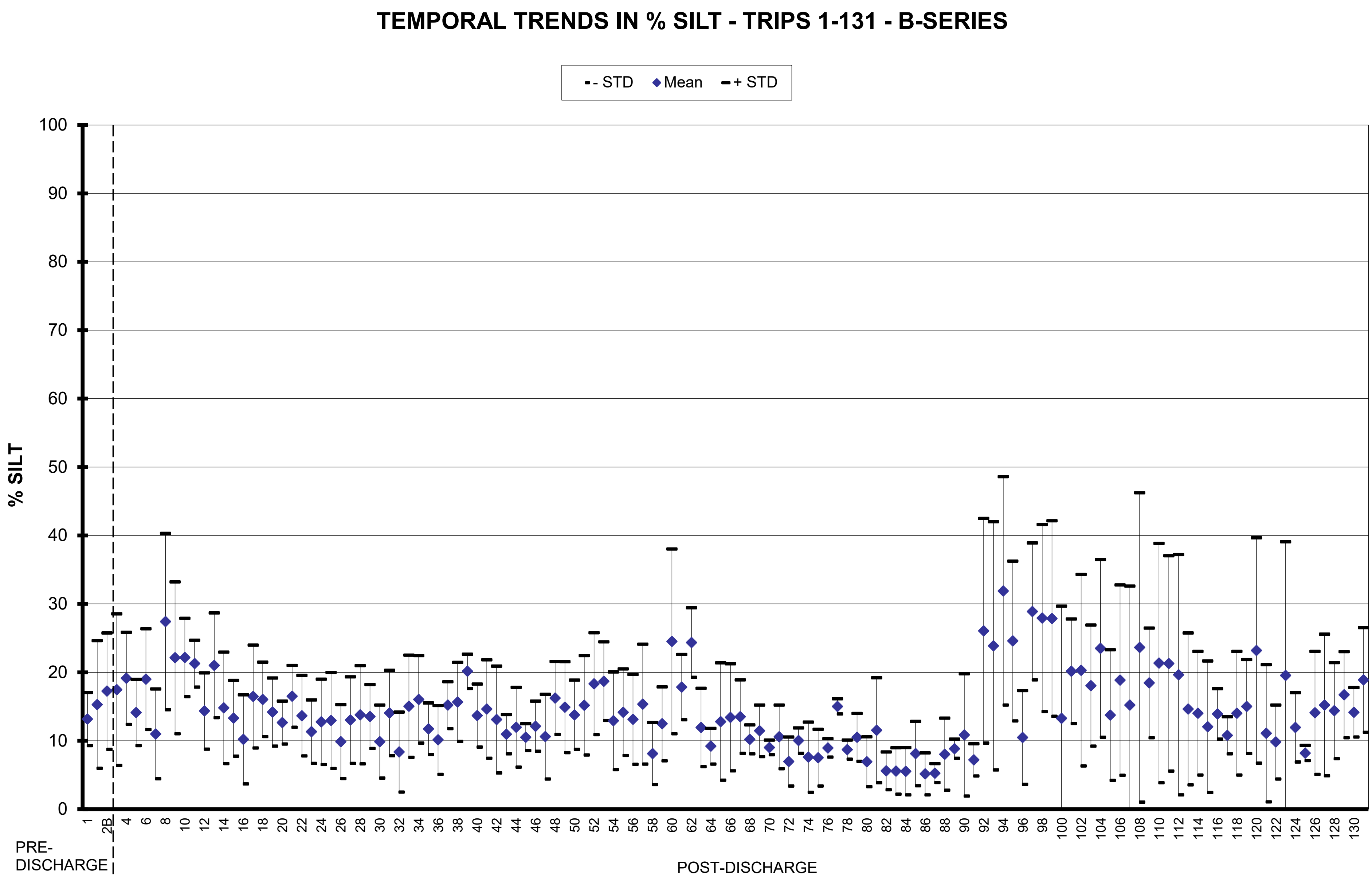

TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - R3
- STD
Mean
+ STD
% CLAY
PRE-
DISCHARGE
POST-DISCHARGE

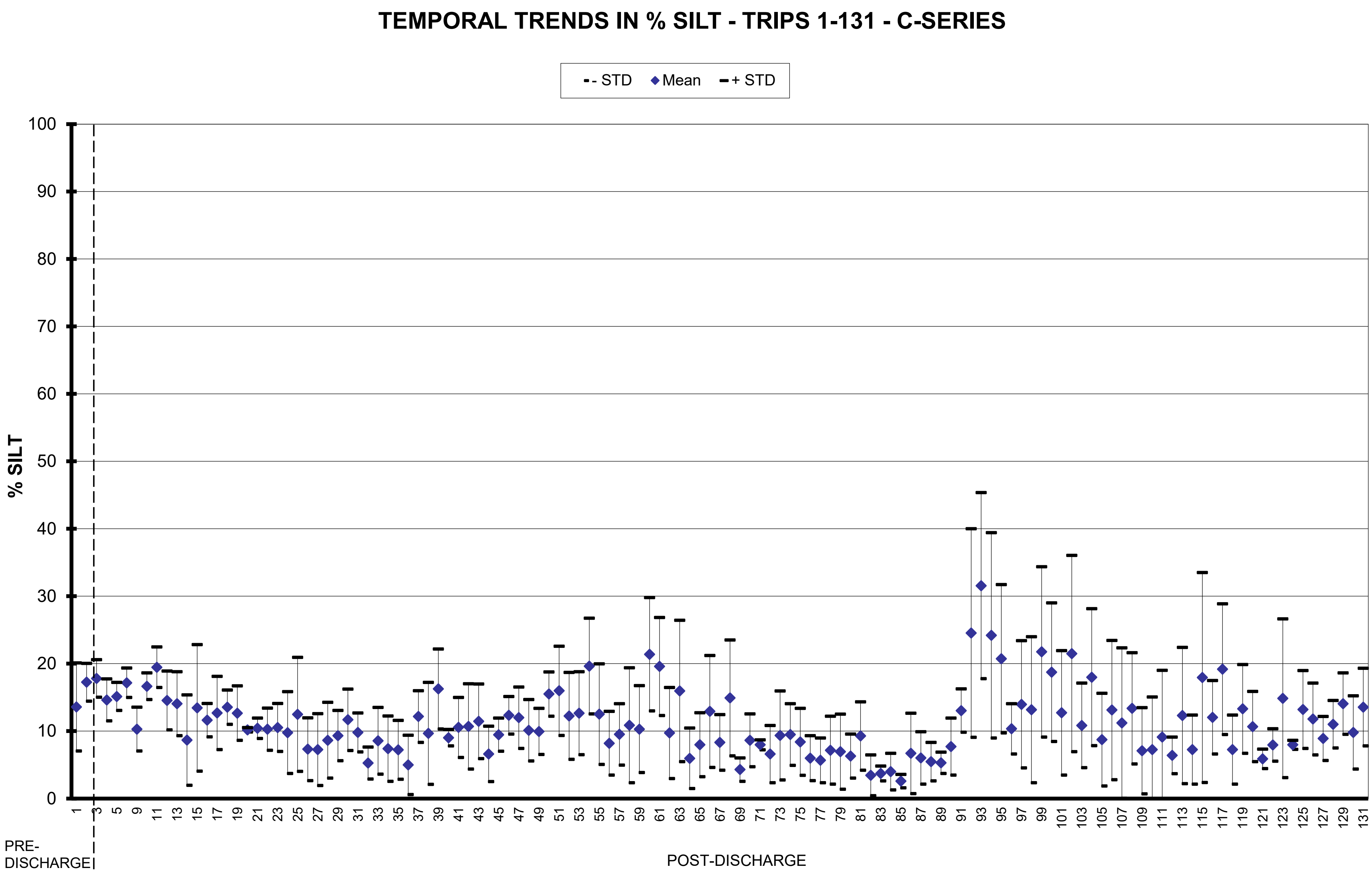


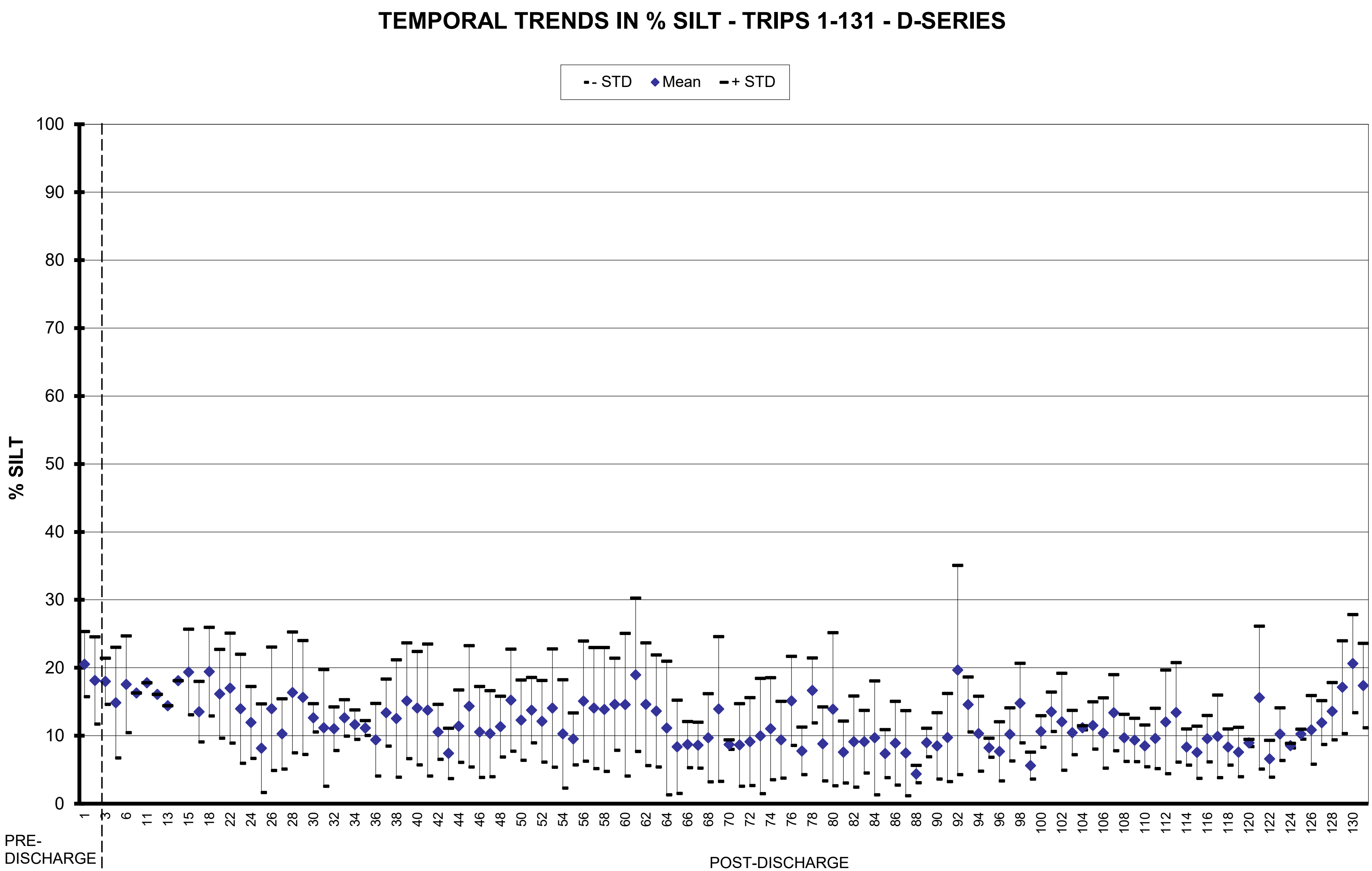
TEMPORAL TRENDS IN % CLAY - TRIPS 1-131 - R4
- STD
Mean
+ STD
% CLAY
100
90
80
70
60
50
40
30
20
10
0
PRE-
DISCHARGE
POST-DISCHARGE

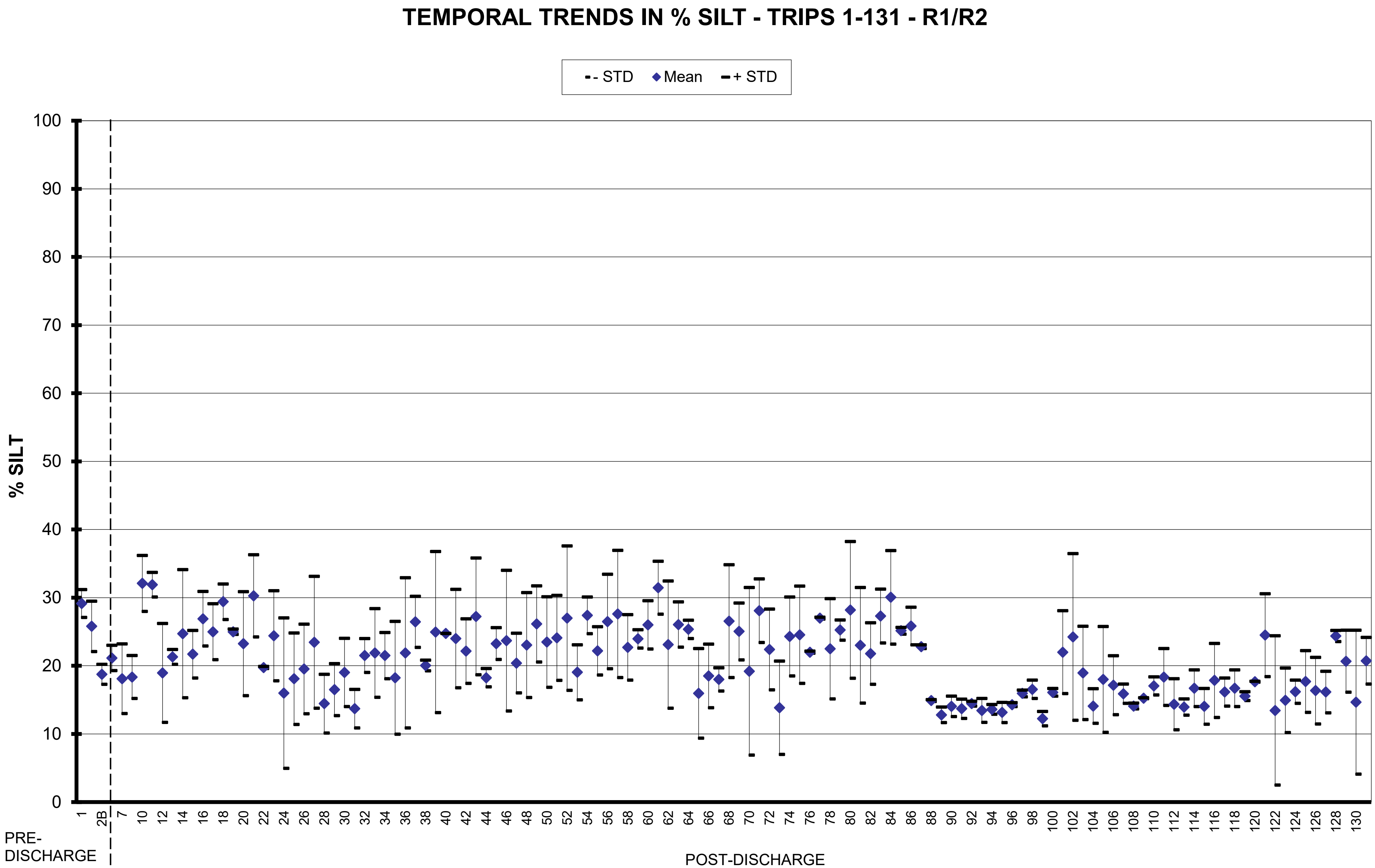

SPATIAL TRENDS IN % SILT - TRIPS 128 - 131
- STD
Mean
+ STD
% SILT
0
10
20
30
40
50
60
70
80
90
100
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131


TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
% SILT
100
90
80
70
60
50
40
30
20
10
0
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

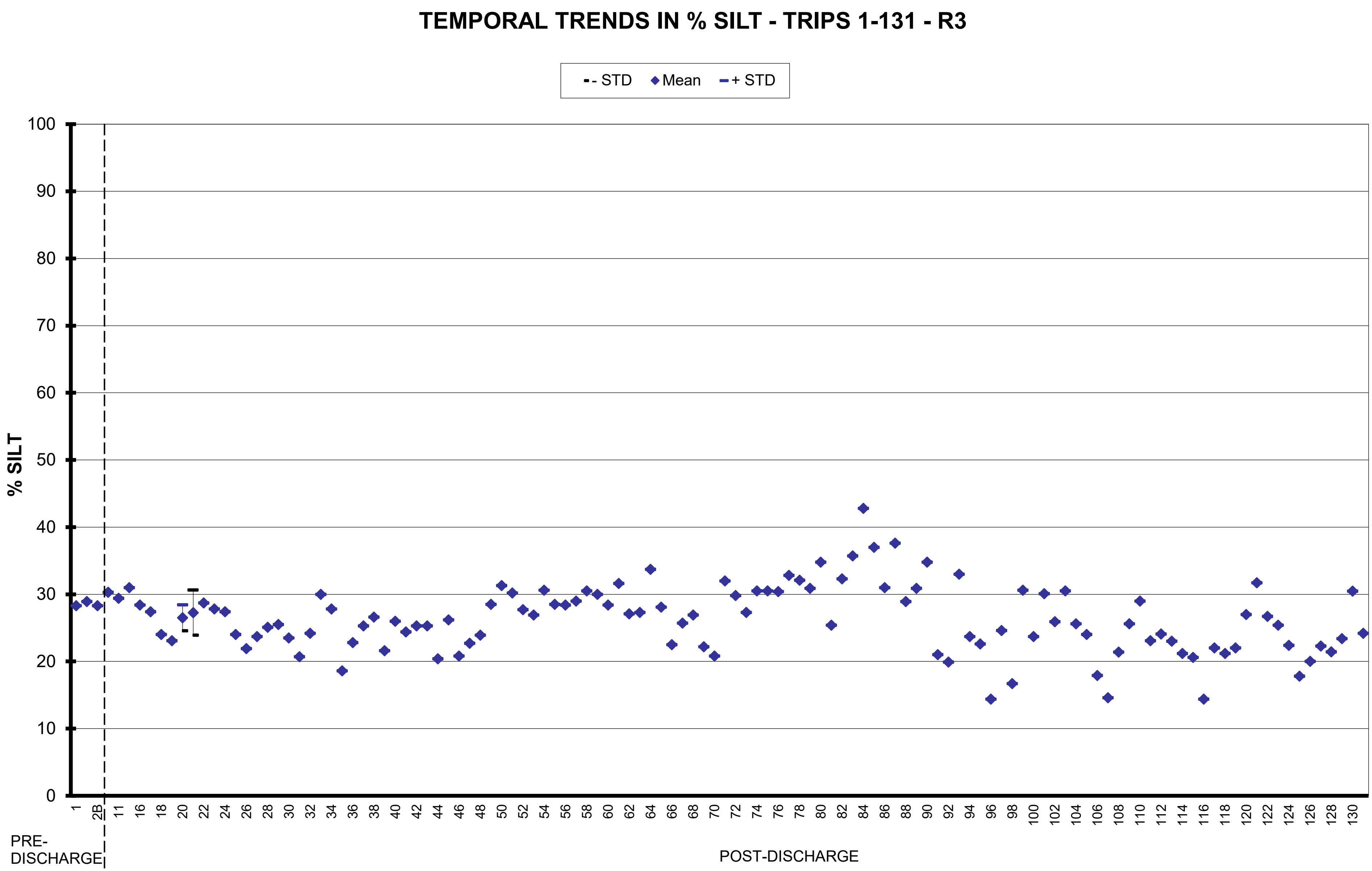

TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
% SILT
0
10
20
30
40
50
60
70
80
90
100
PRE-DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
% SILT
100
90
80
70
60
50
40
30
20
10
0
PRE-
DISCHARGE
POST-DISCHARGE

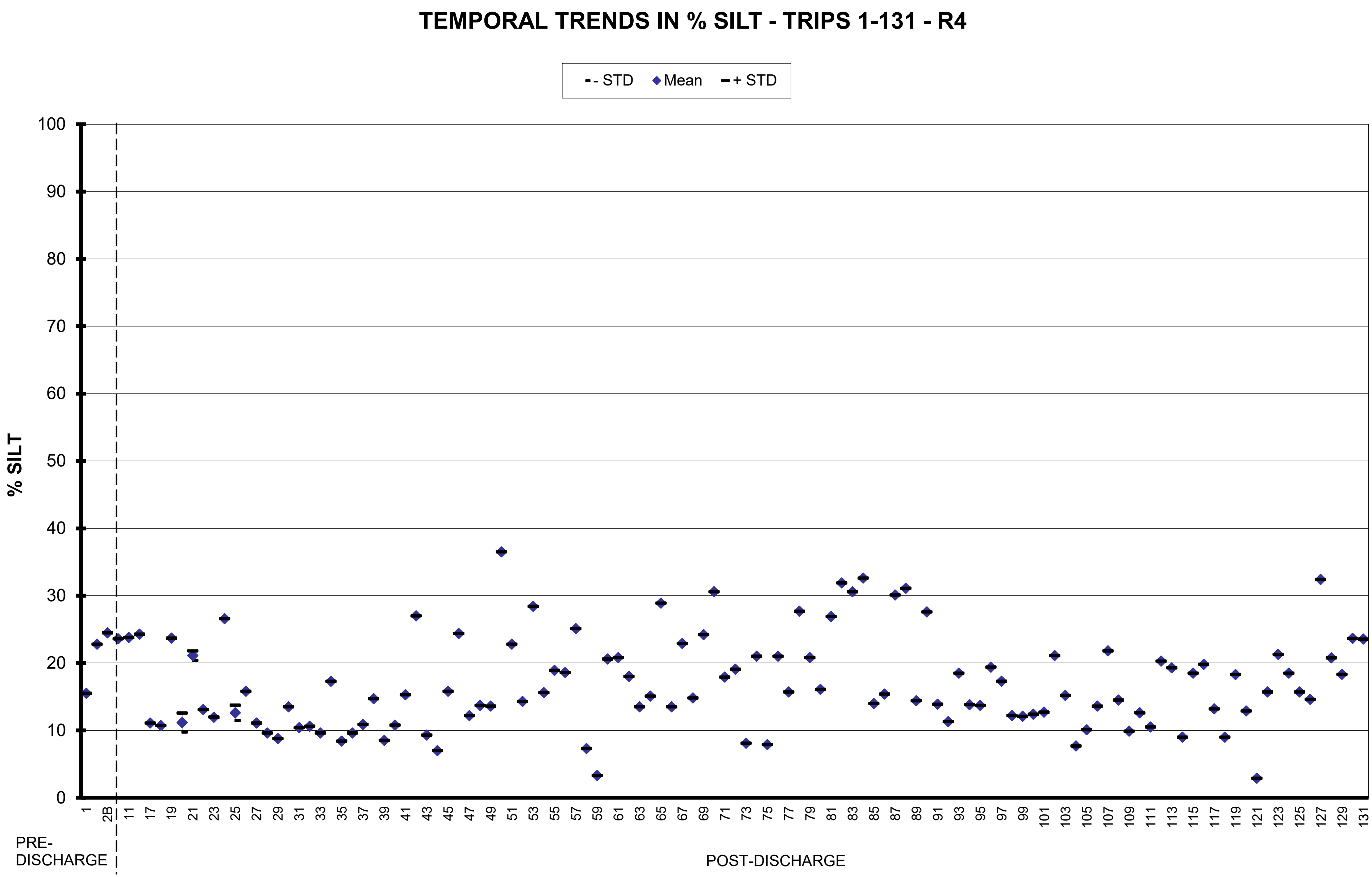

TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - D-SERIES
- STD
Mean
+ STD
% SILT
PRE-DISCHARGE
POST-DISCHARGE

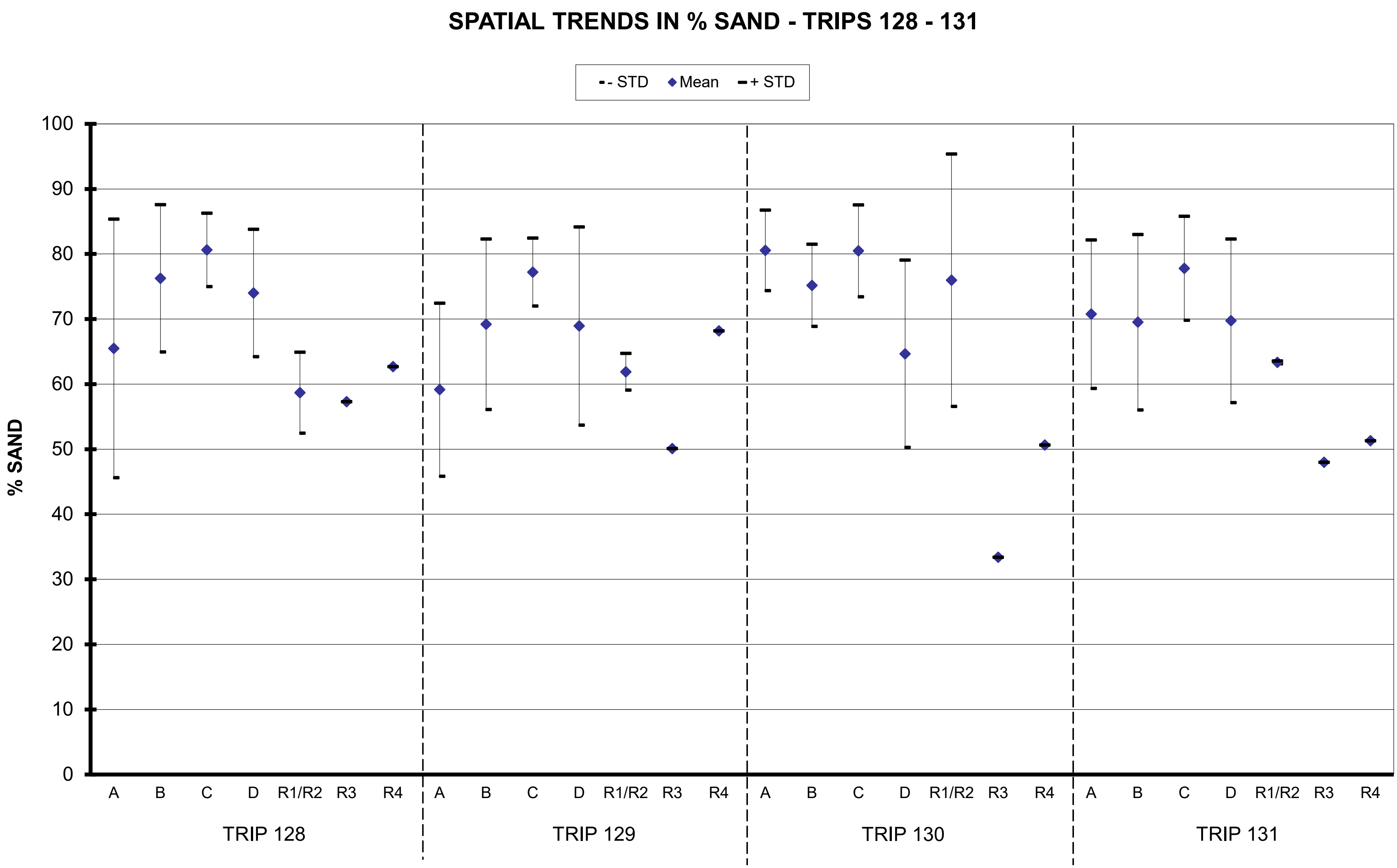


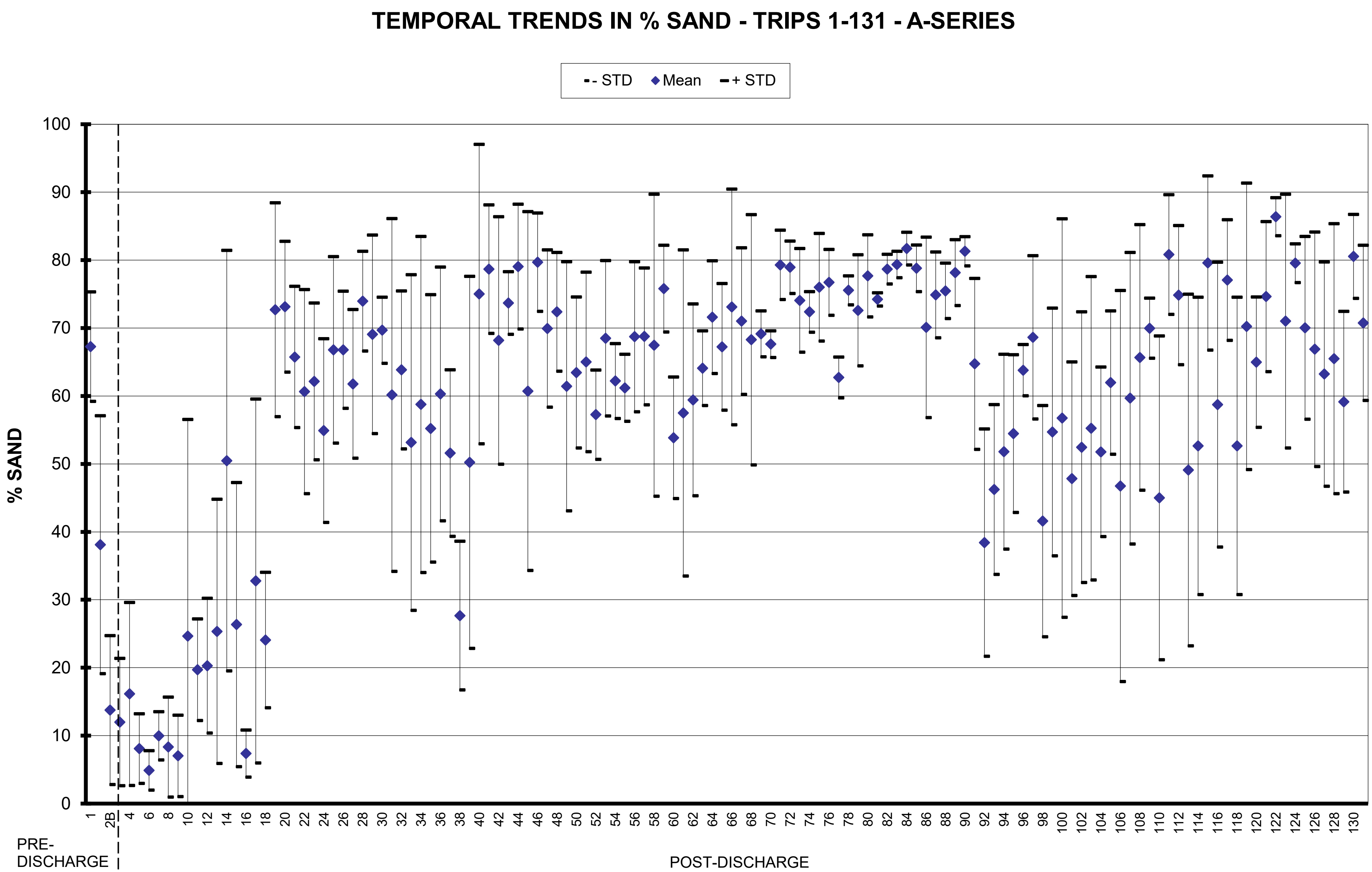
TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
% SILT
100
90
80
70
60
50
40
30
20
10
0
1
2B
7
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE



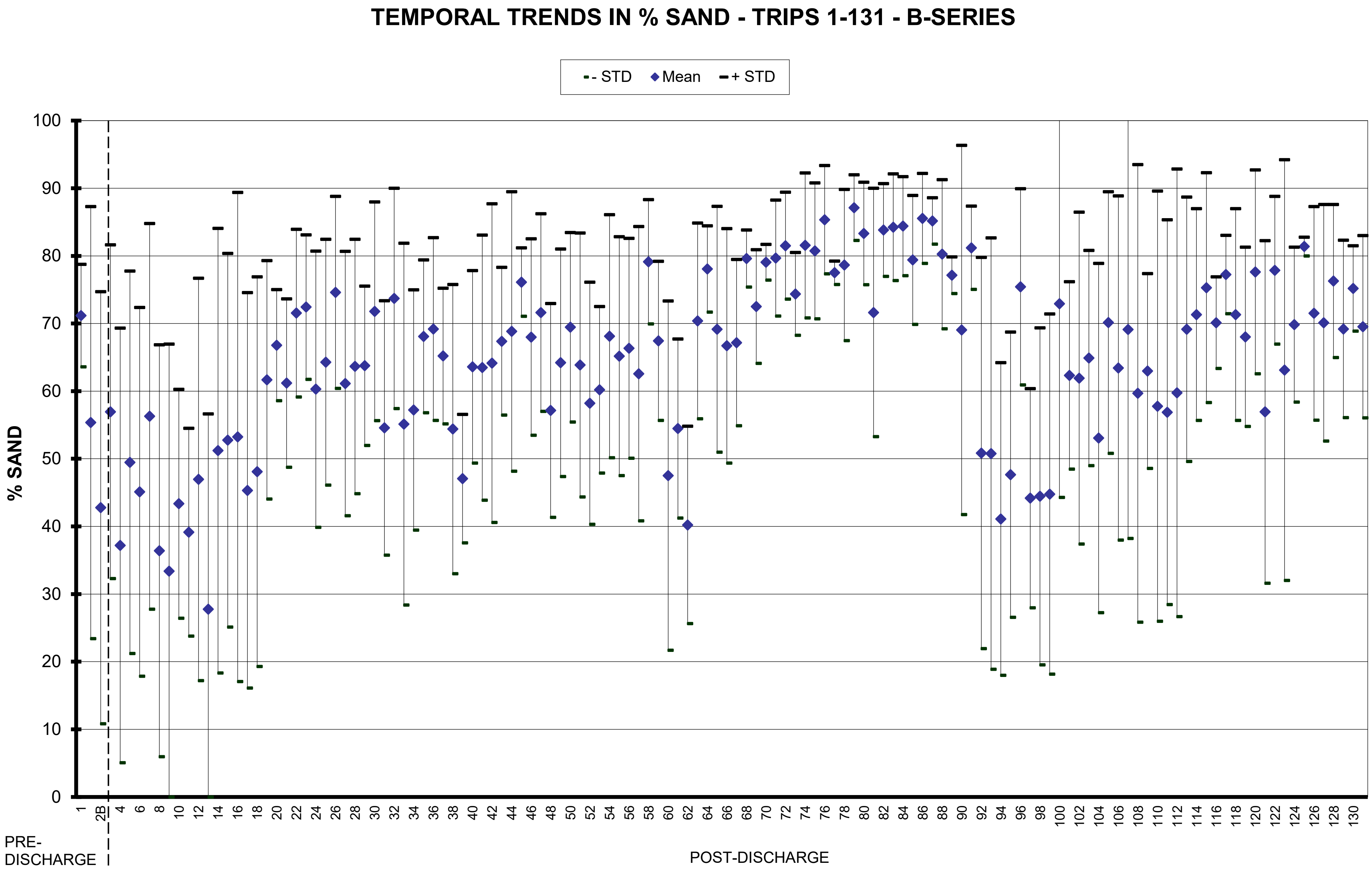
TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - R3
- STD
Mean
+ STD
% SILT
100
90
80
70
60
50
40
30
20
10
0
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

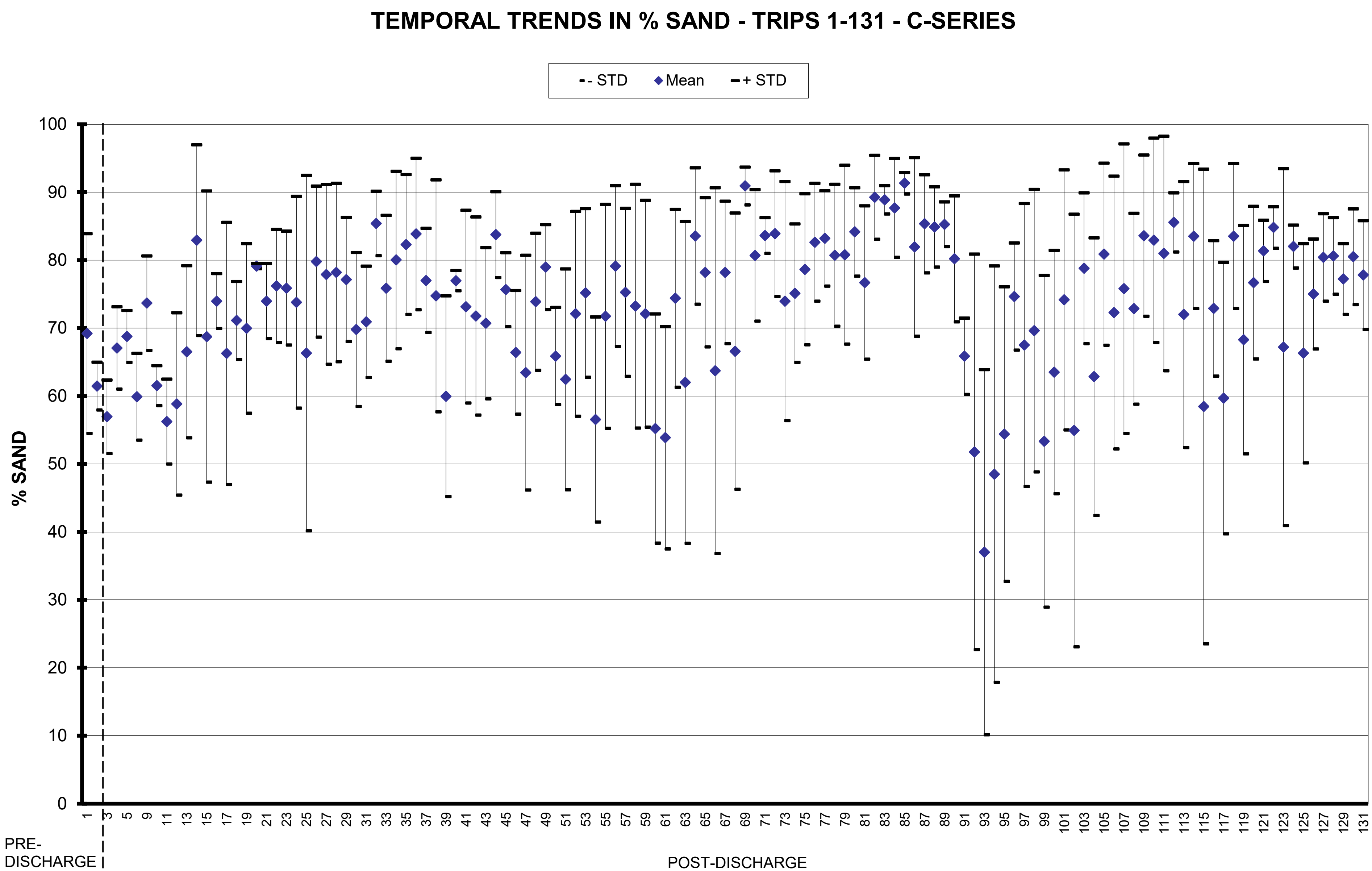

TEMPORAL TRENDS IN % SILT - TRIPS 1-131 - R4
- STD
Mean
+ STD
% SILT
0
10
20
30
40
50
60
70
80
90
100
PRE-DISCHARGE
POST-DISCHARGE


SPATIAL TRENDS IN % SAND - TRIPS 128 - 131
- STD
Mean
+ STD
% SAND
100
90
80
70
60
50
40
30
20
10
0
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

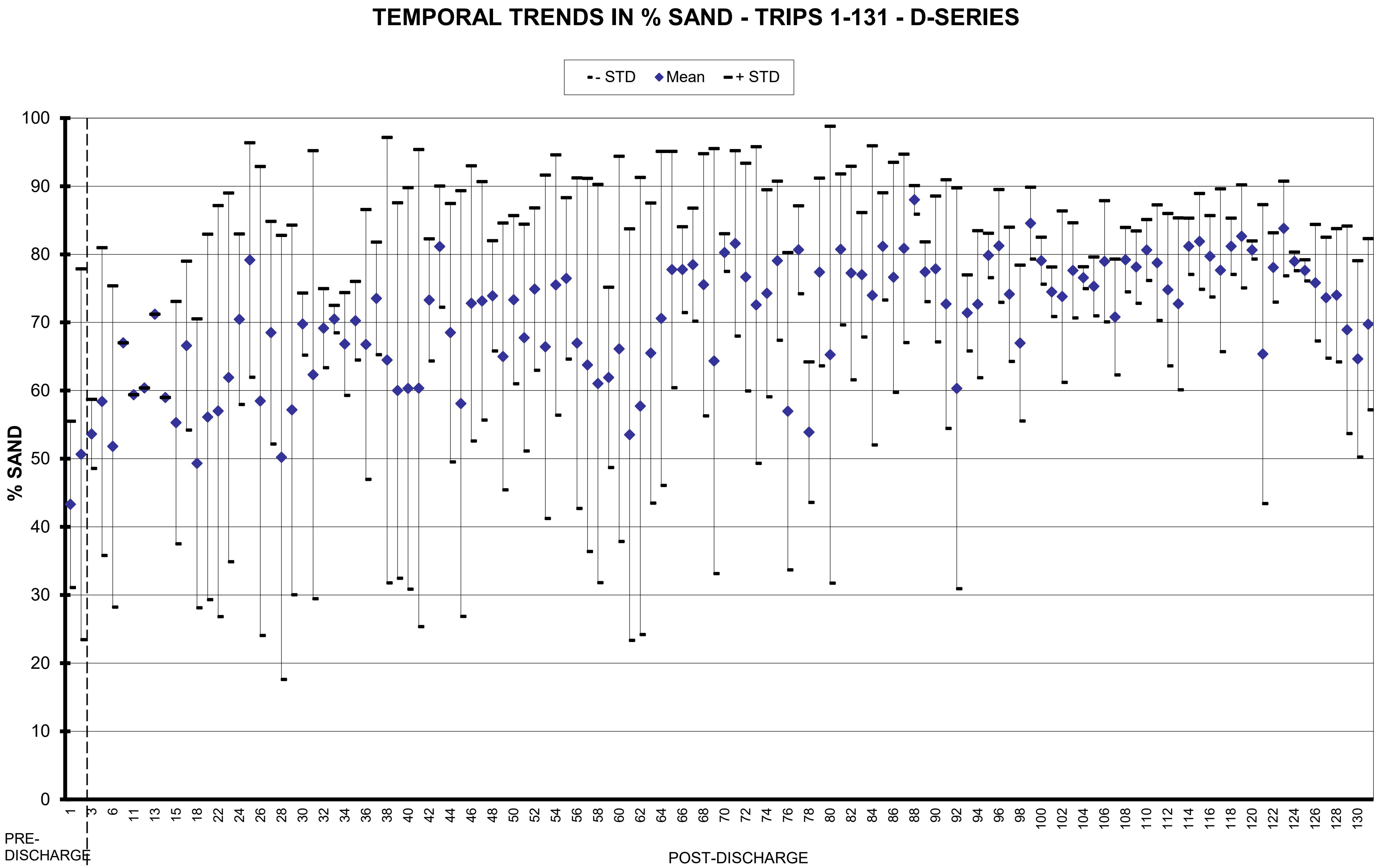


TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
% SAND
100
90
80
70
60
50
40
30
20
10
0
PRE-
DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
% SAND
100
90
80
70
60
50
40
30
20
10
0
PRE-
DISCHARGE
POST-DISCHARGE

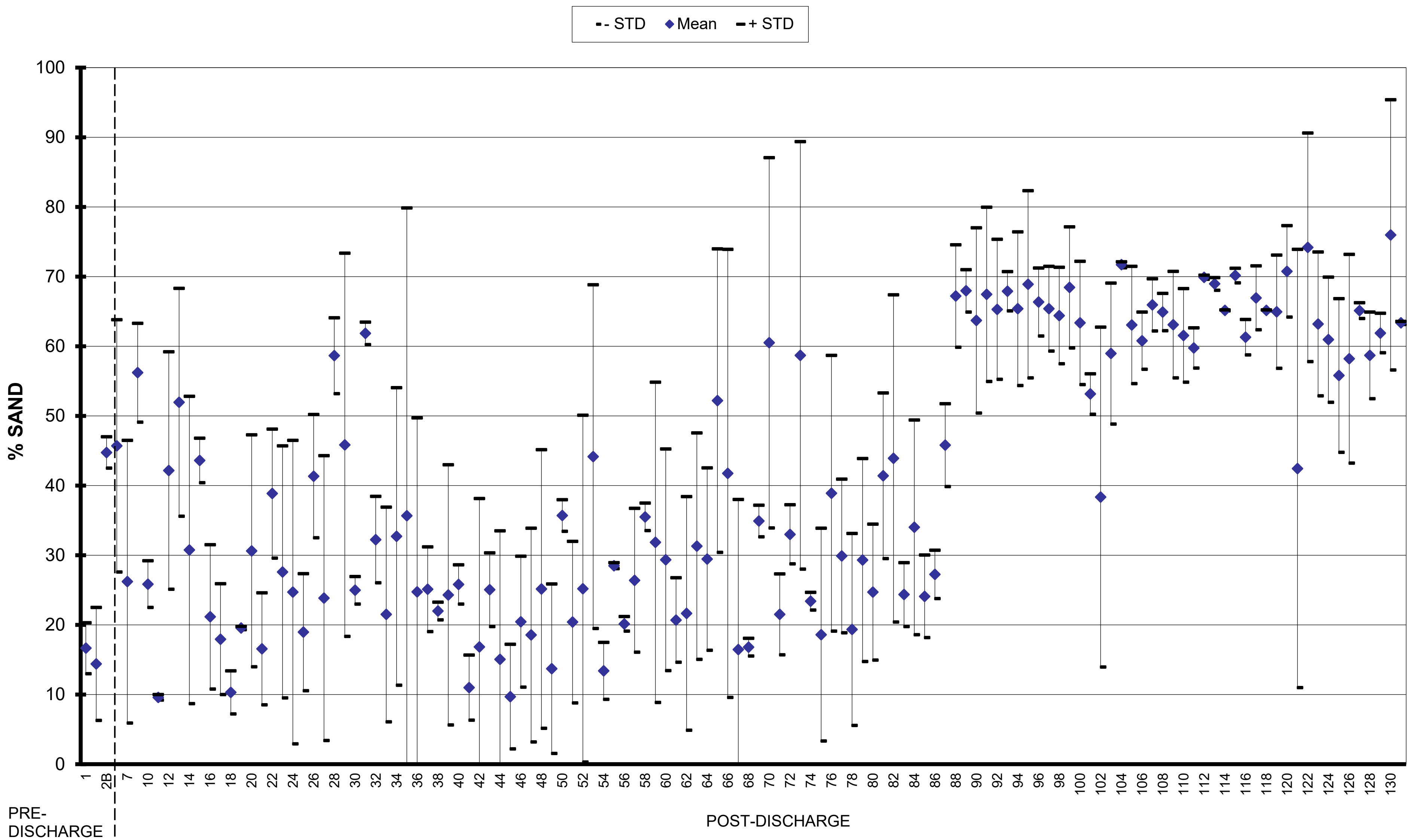


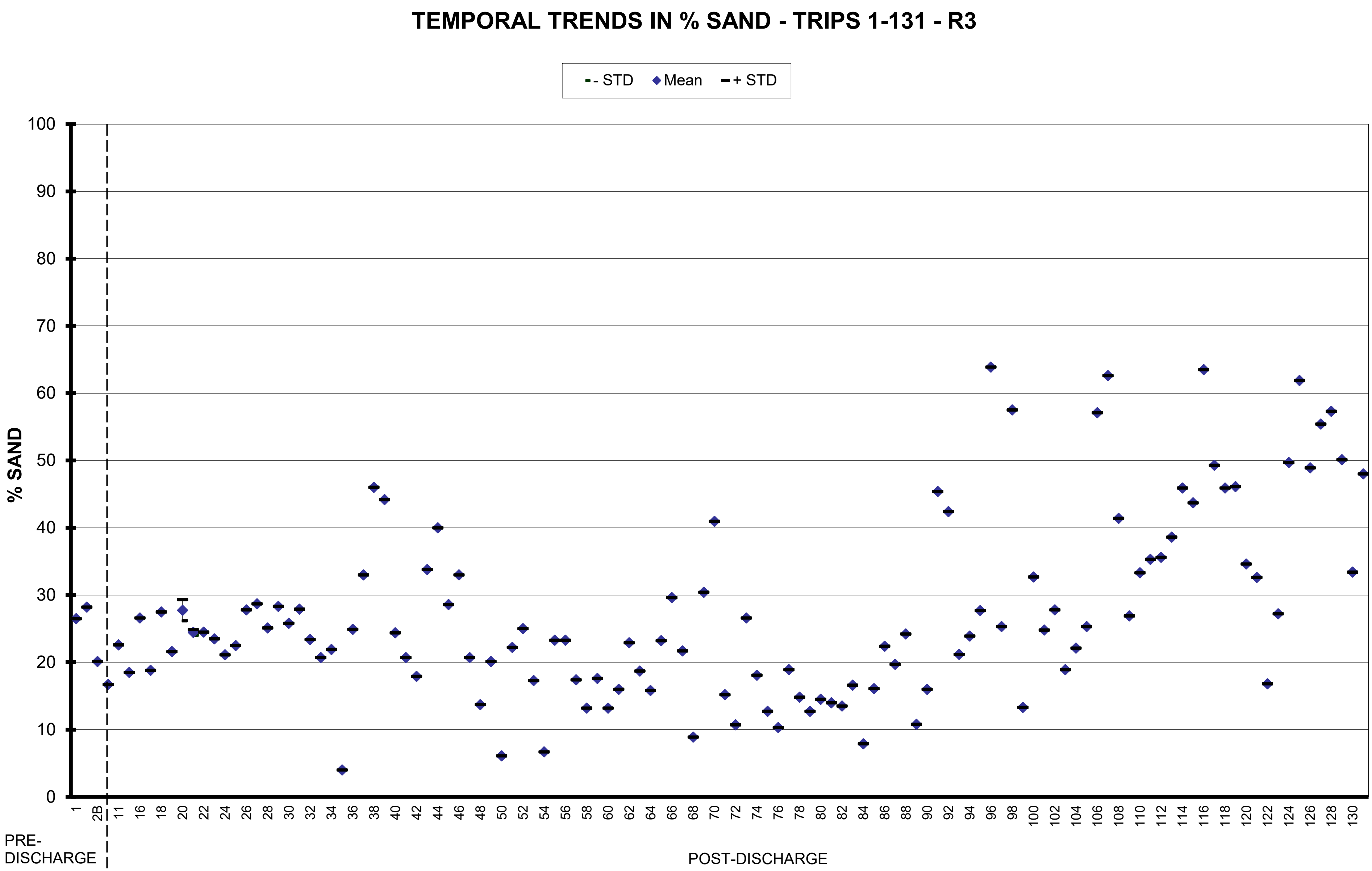
TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
% SAND
100
90
80
70
60
50
40
30
20
10
0
PRE-
DISCHARGE
POST-DISCHARGE



TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - D-SERIES
- STD
Mean
+ STD
% SAND
100
90
80
70
60
50
40
30
20
10
0
1
3
6
11
13
15
18
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

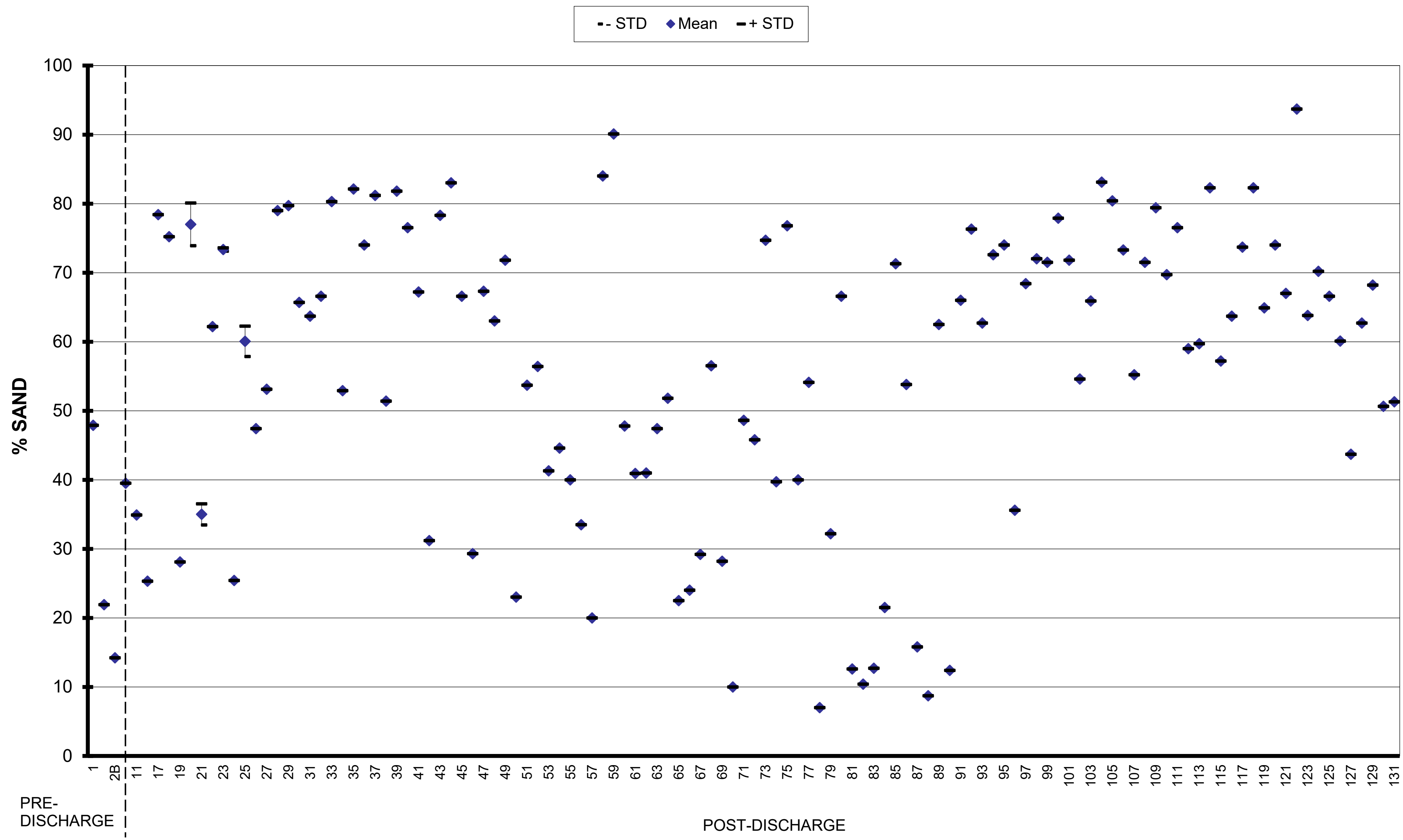
TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - R1/R2

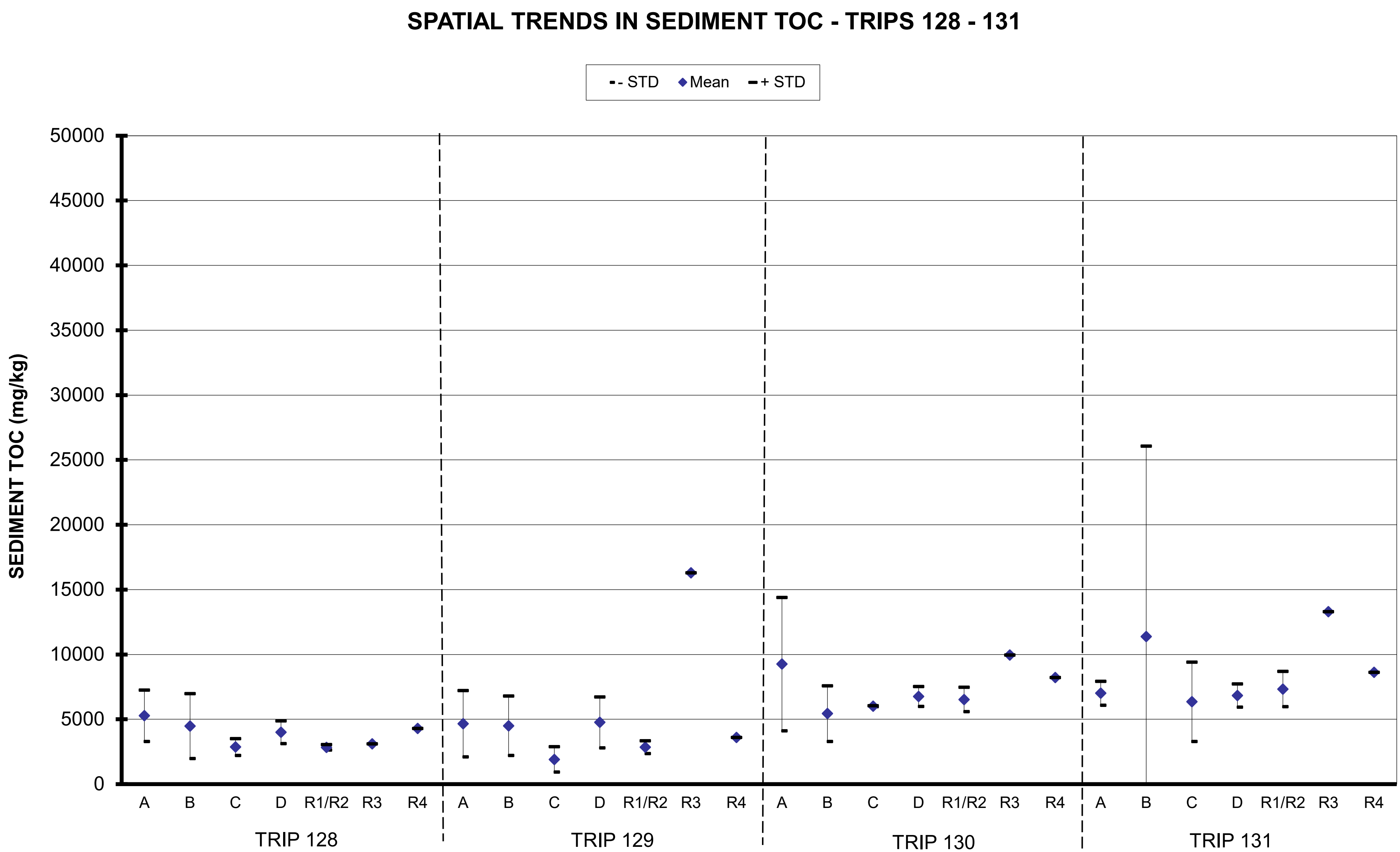




TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - R3
- STD
Mean
+ STD
% SAND
PRE-
DISCHARGE
POST-DISCHARGE

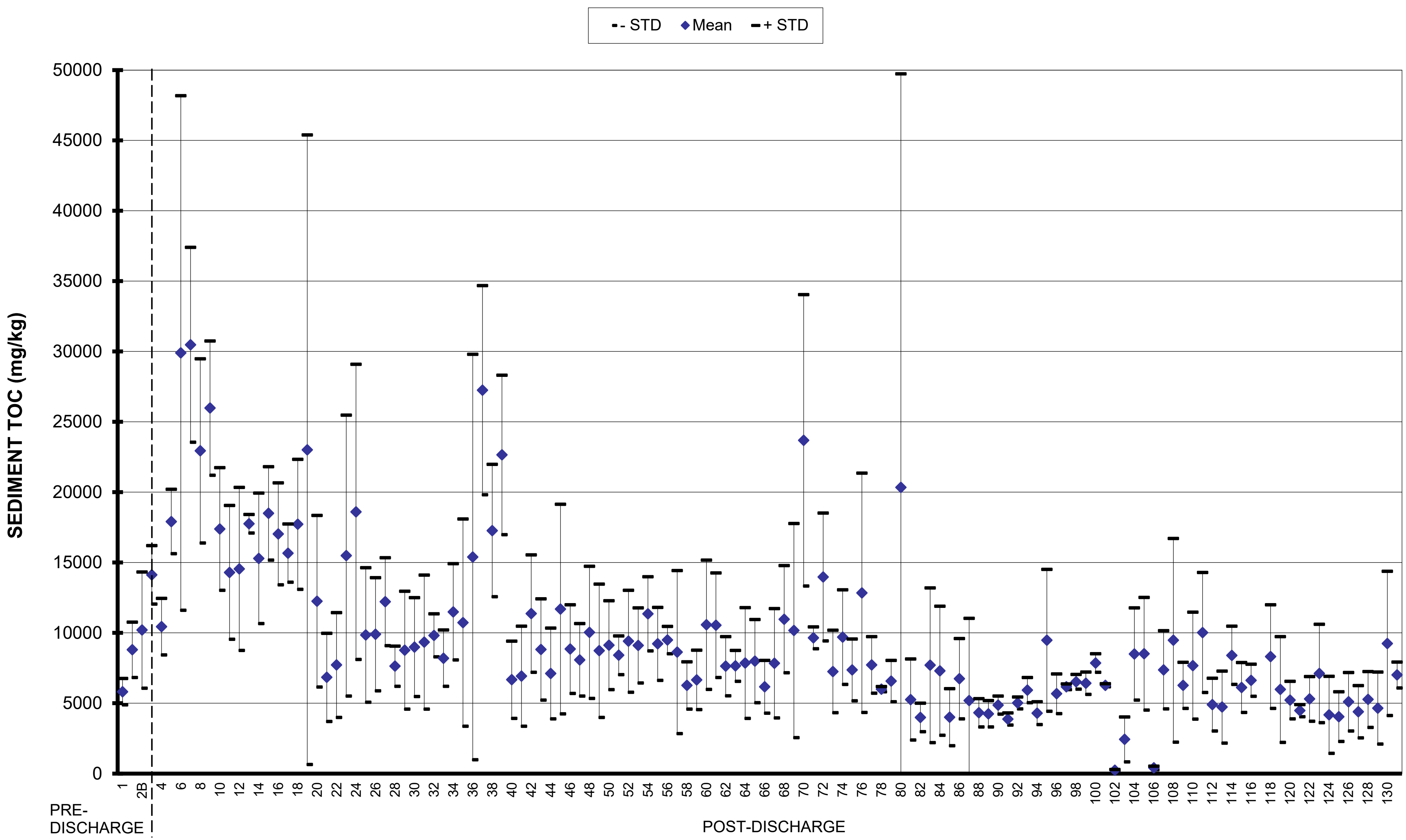
TEMPORAL TRENDS IN % SAND - TRIPS 1-131 - R4



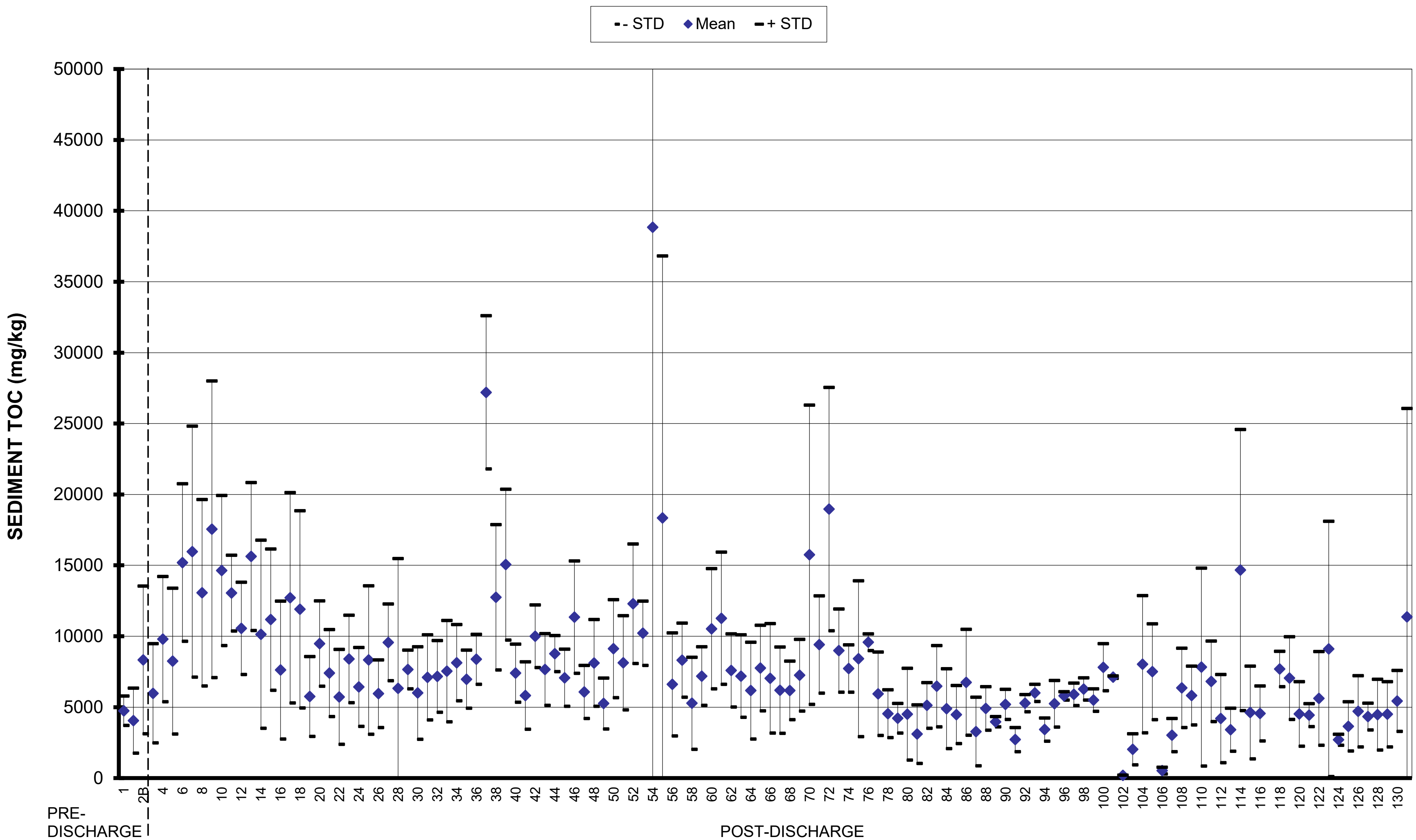


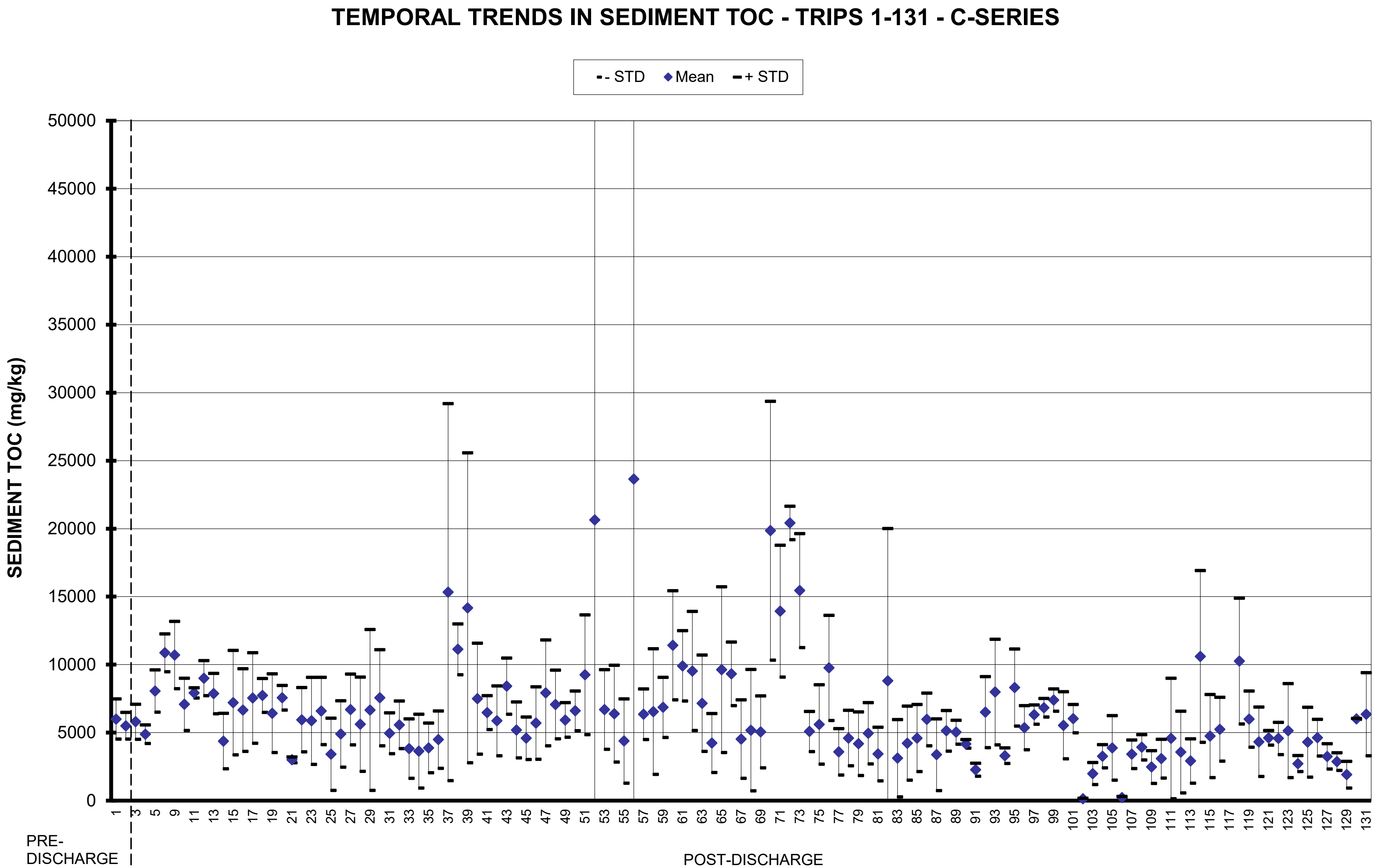
SPATIAL TRENDS IN SEDIMENT TOC - TRIPS 128 - 131
- STD
Mean
+ STD
SEDIMENT TOC (mg/kg)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
A B C D R1/R2 R3 R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - A-SERIES

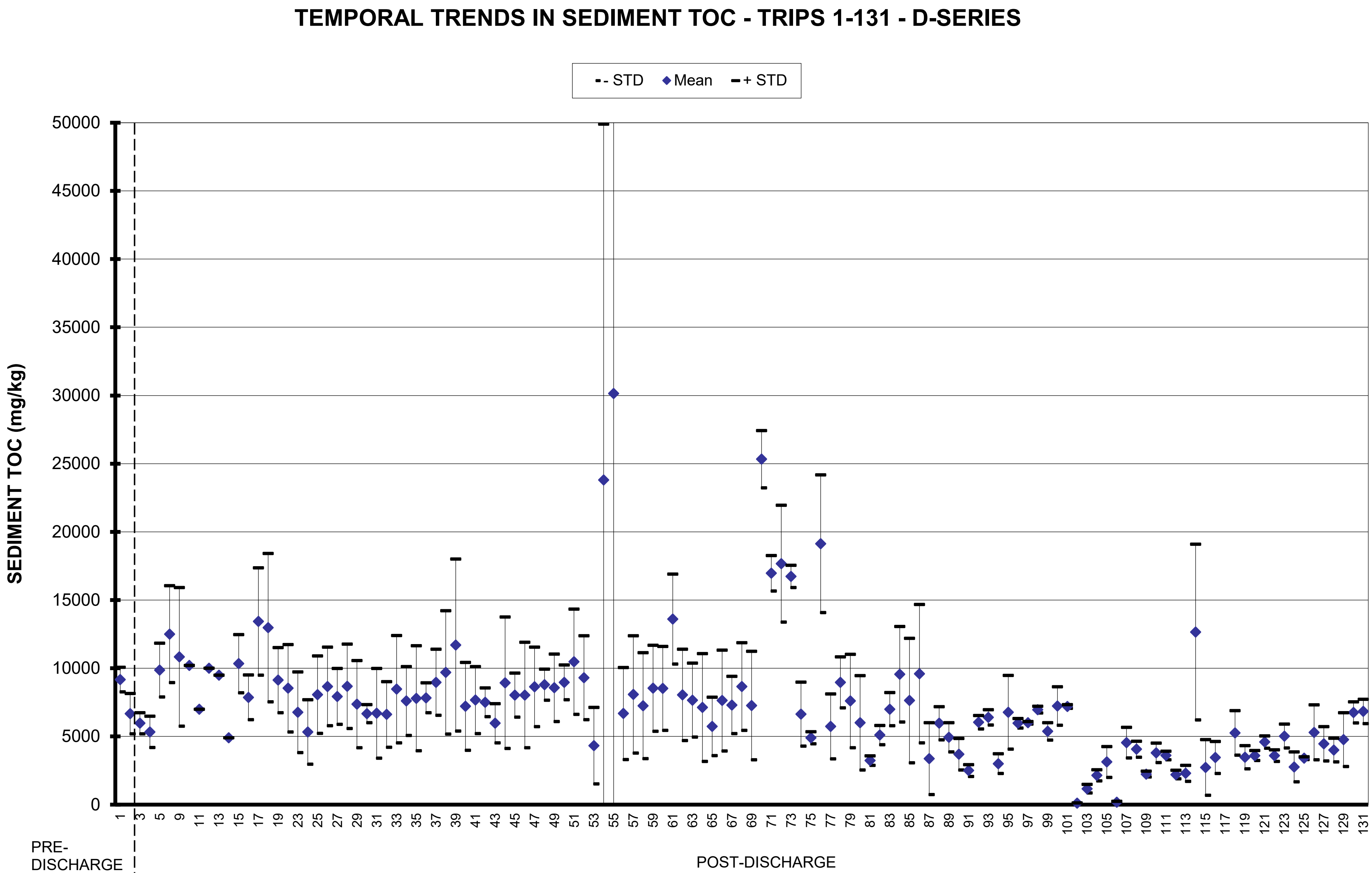


TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - B-SERIES



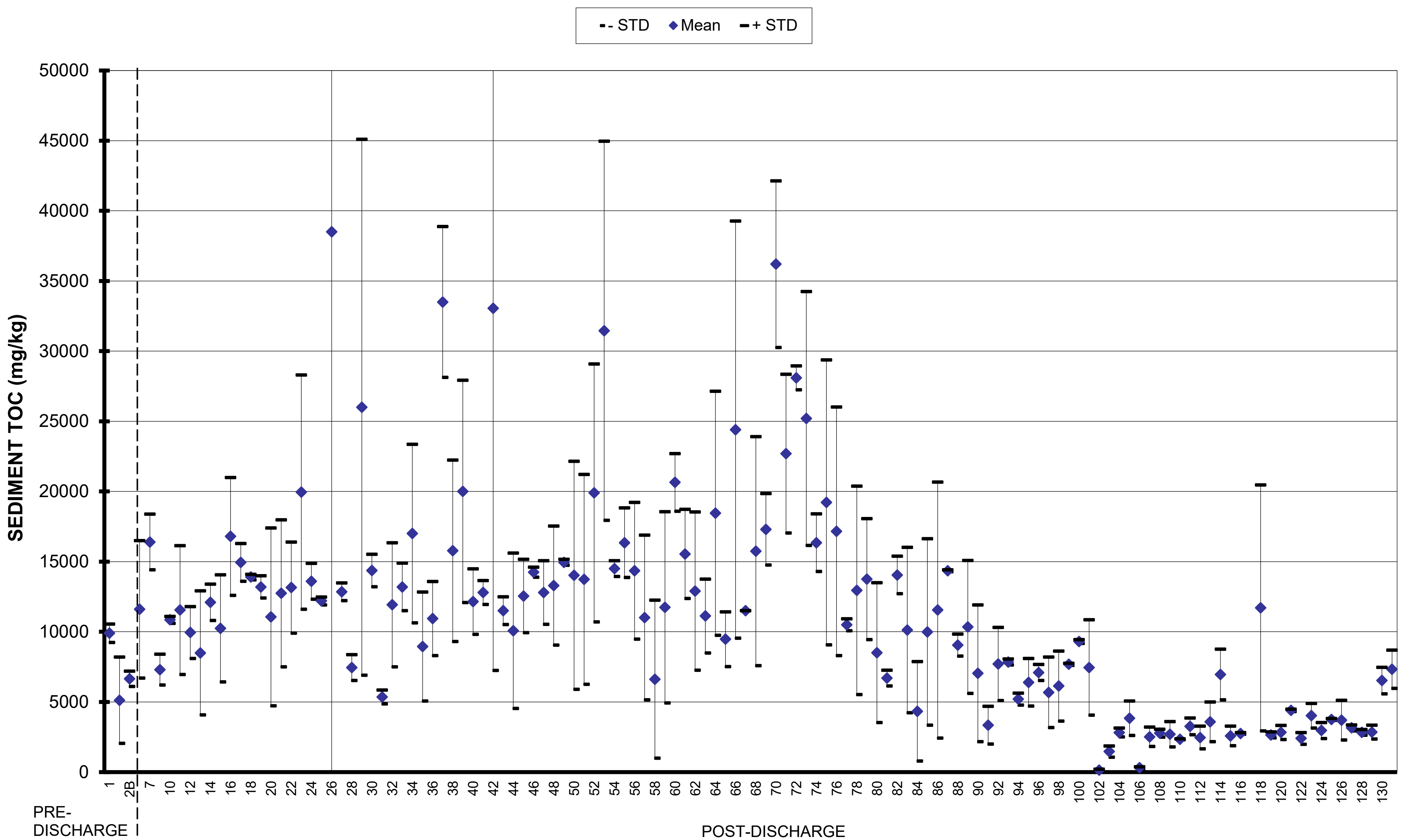


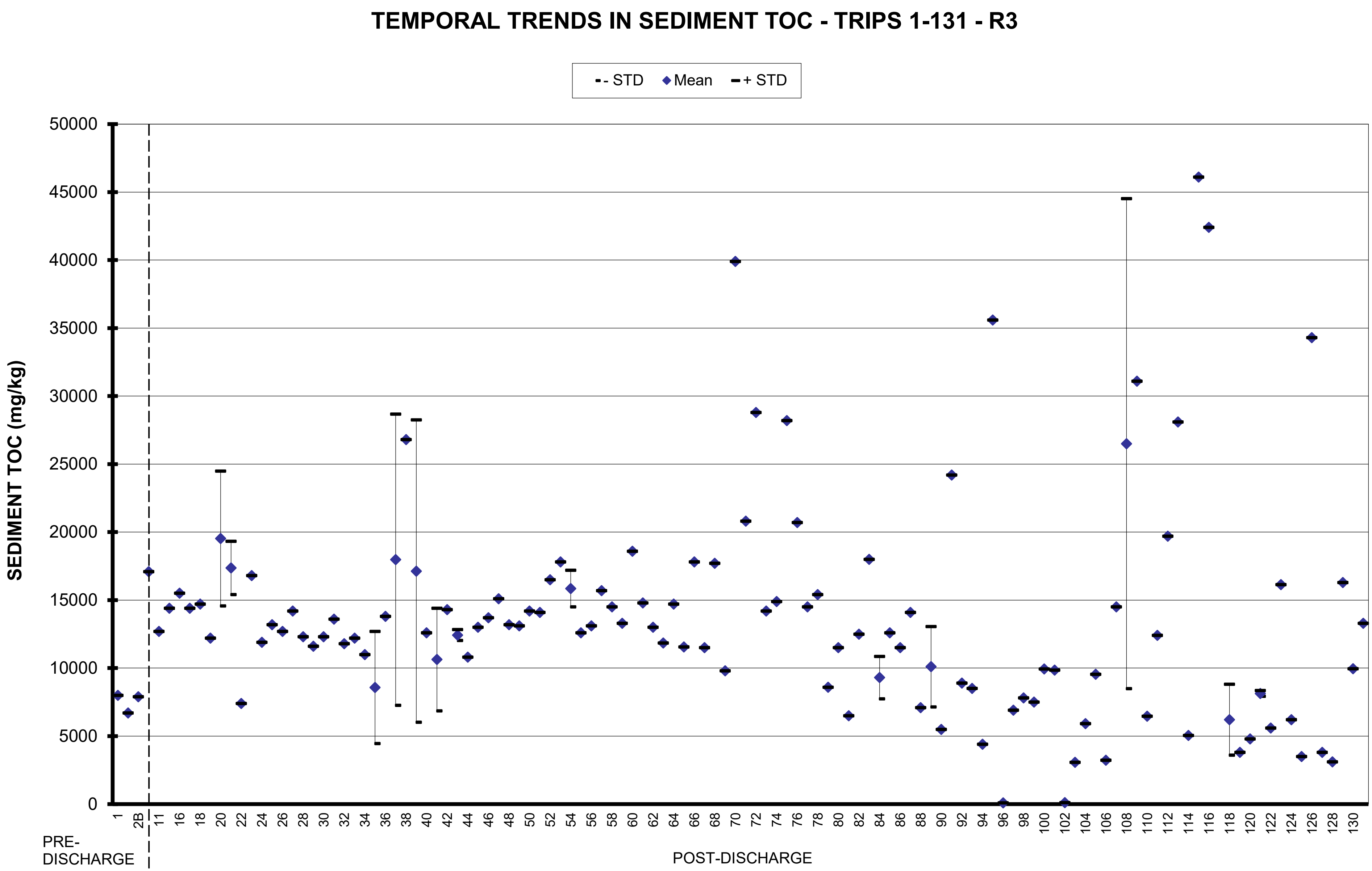
TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
SEDIMENT TOC (mg/kg)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-DISCHARGE
POST-DISCHARGE

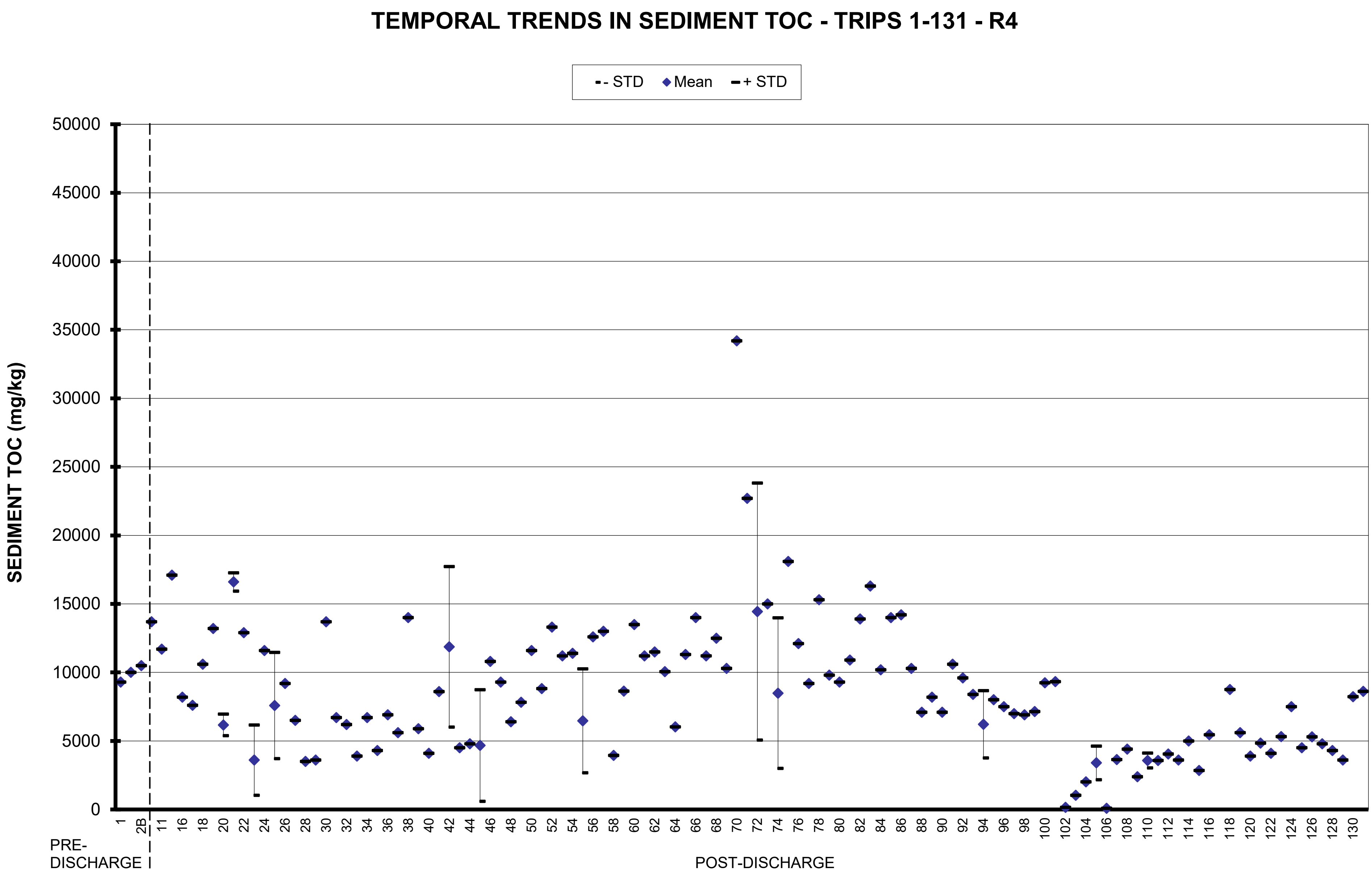


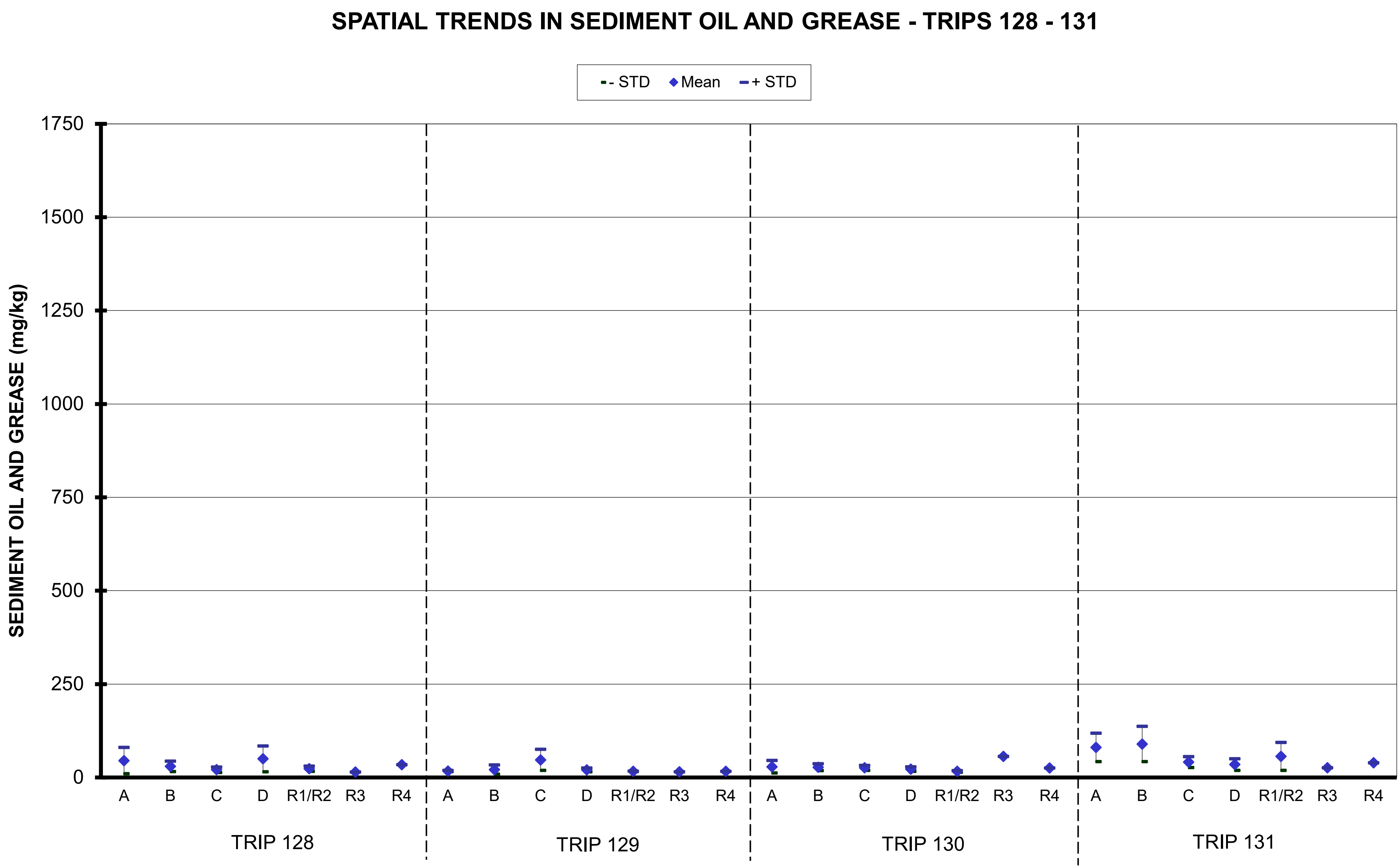
TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - D-SERIES
- STD
Mean
+ STD
SEDIMENT TOC (mg/kg)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-
DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - R1/R2

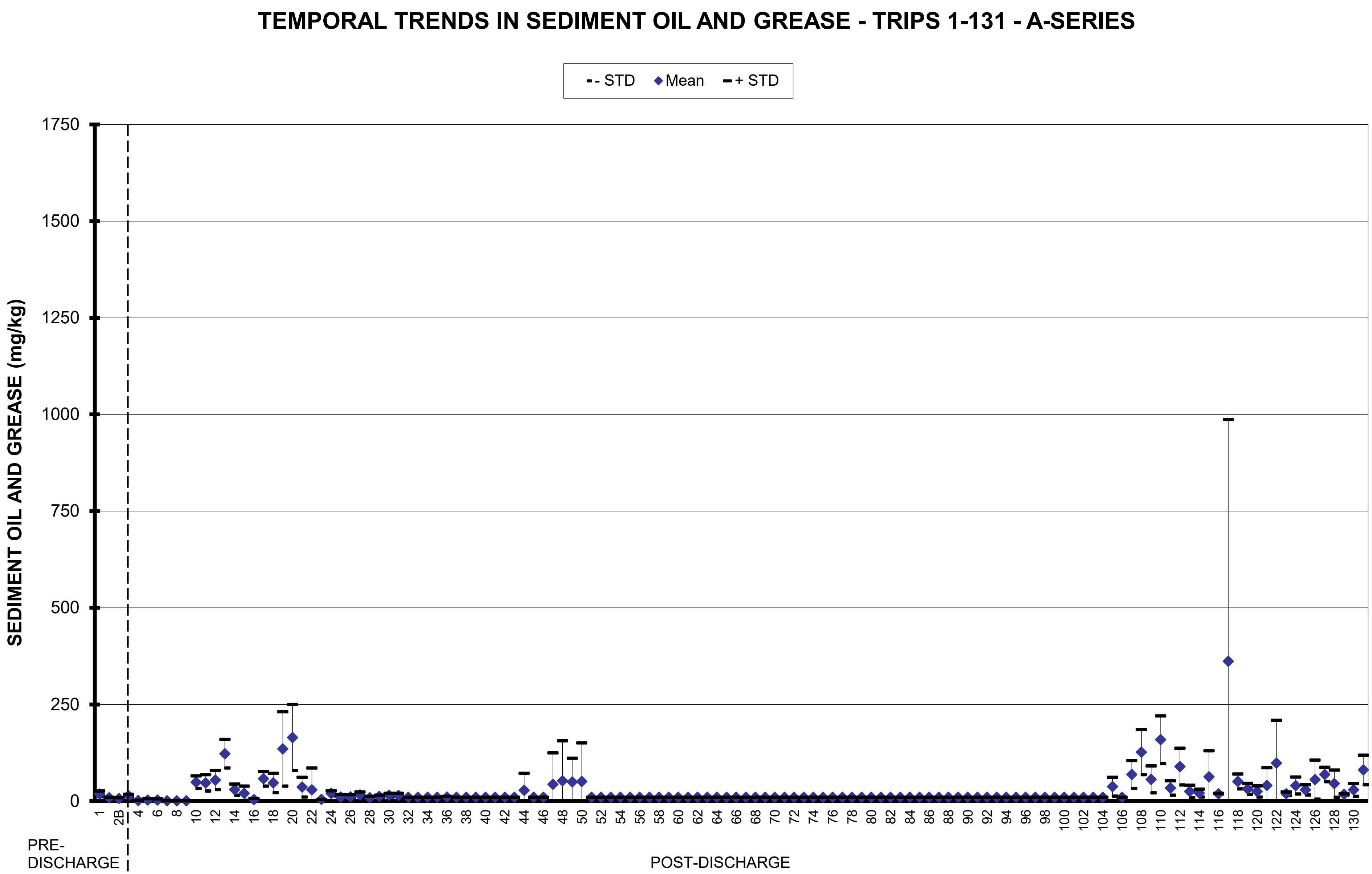



TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - R3
- STD
Mean
+ STD
SEDIMENT TOC (mg/kg)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-DISCHARGE
POST-DISCHARGE

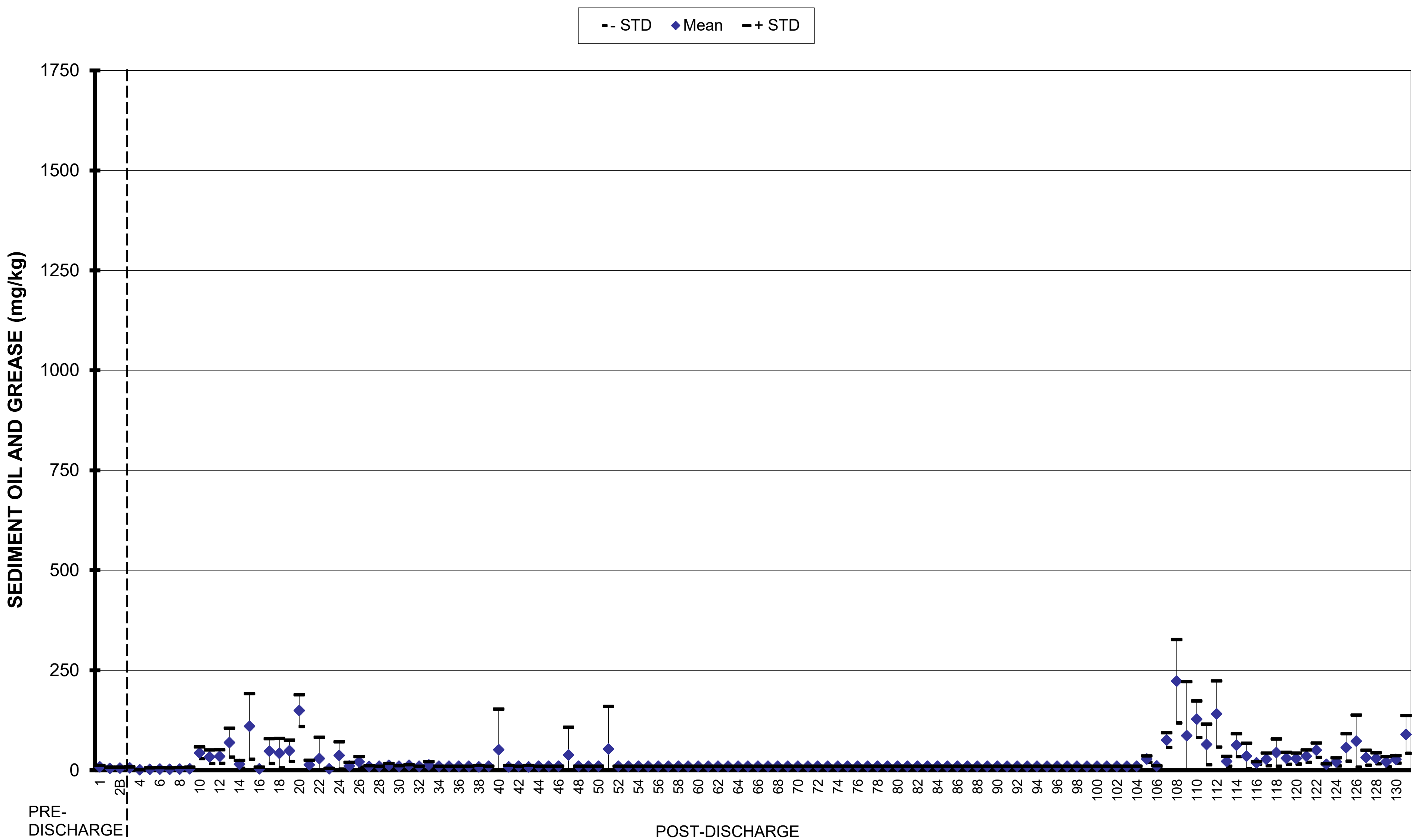

TEMPORAL TRENDS IN SEDIMENT TOC - TRIPS 1-131 - R4
- STD
Mean
+ STD
SEDIMENT TOC (mg/kg)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-DISCHARGE
POST-DISCHARGE

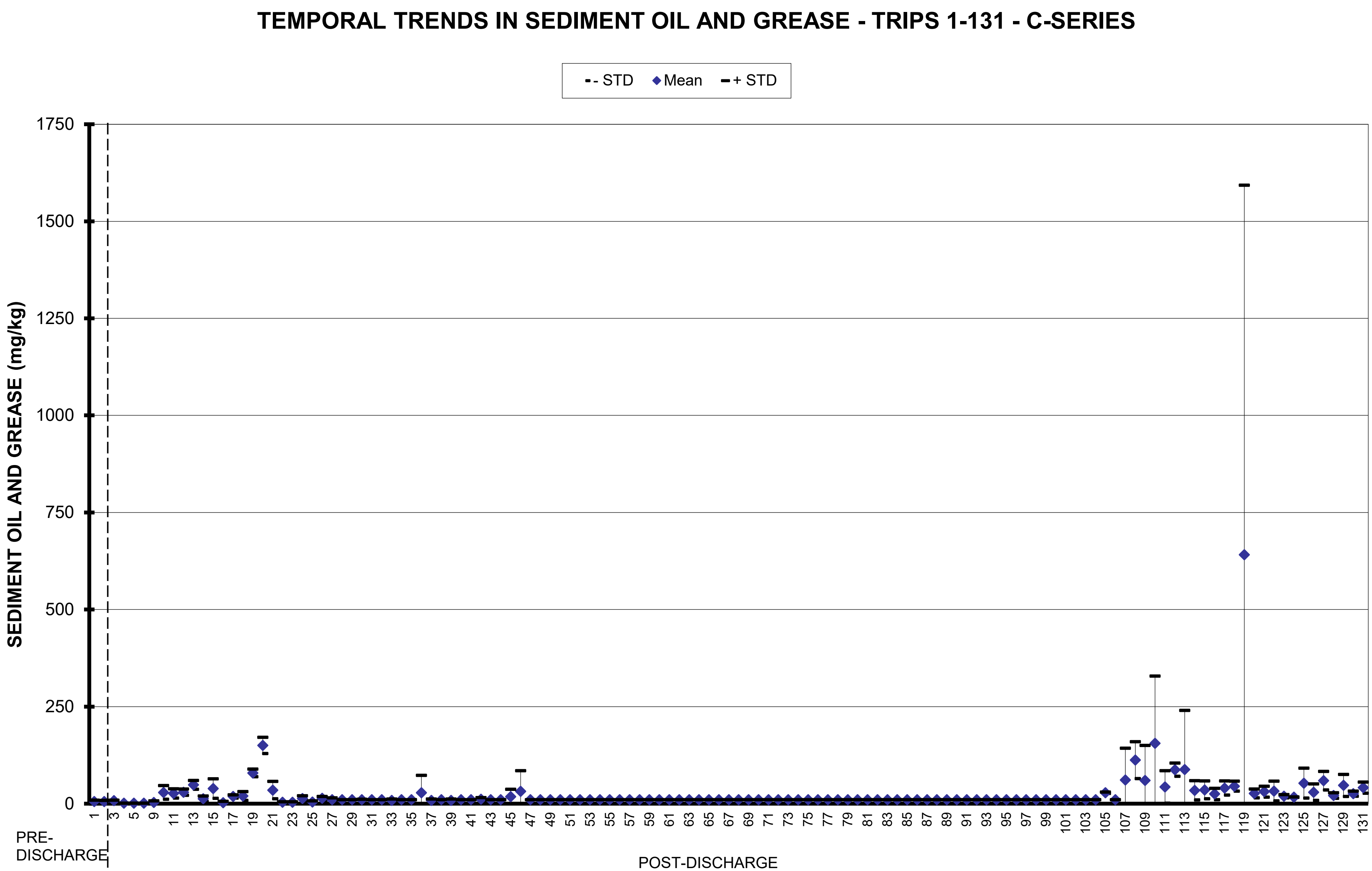


SPATIAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 128 - 131
- STD
Mean
+ STD
SEDIMENT OIL AND GREASE (mg/kg)
1750
1500
1250
1000
750
500
250
0
A B C D R1/R2 R3 R4
A B C D R1/R2 R3 R4
A B C D R1/R2 R3 R4
A B C D R1/R2 R3 R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

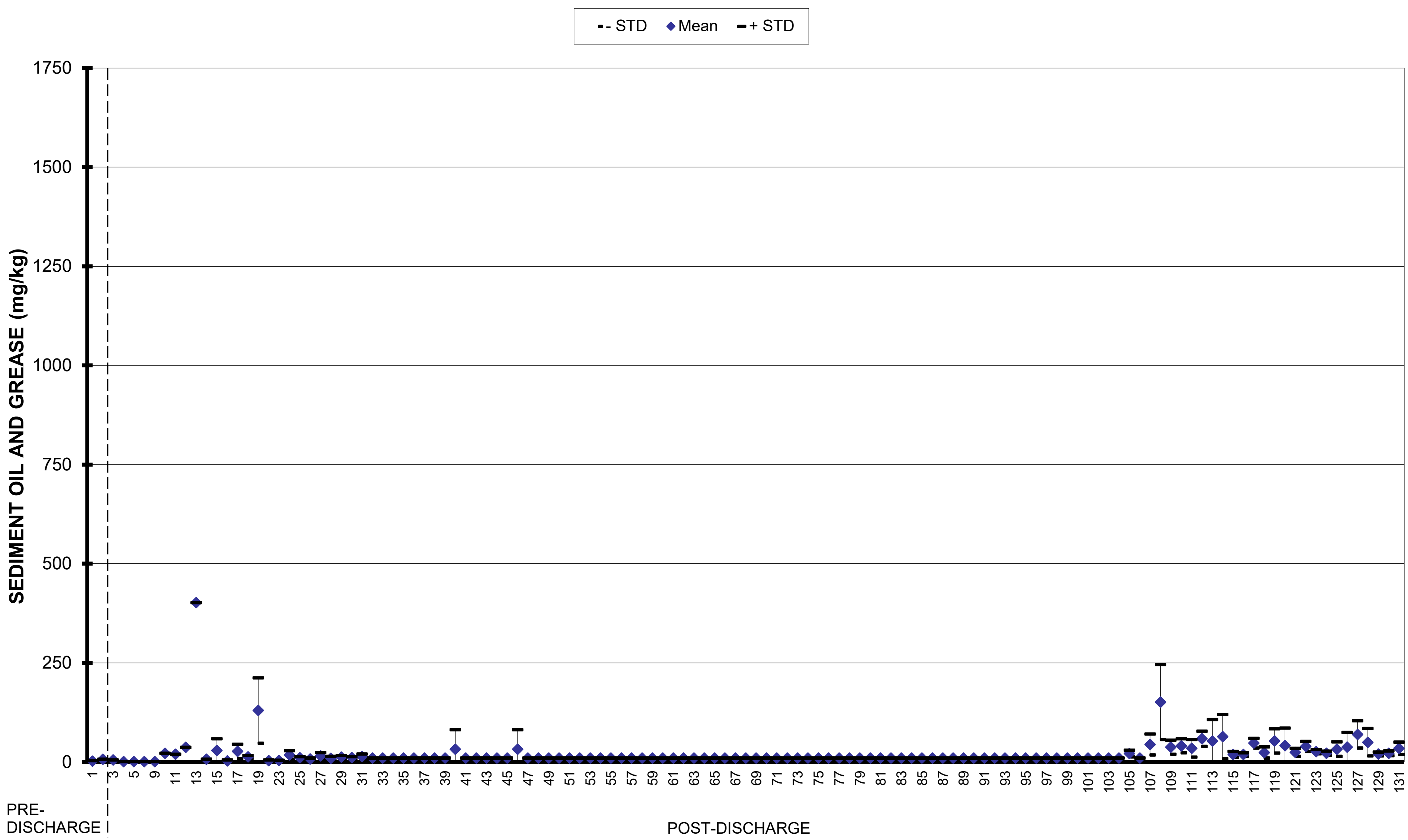

TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - A-SERIES
- STD
Mean
+ STD
SEDIMENT OIL AND GREASE (mg/kg)
1750
1500
1250
1000
750
500
250
0
PRE-DISCHARGE
POST-DISCHARGE

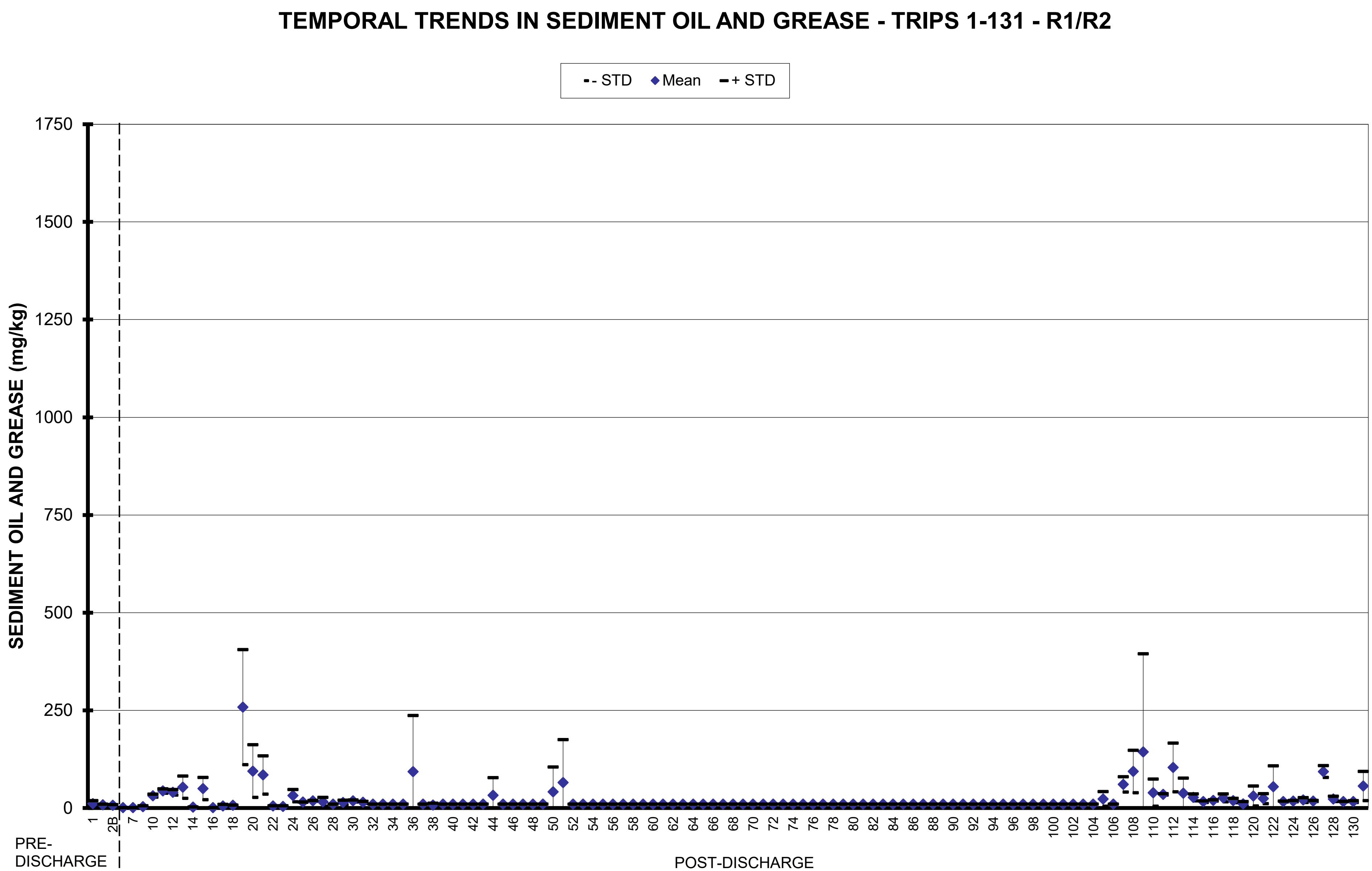
TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - B-SERIES




TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
SEDIMENT OIL AND GREASE (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

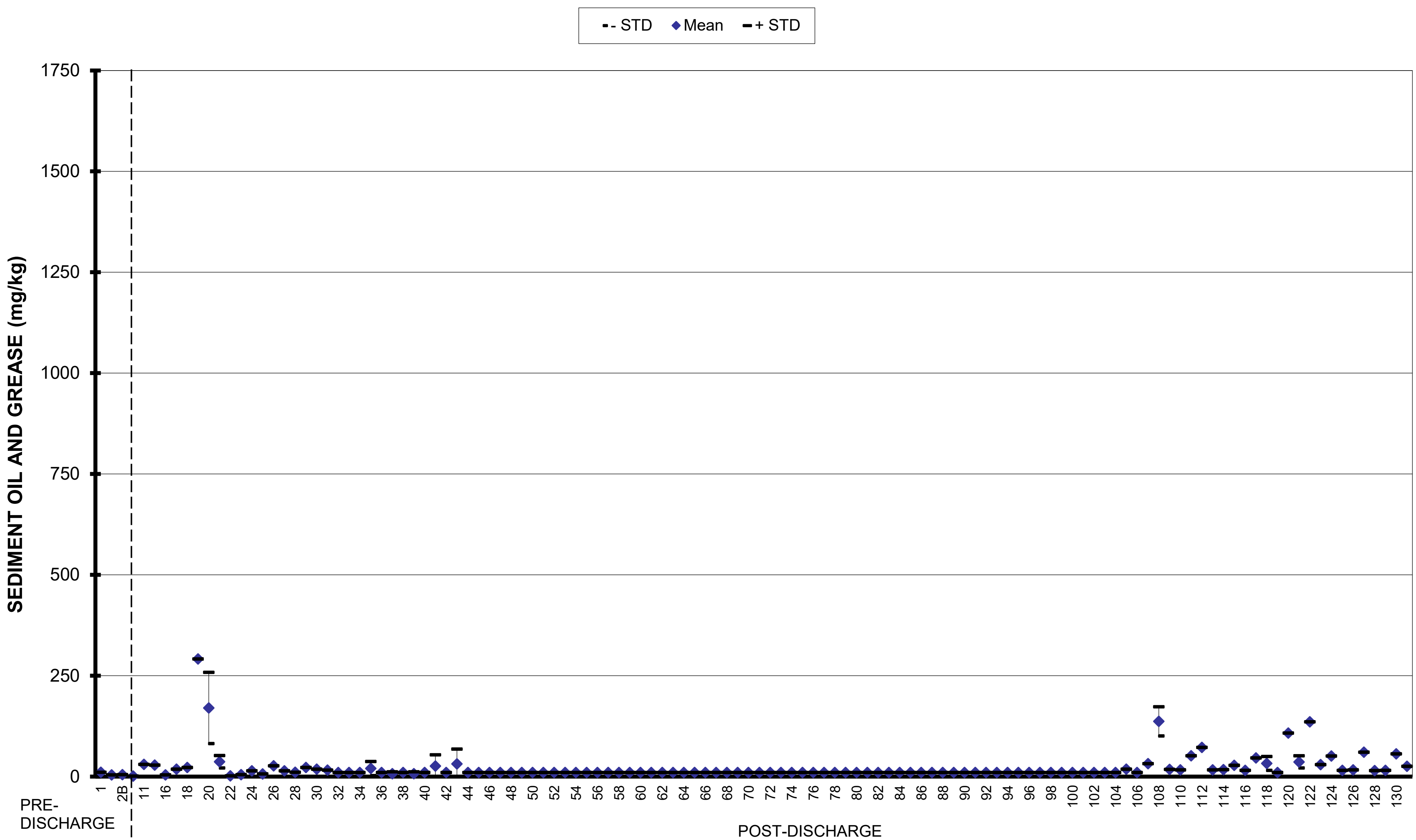
TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - D-SERIES



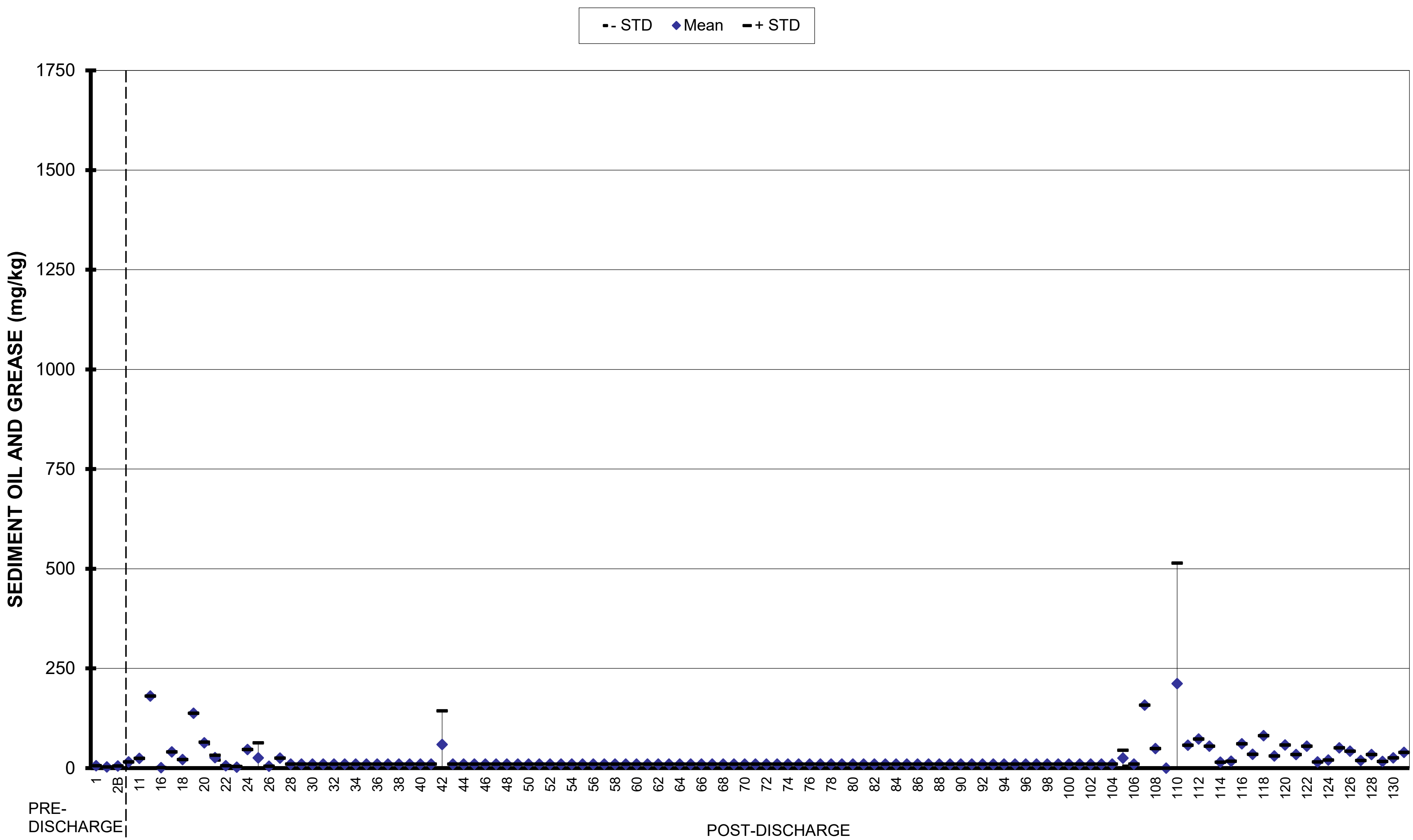


TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
SEDIMENT OIL AND GREASE (mg/kg)
1750
1500
1250
1000
750
500
250
0
PRE-
DISCHARGE
POST-DISCHARGE

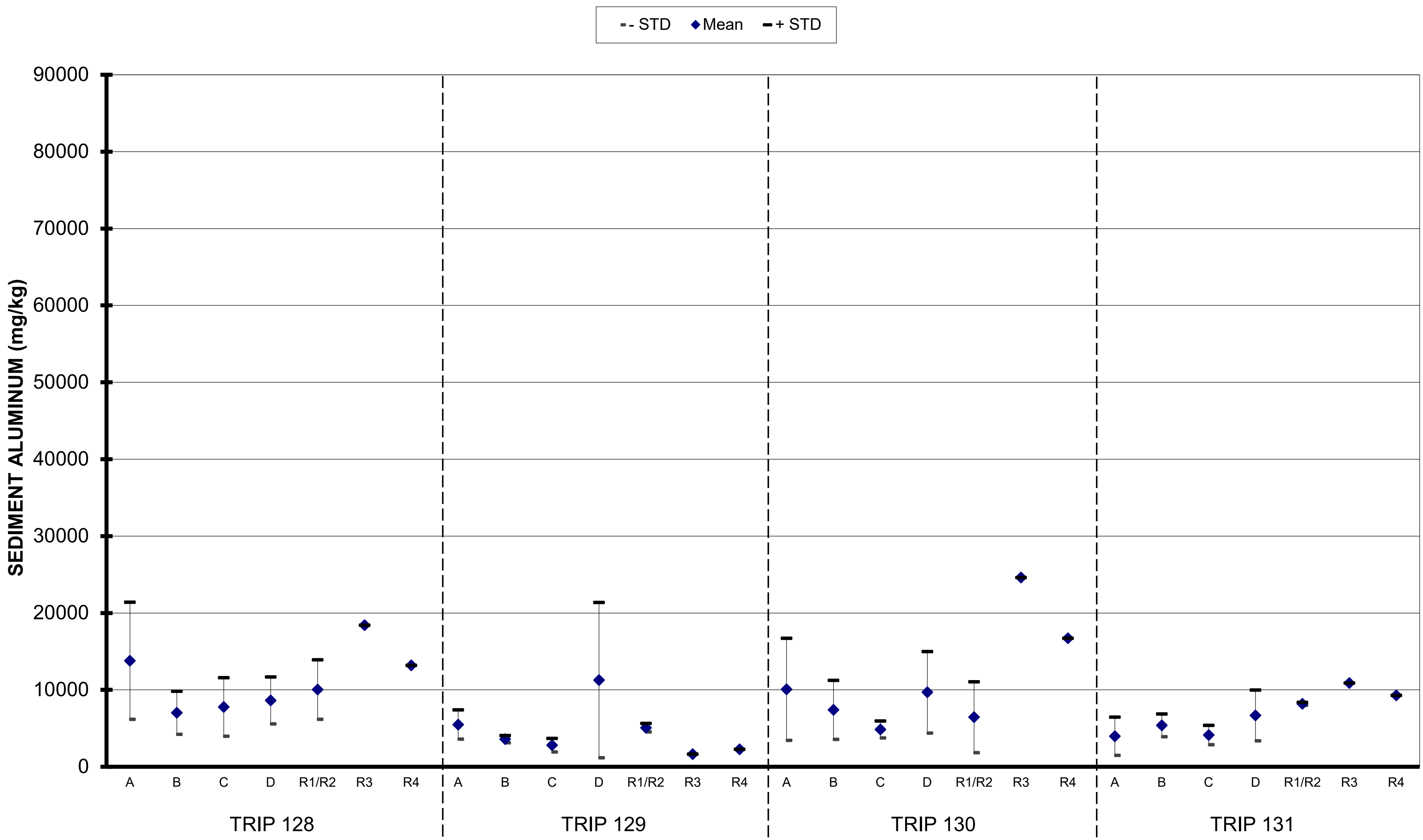
TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - R3

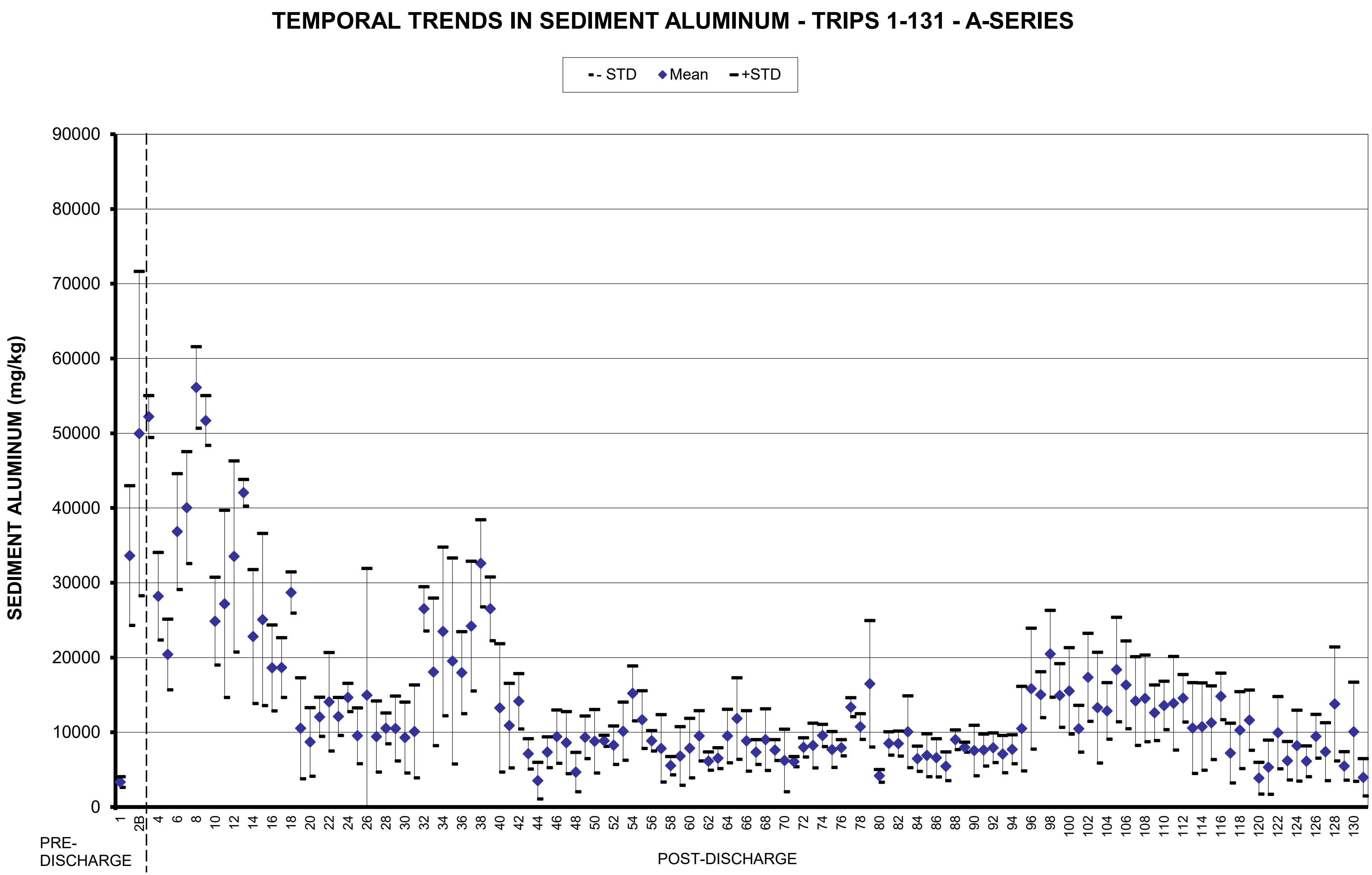


TEMPORAL TRENDS IN SEDIMENT OIL AND GREASE - TRIPS 1-131 - R4

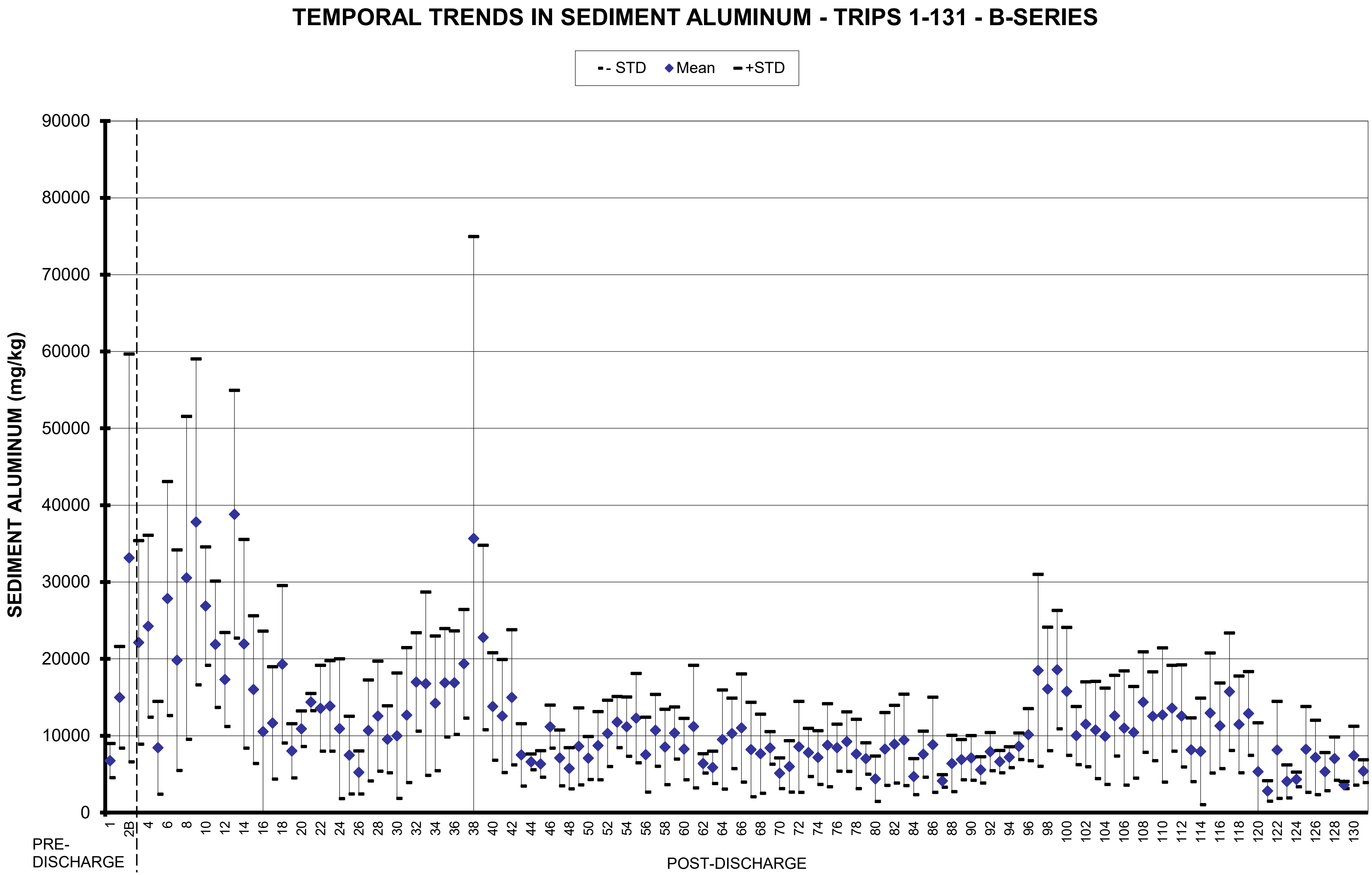


SPATIAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 128-131

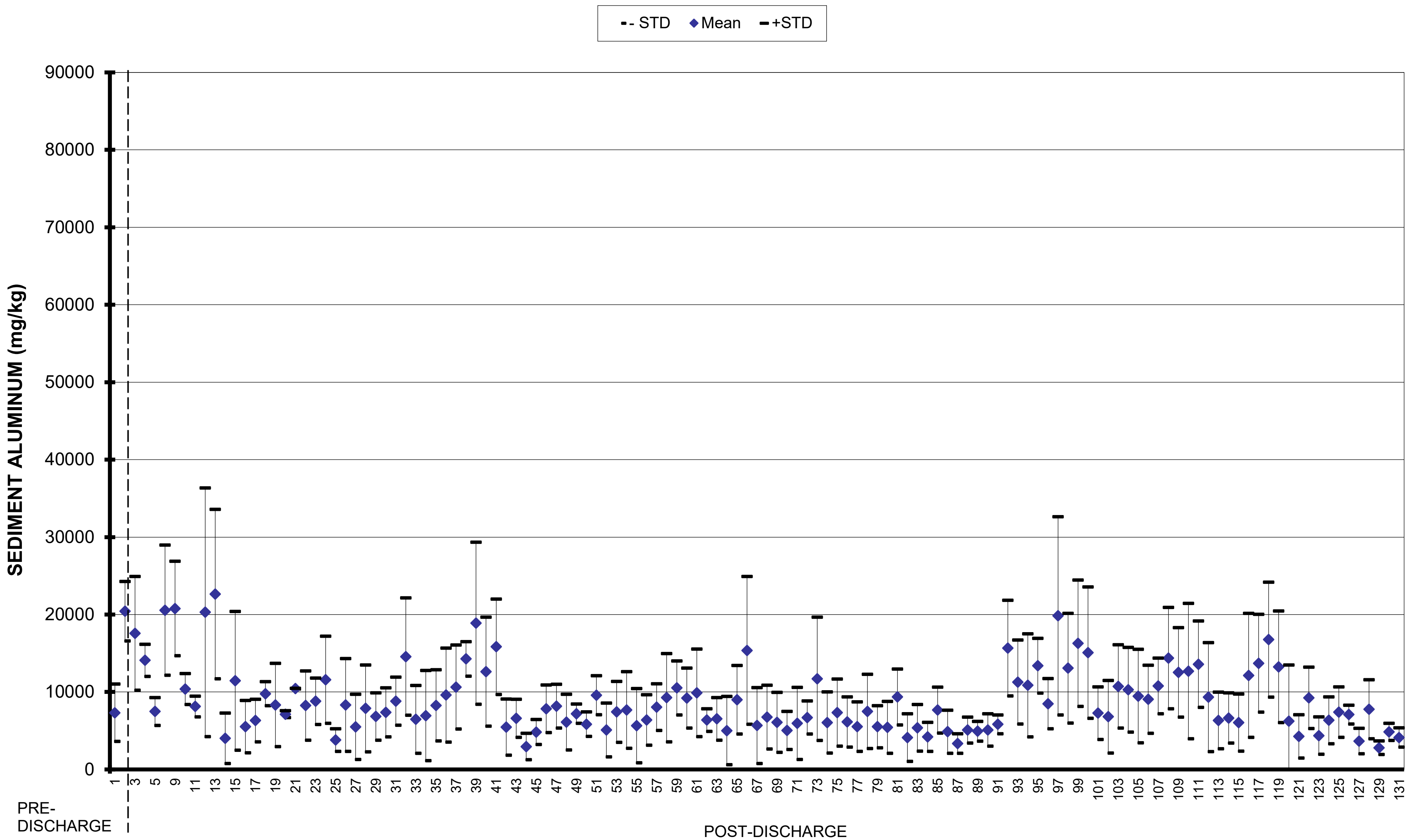


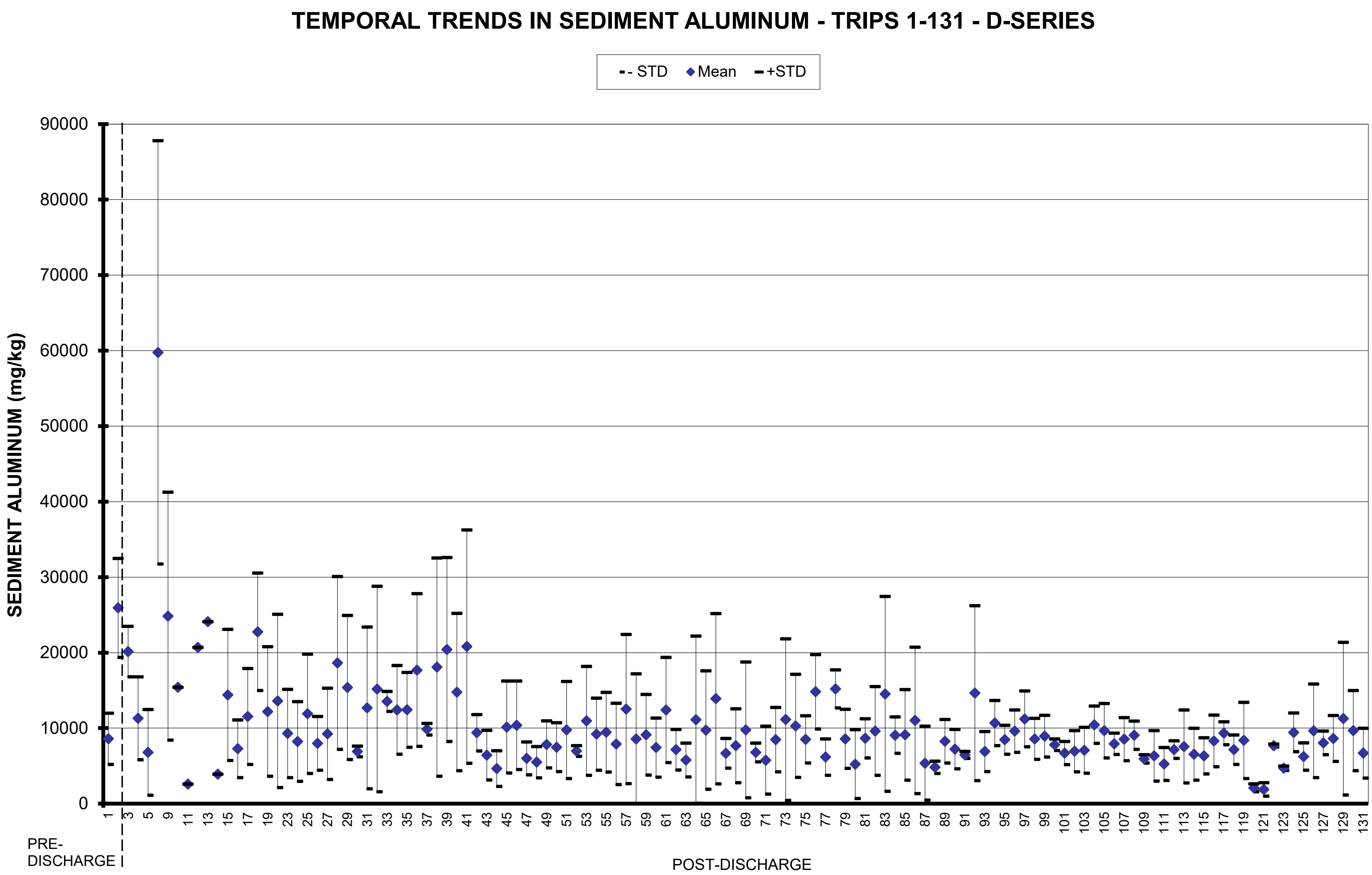


TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - A-SERIES
- STD
Mean
+STD
SEDIMENT ALUMINUM (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
PRE-DISCHARGE
POST-DISCHARGE

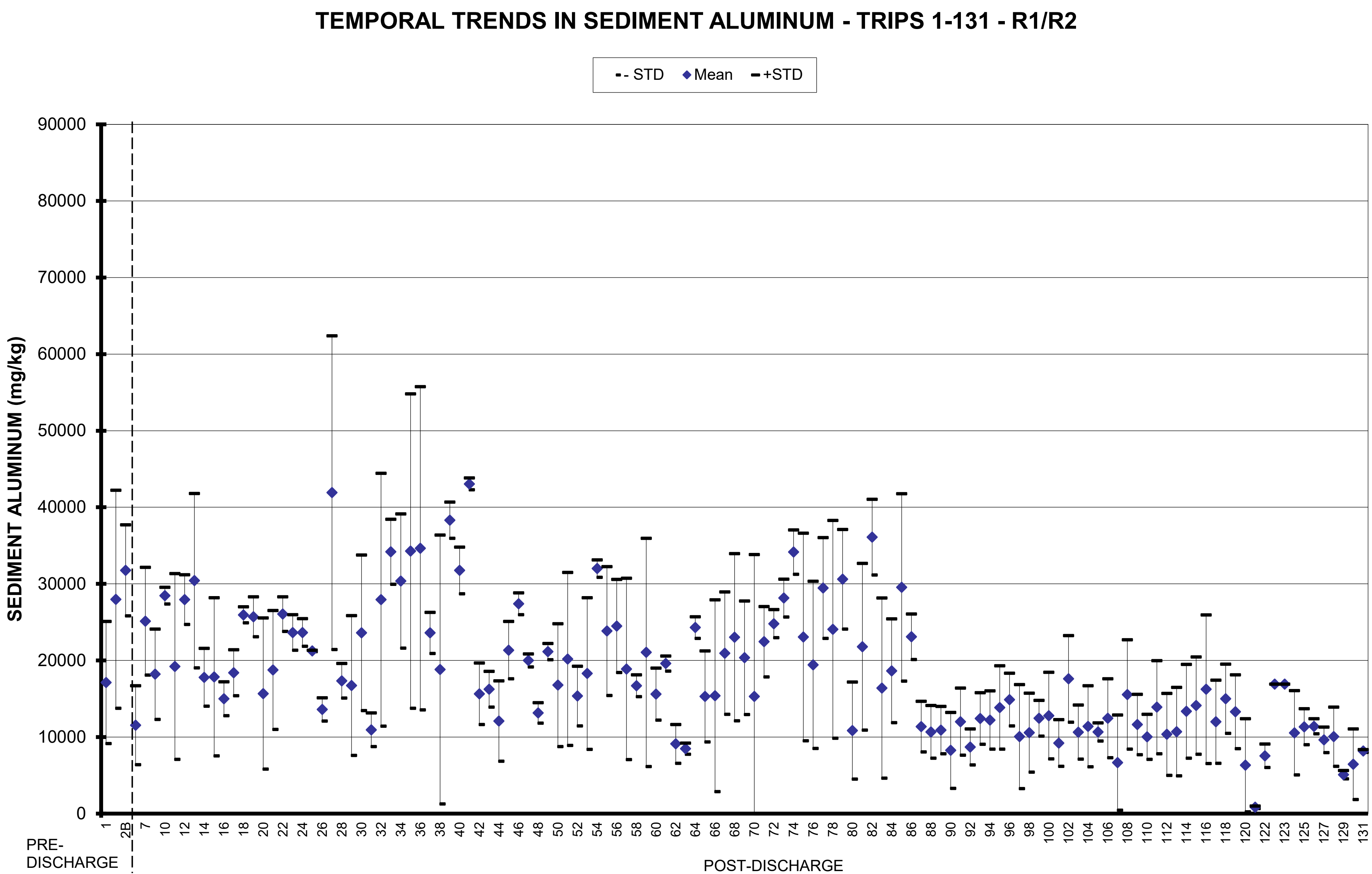

TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT ALUMINUM (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - C-SERIES

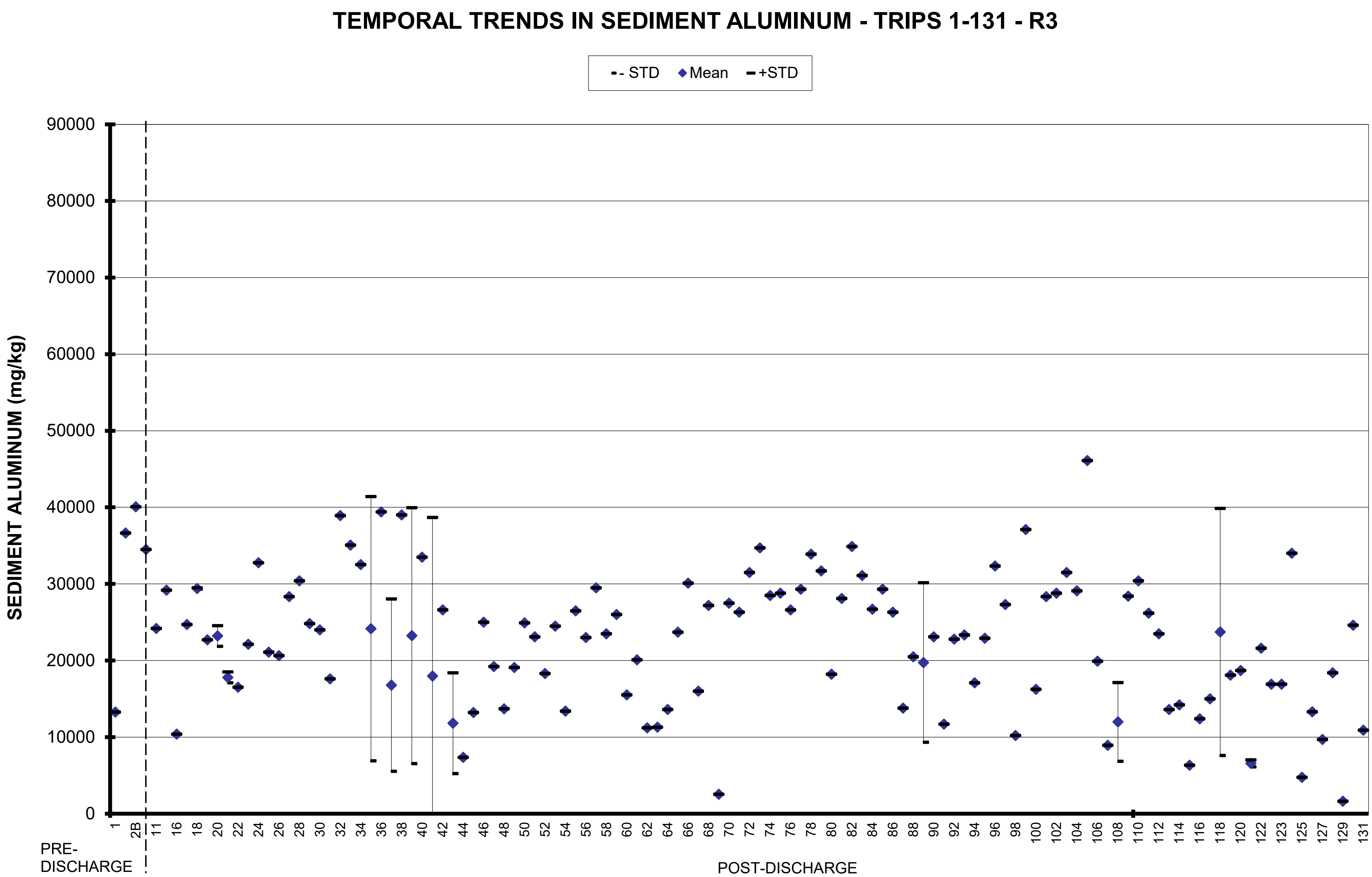




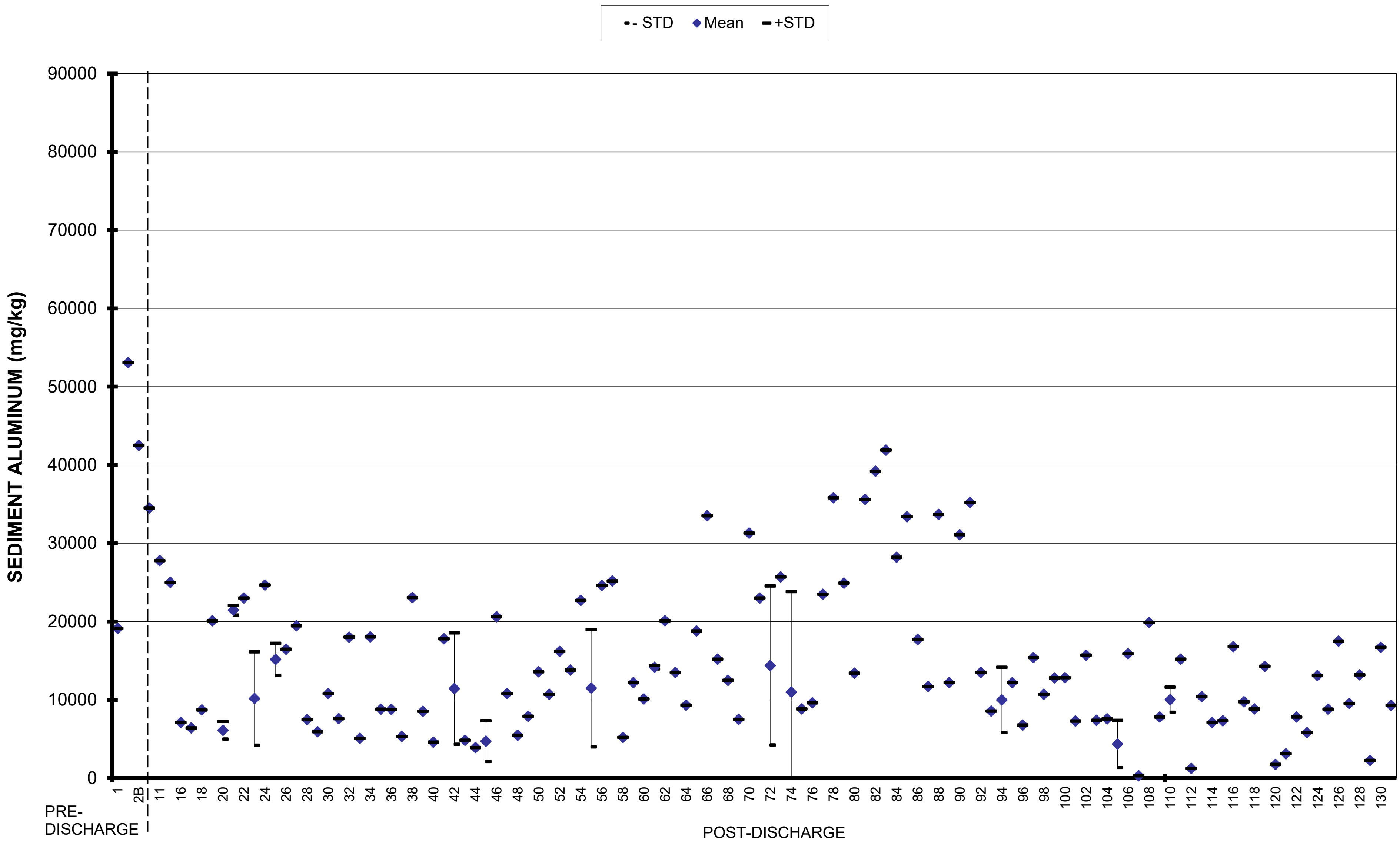
TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - D-SERIES
- STD
Mean
+STD
SEDIMENT ALUMINUM (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
PRE-DISCHARGE
POST-DISCHARGE

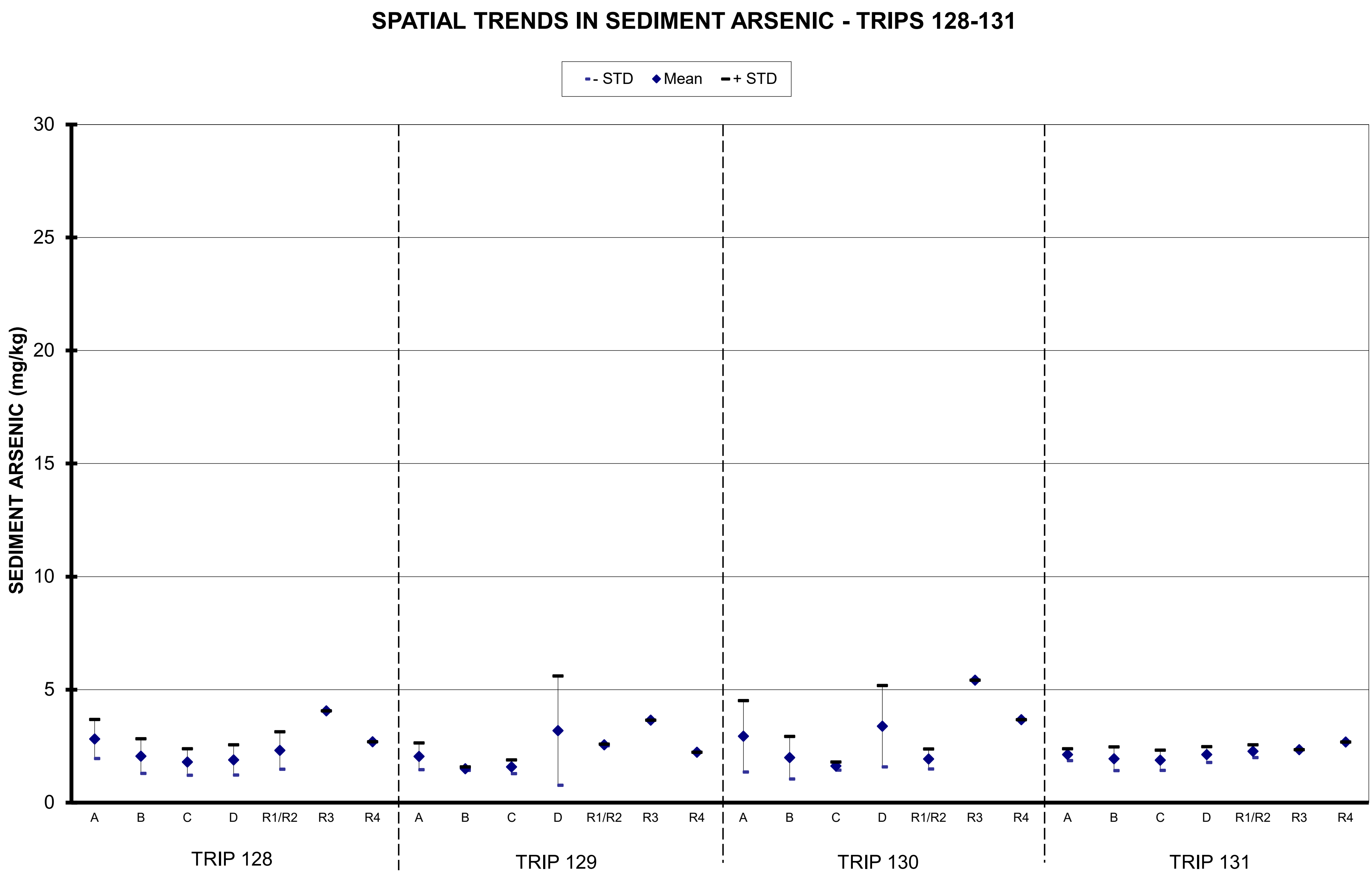


TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT ALUMINUM (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
PRE-DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - R3
- STD
Mean
+STD
SEDIMENT ALUMINUM (mg/kg)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
PRE-DISCHARGE
POST-DISCHARGE

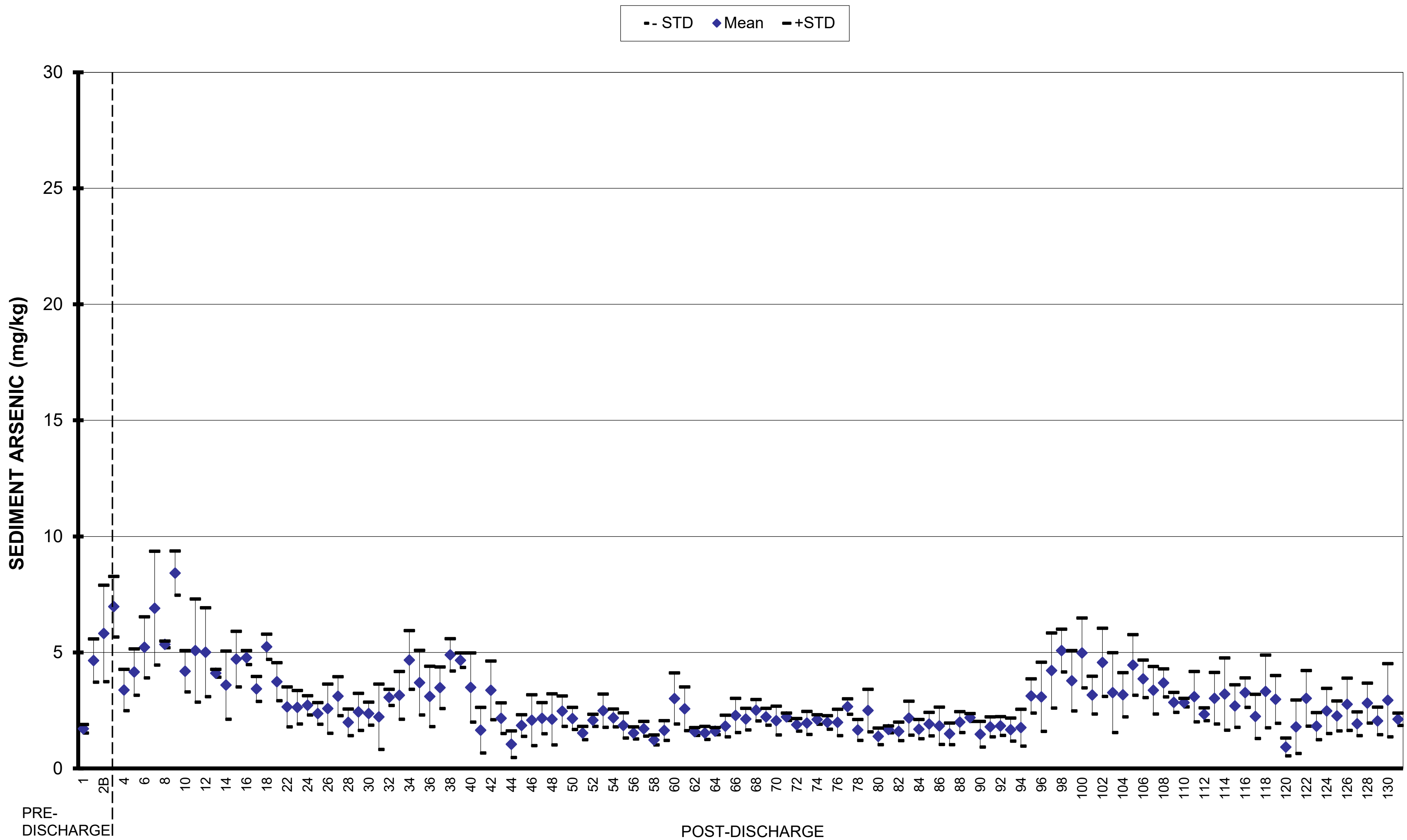
TEMPORAL TRENDS IN SEDIMENT ALUMINUM - TRIPS 1-131 - R4

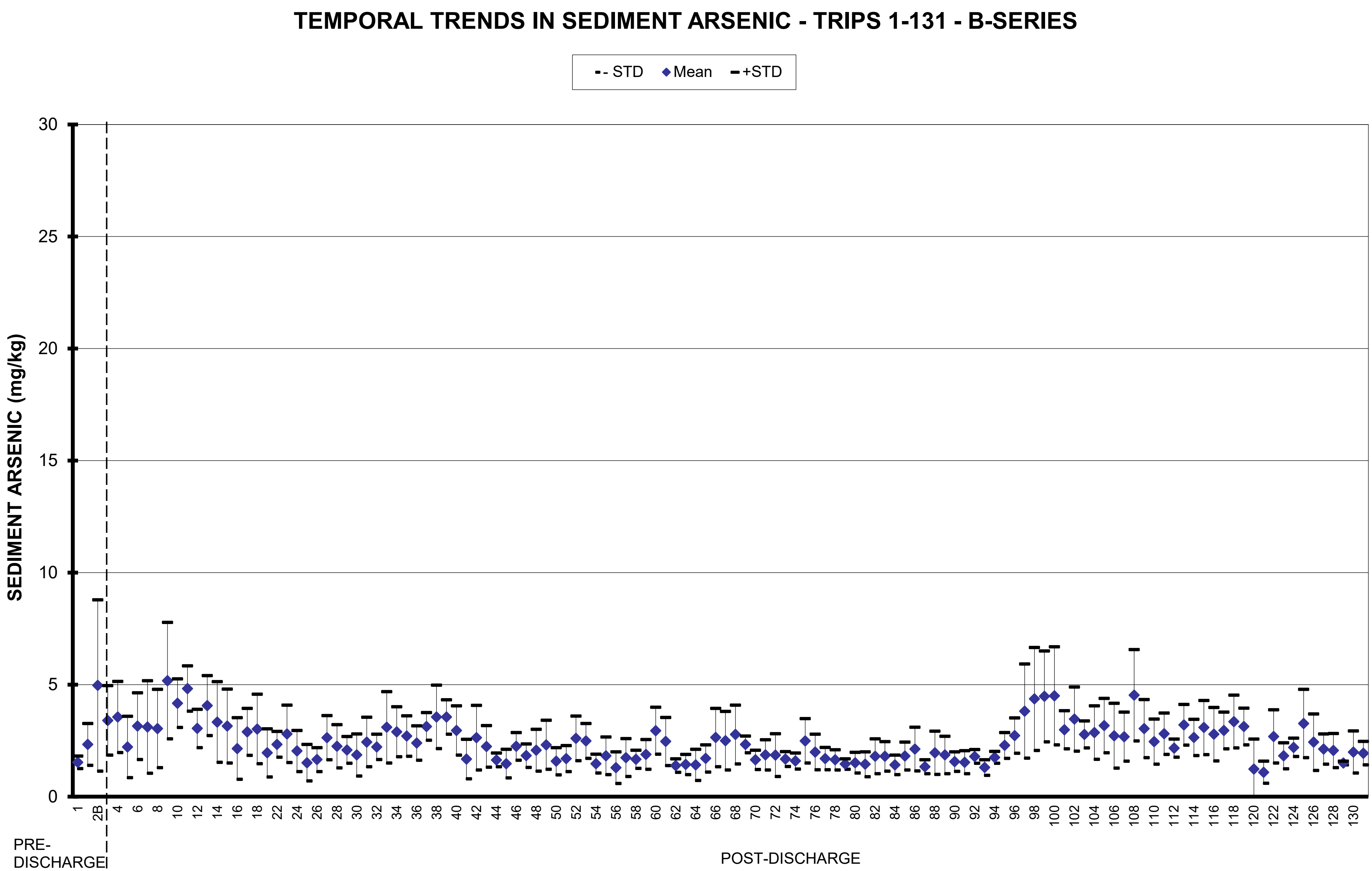




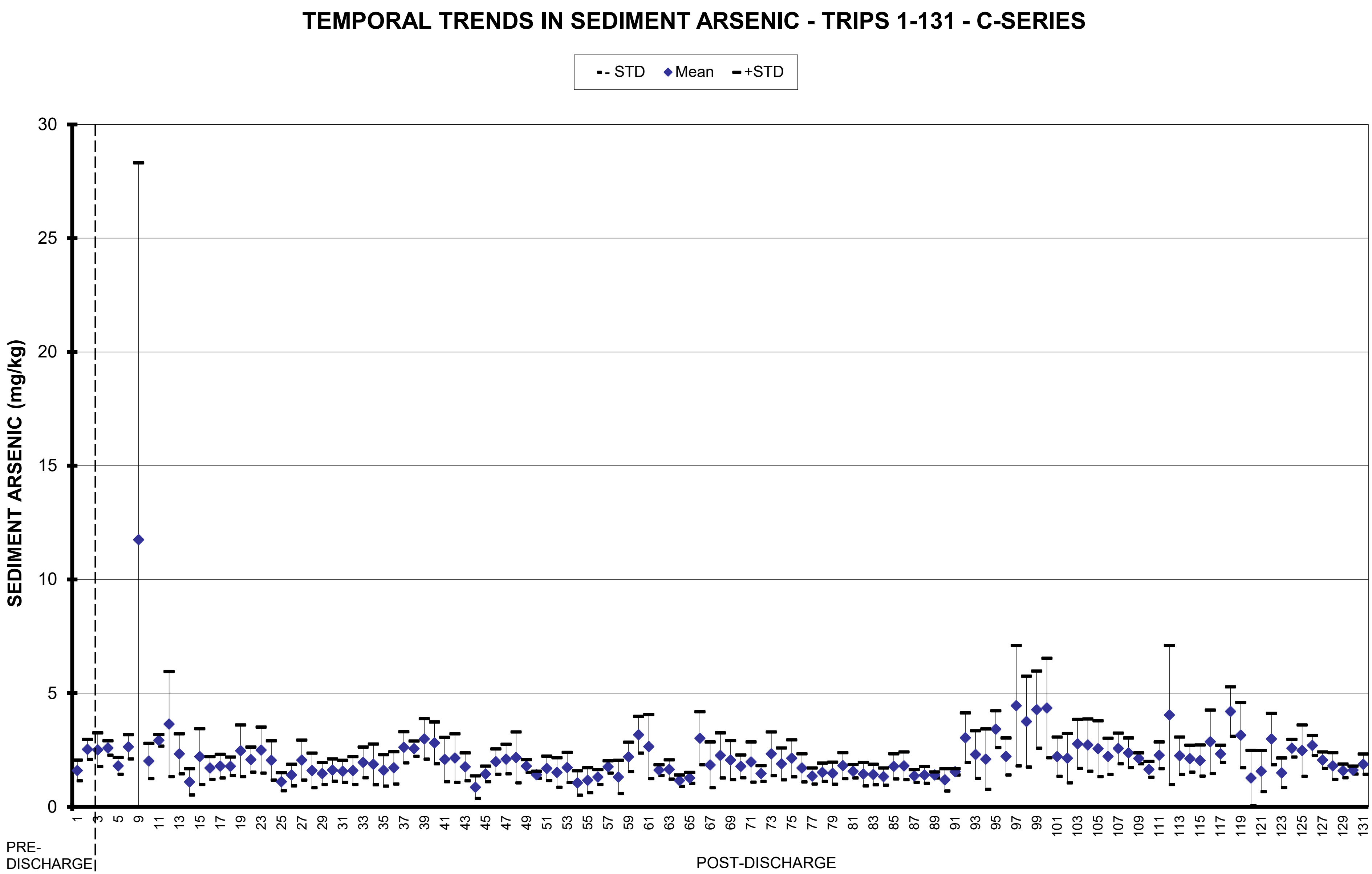
SPATIAL TRENDS IN SEDIMENT ARSENIC - TRIPS 128-131
- STD
Mean
+ STD
SEDIMENT ARSENIC (mg/kg)
30
25
20
15
10
5
0
A B C D R1/R2 R3 R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - A-SERIES

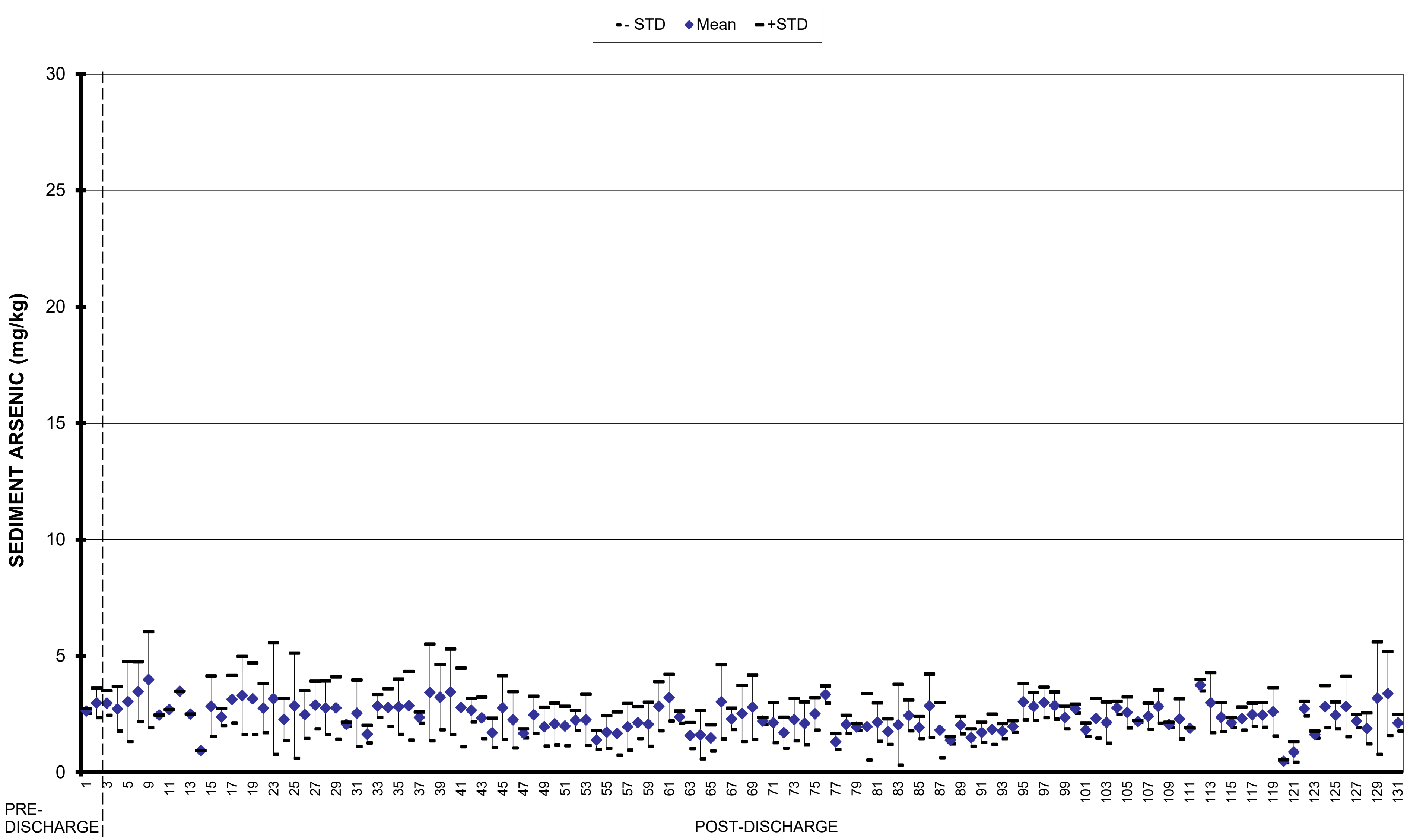


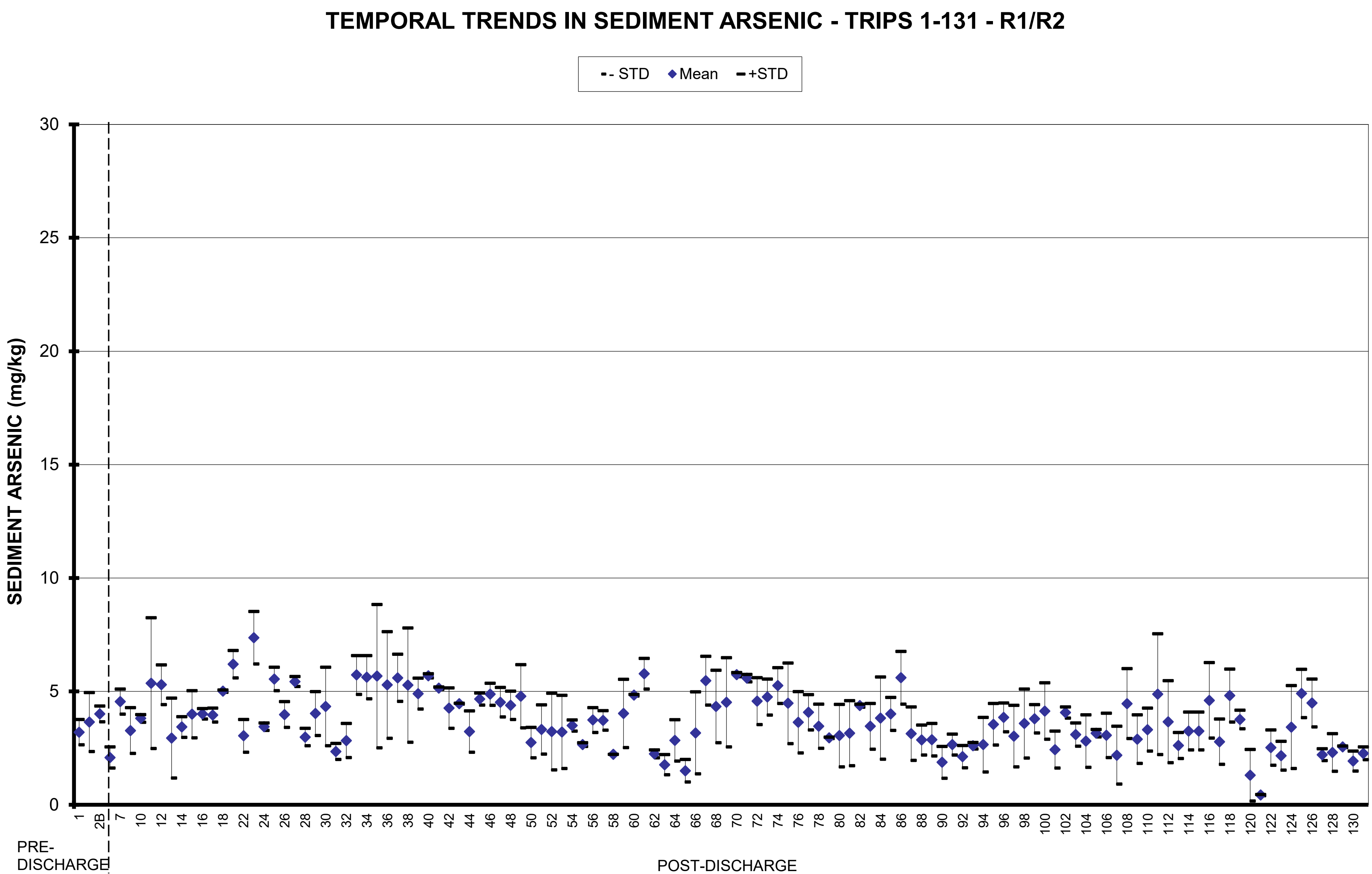


TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT ARSENIC (mg/kg)
30
25
20
15
10
5
0
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

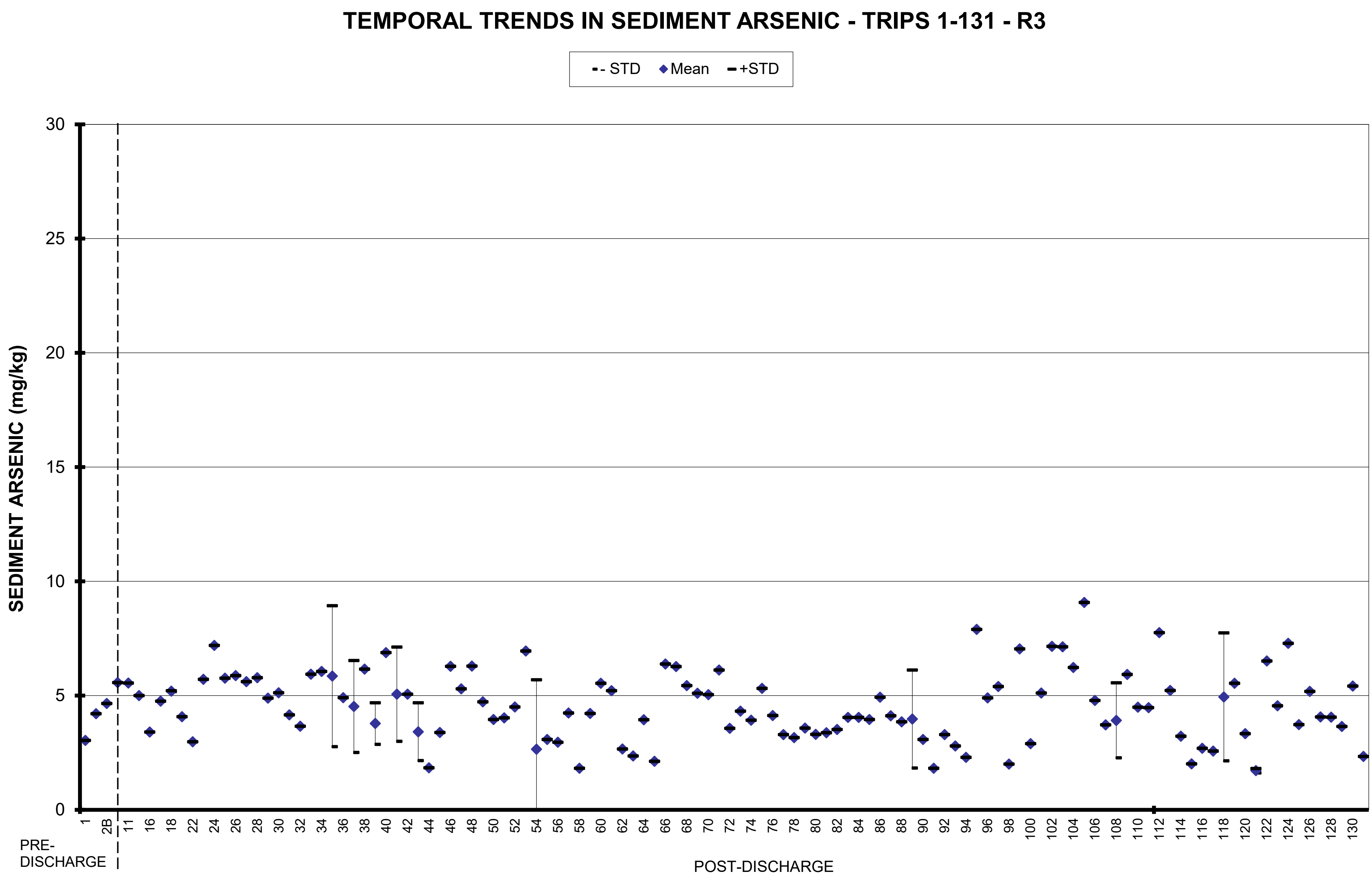

TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - C-SERIES
- STD
Mean
+STD
SEDIMENT ARSENIC (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - D-SERIES



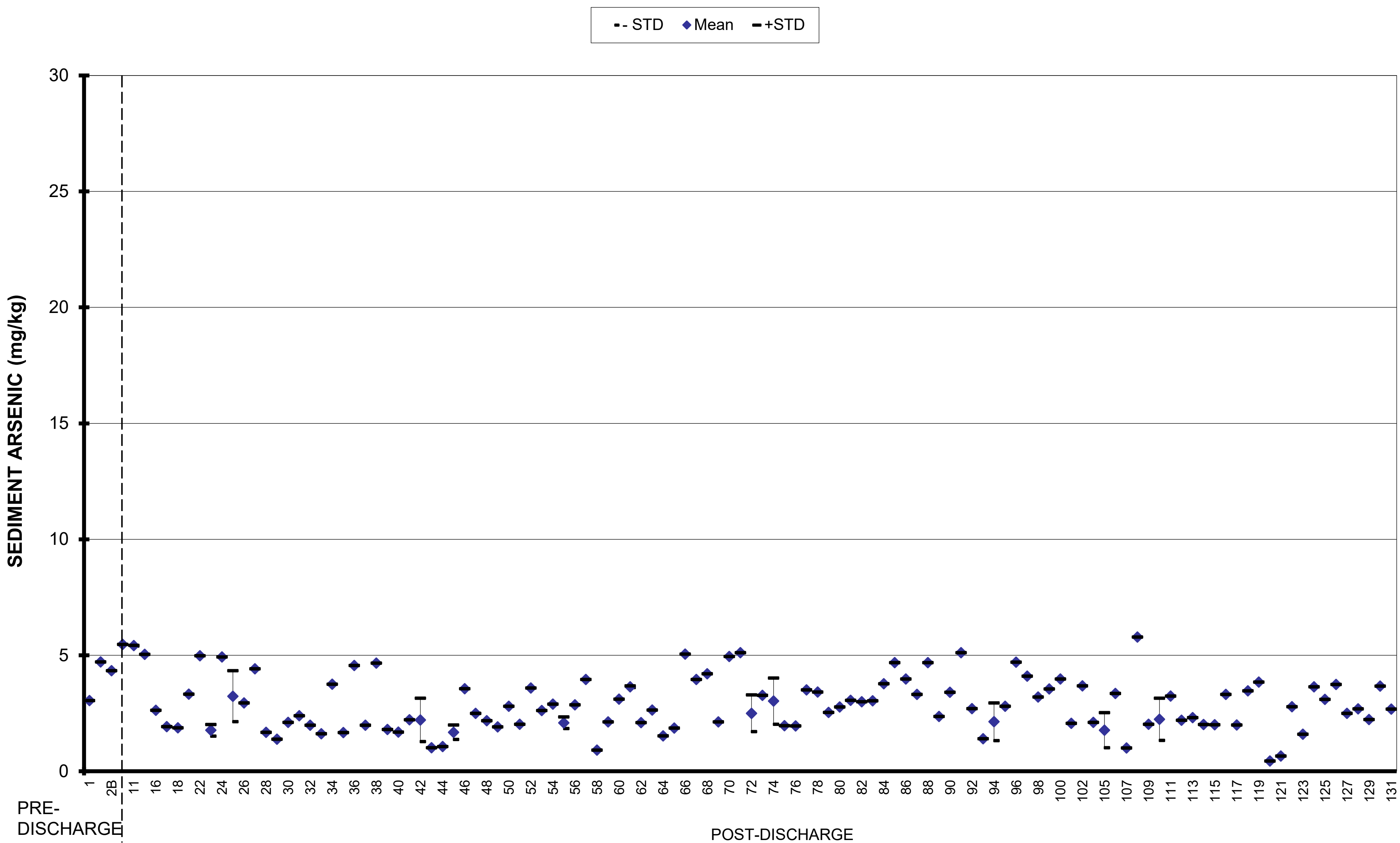


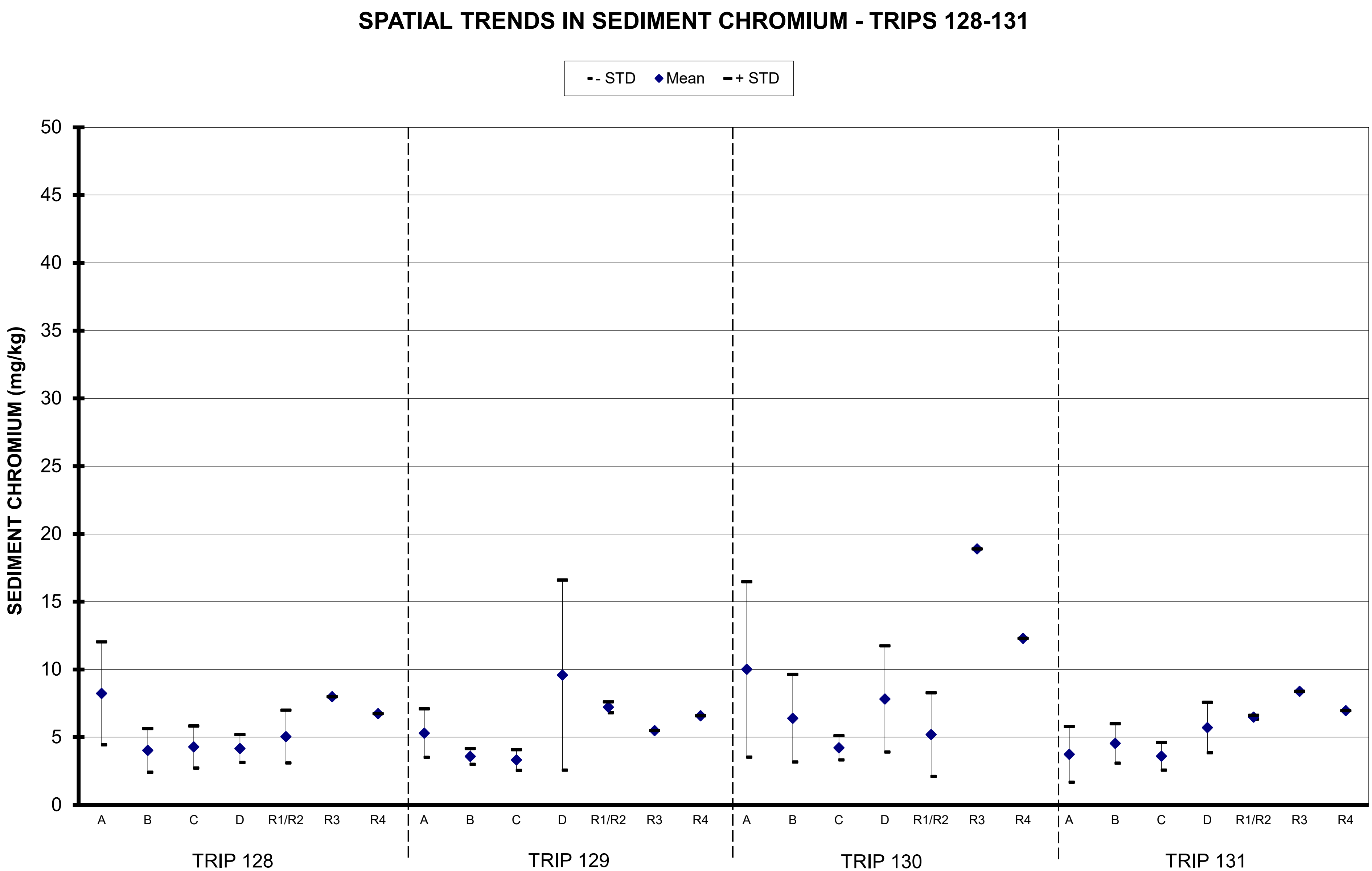
TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT ARSENIC (mg/kg)
30
25
20
15
10
5
0
PRE-DISCHARGE
POST-DISCHARGE



TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - R3
- STD
Mean
+STD
SEDIMENT ARSENIC (mg/kg)
30
25
20
15
10
5
0
1
2B
11
16
18
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

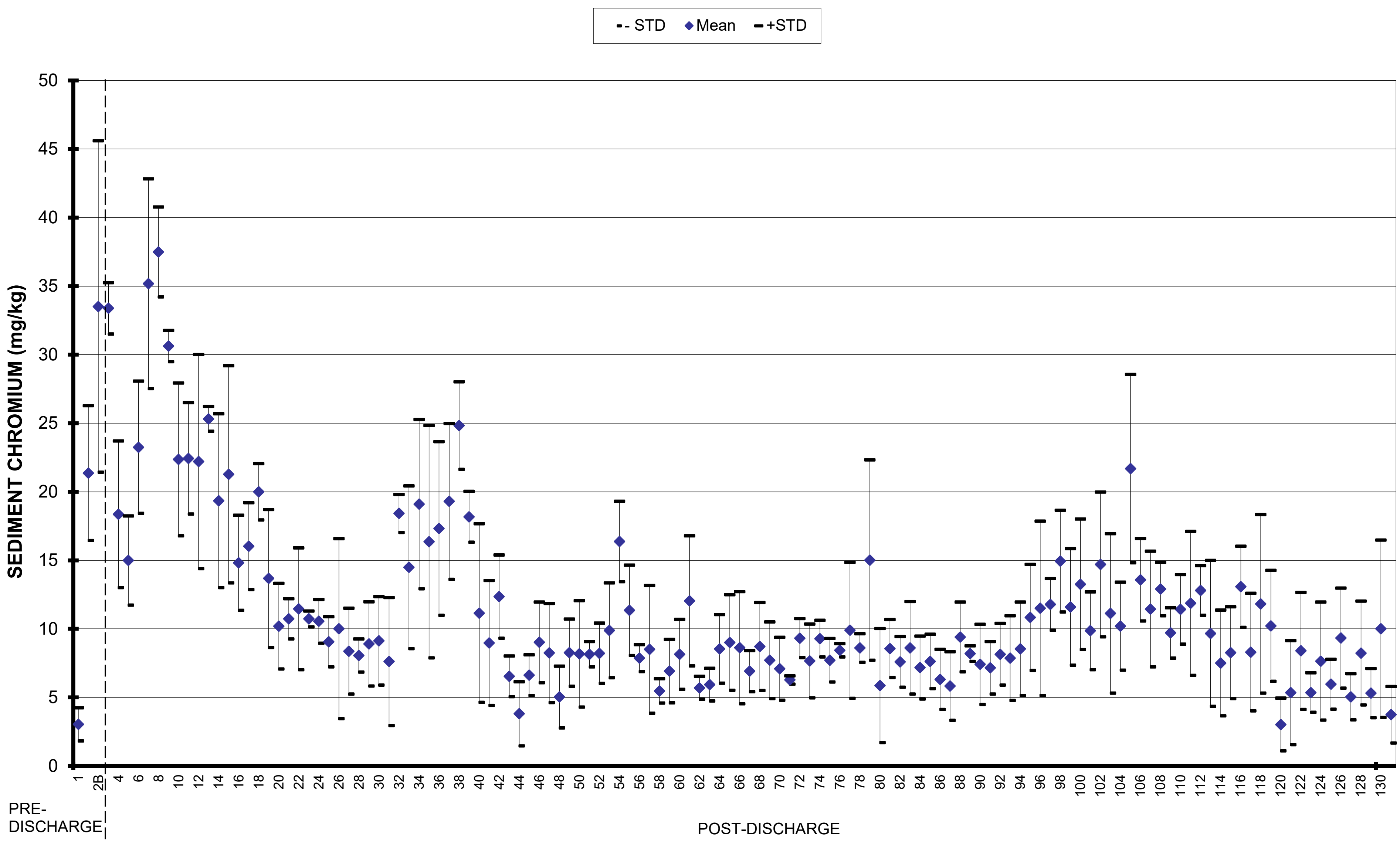
TEMPORAL TRENDS IN SEDIMENT ARSENIC - TRIPS 1-131 - R4



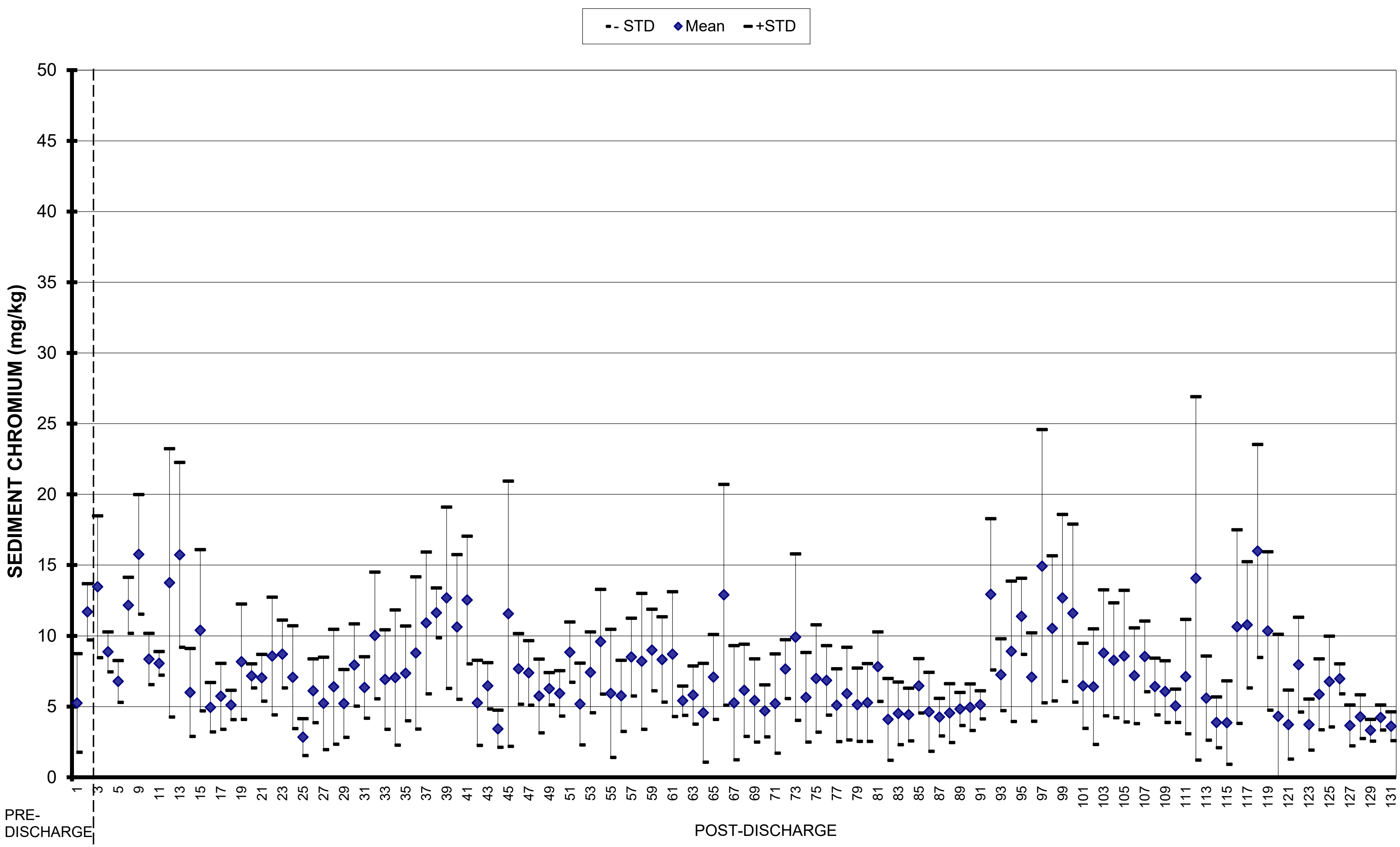


SPATIAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 128-131
- STD
Mean
+ STD
SEDIMENT CHROMIUM (mg/kg)
0
5
10
15
20
25
30
35
40
45
50
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

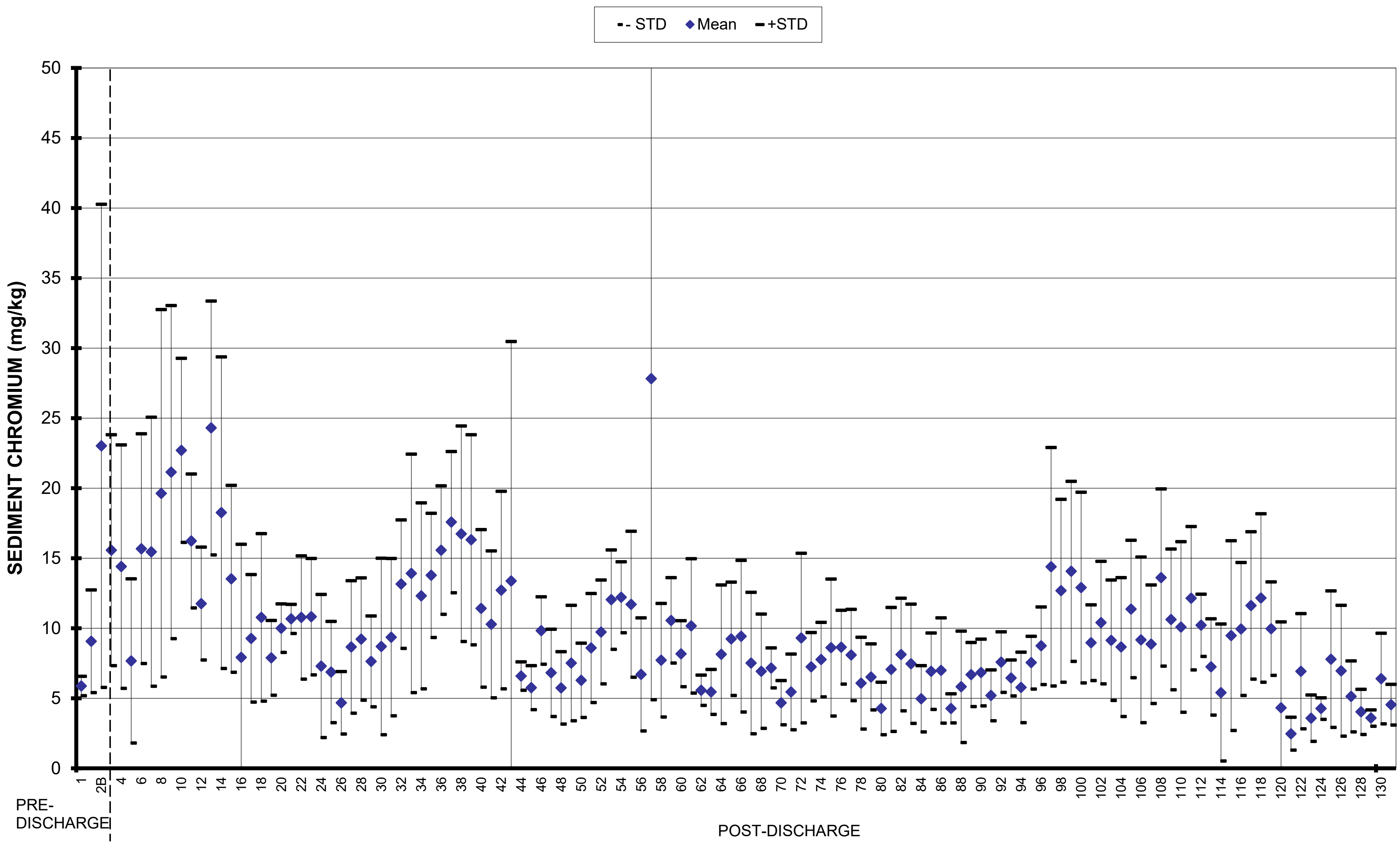
TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - A-SERIES

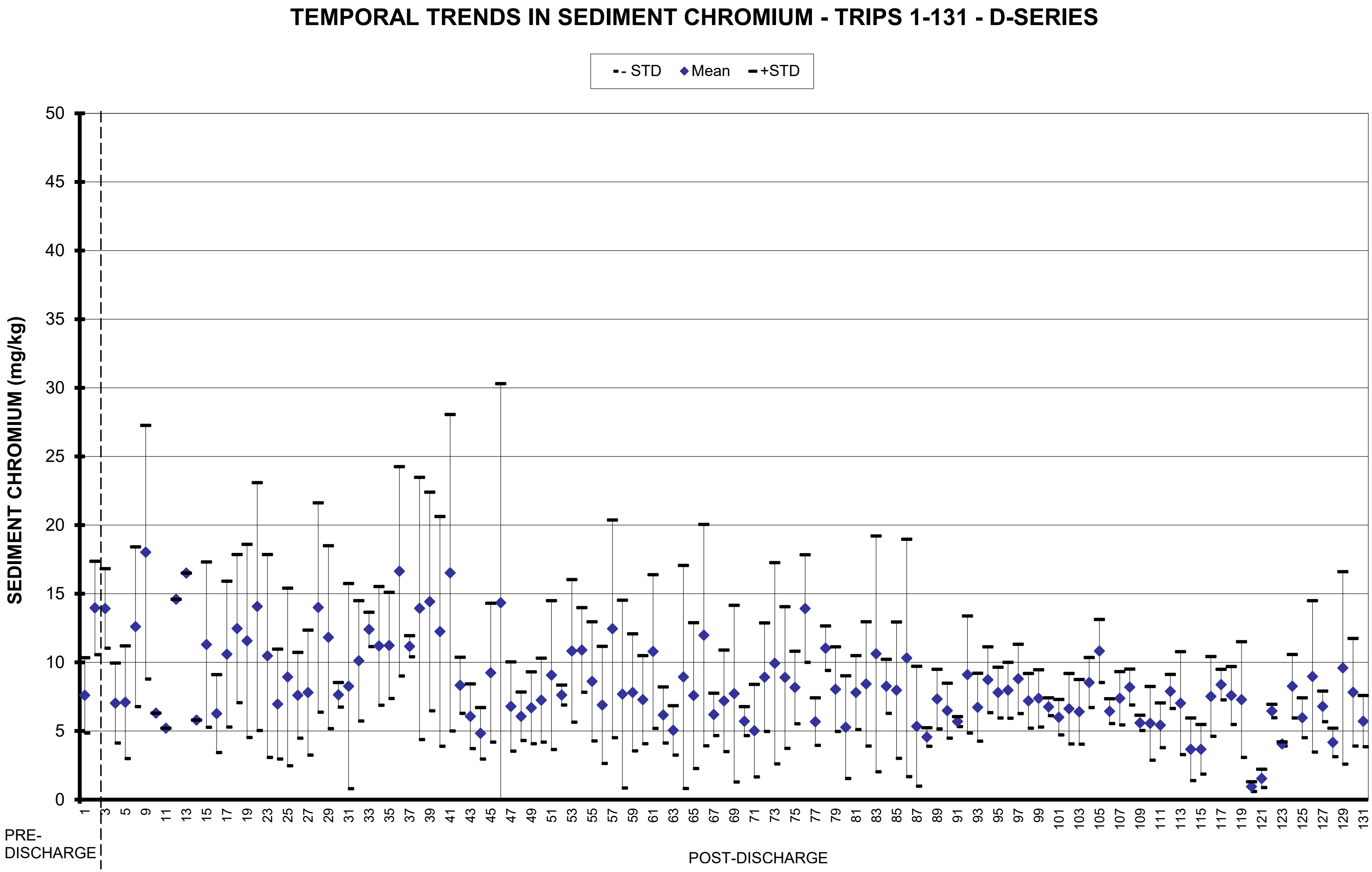


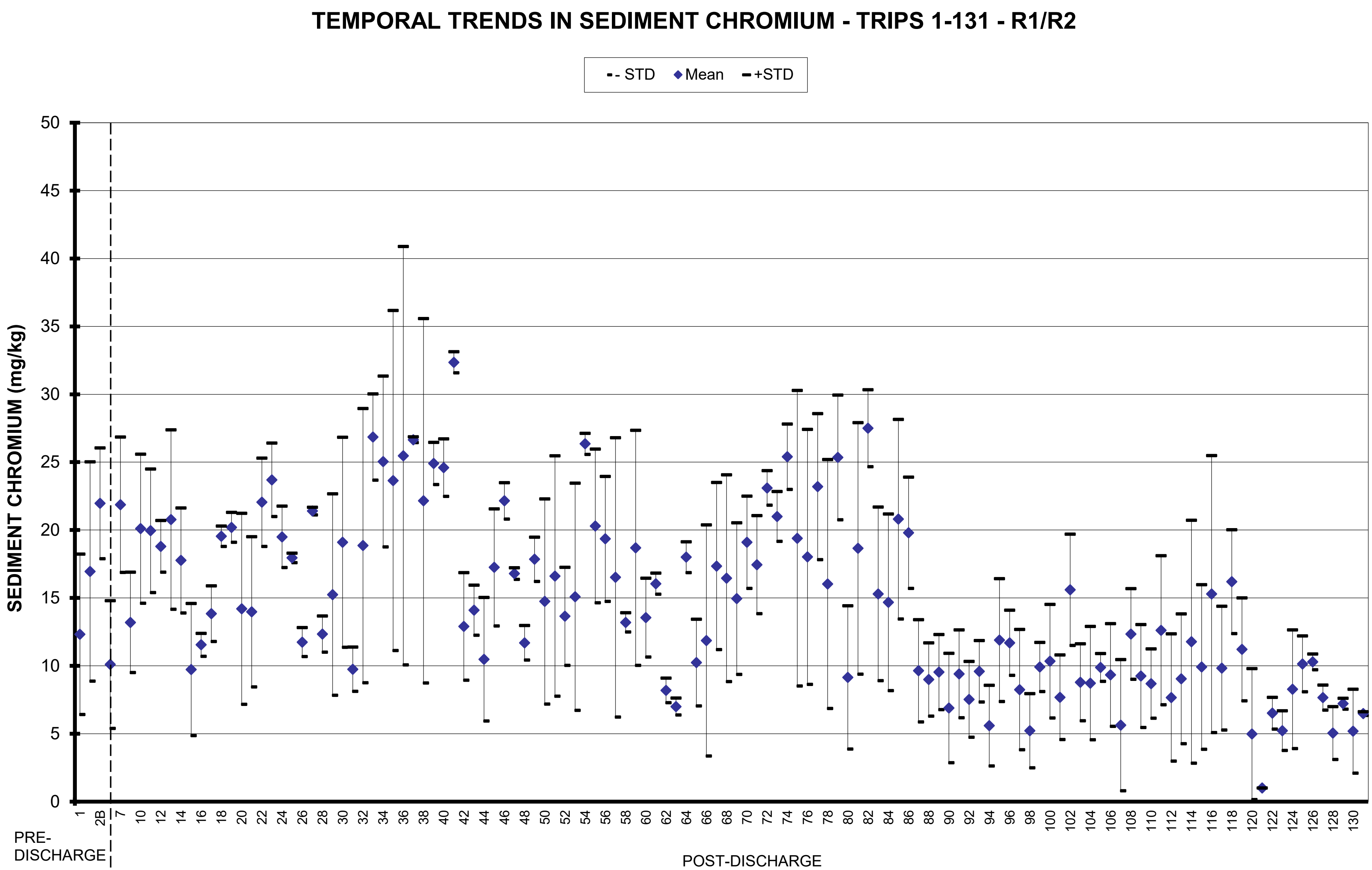
TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - C-SERIES



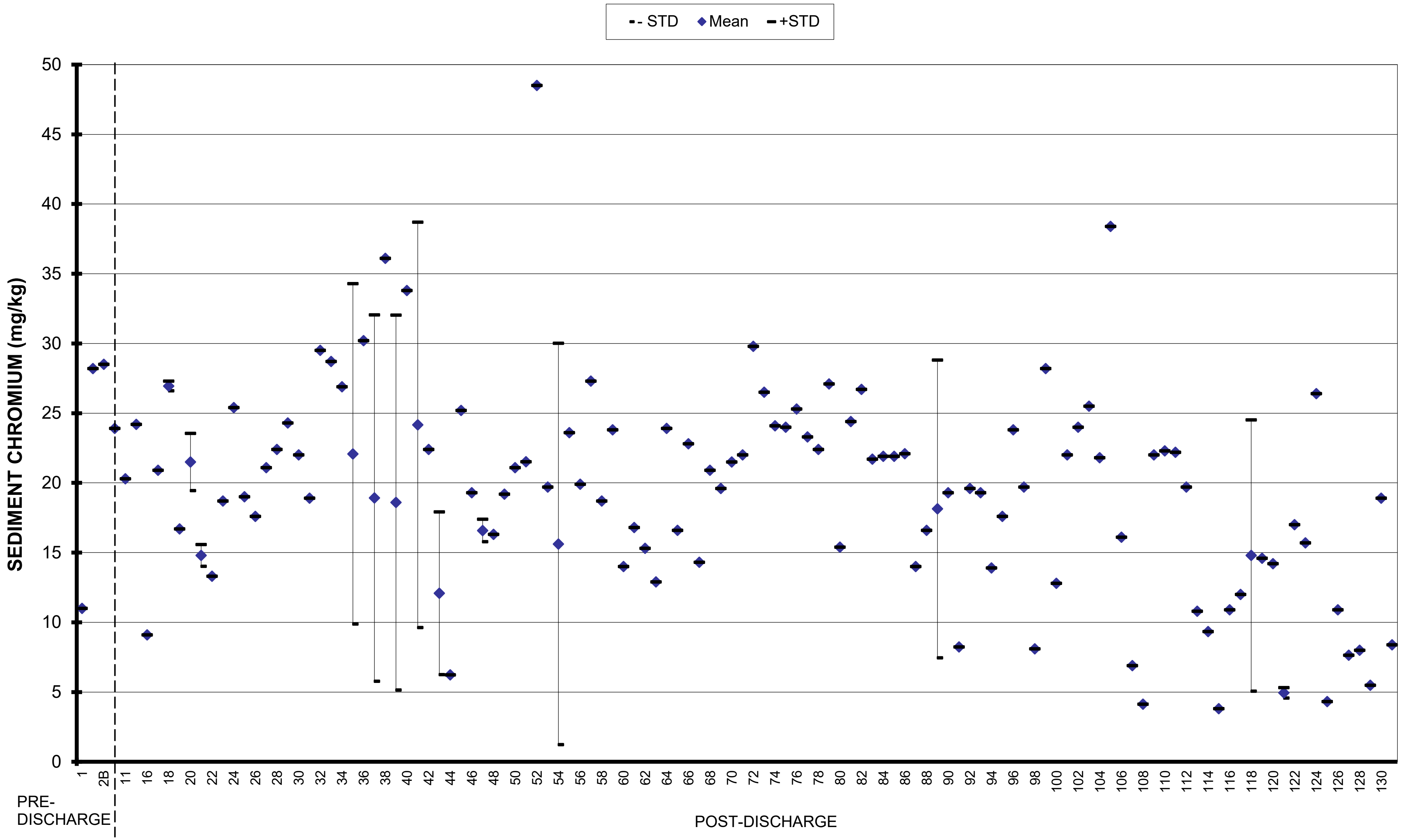
TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - B-SERIES

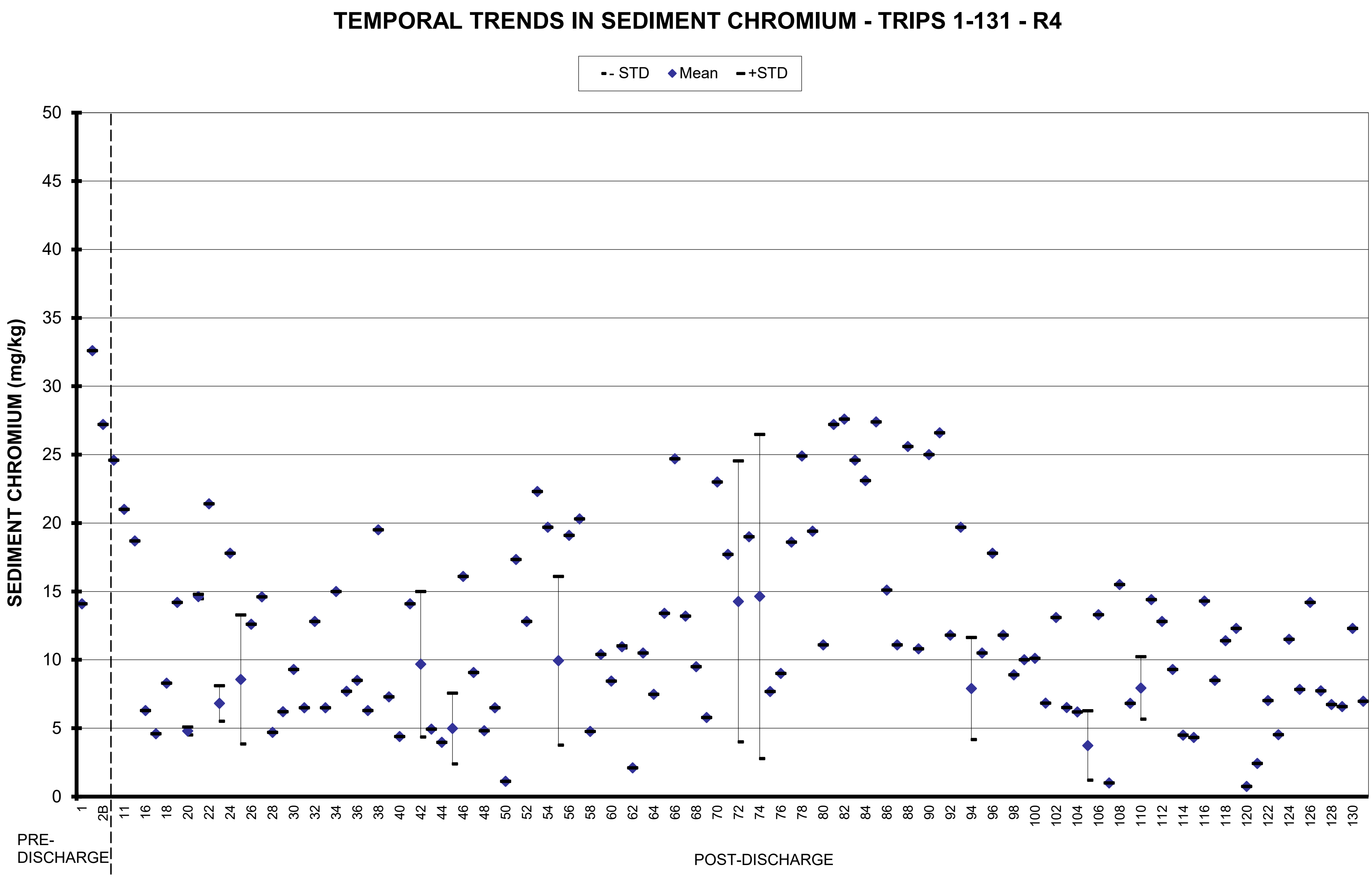



TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - D-SERIES
- STD
Mean
+STD
SEDIMENT CHROMIUM (mg/kg)
0
5
10
15
20
25
30
35
40
45
50
PRE-
DISCHARGE
POST-DISCHARGE

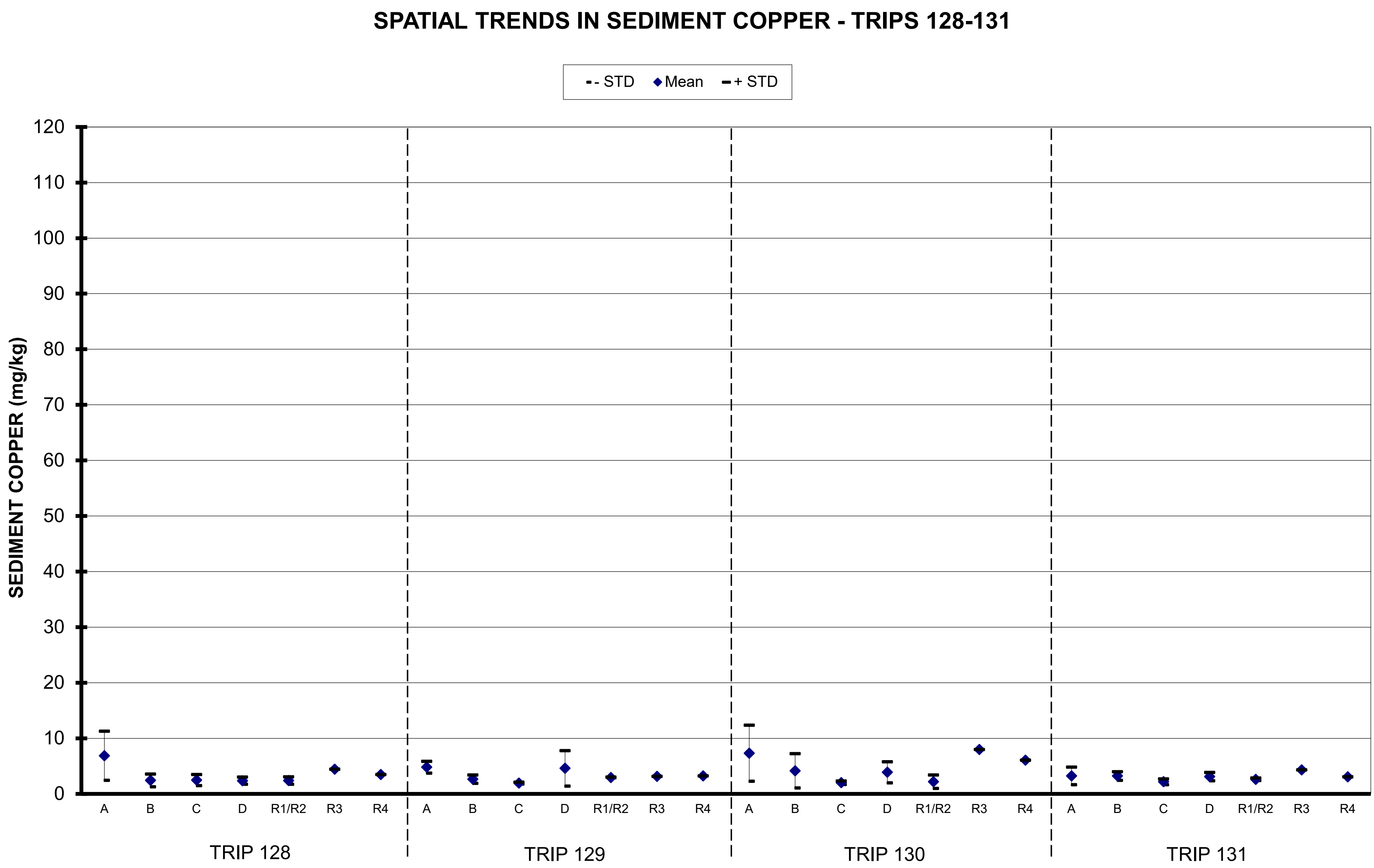

TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT CHROMIUM (mg/kg)
0
5
10
15
20
25
30
35
40
45
50
PRE-
DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - R3



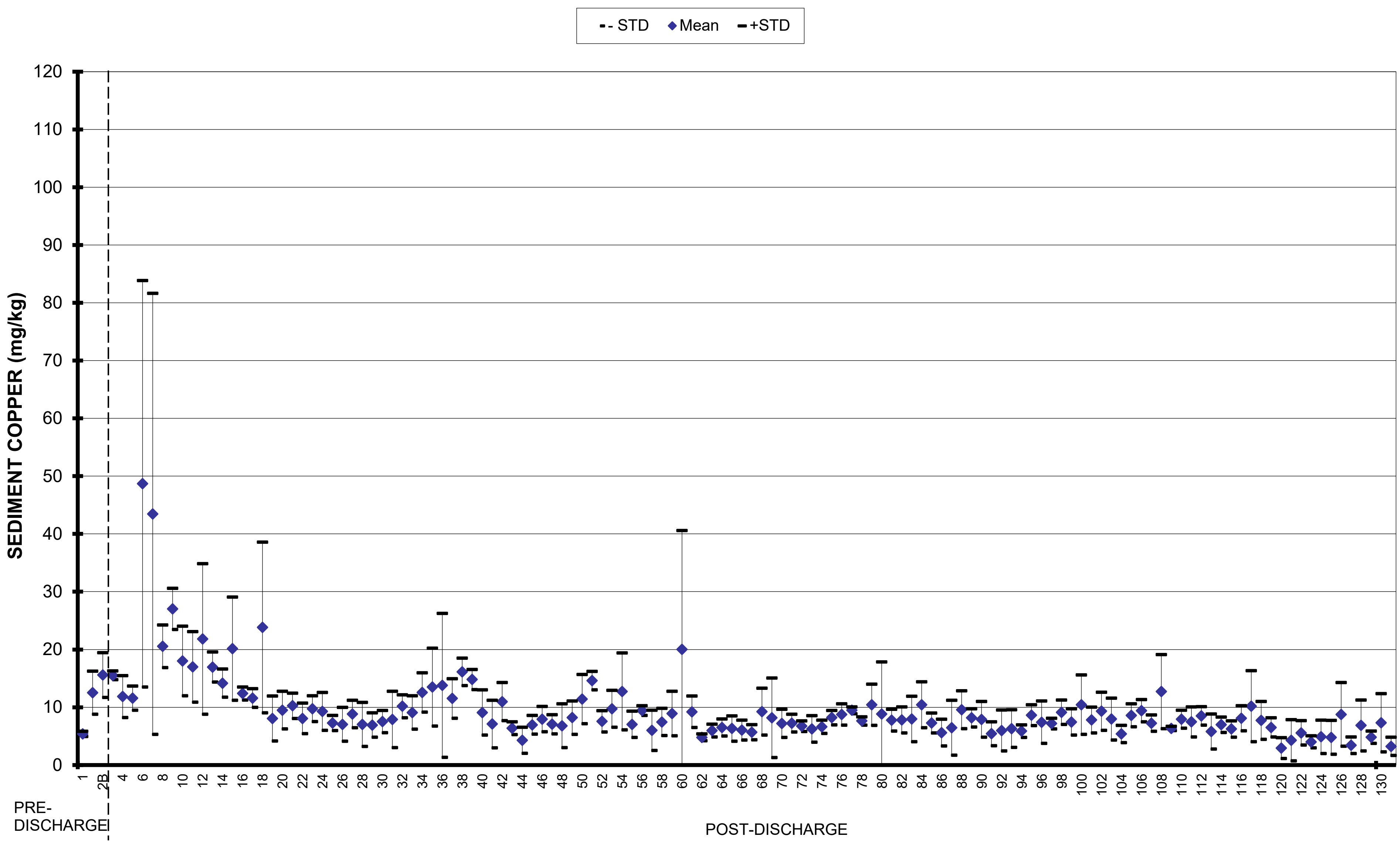


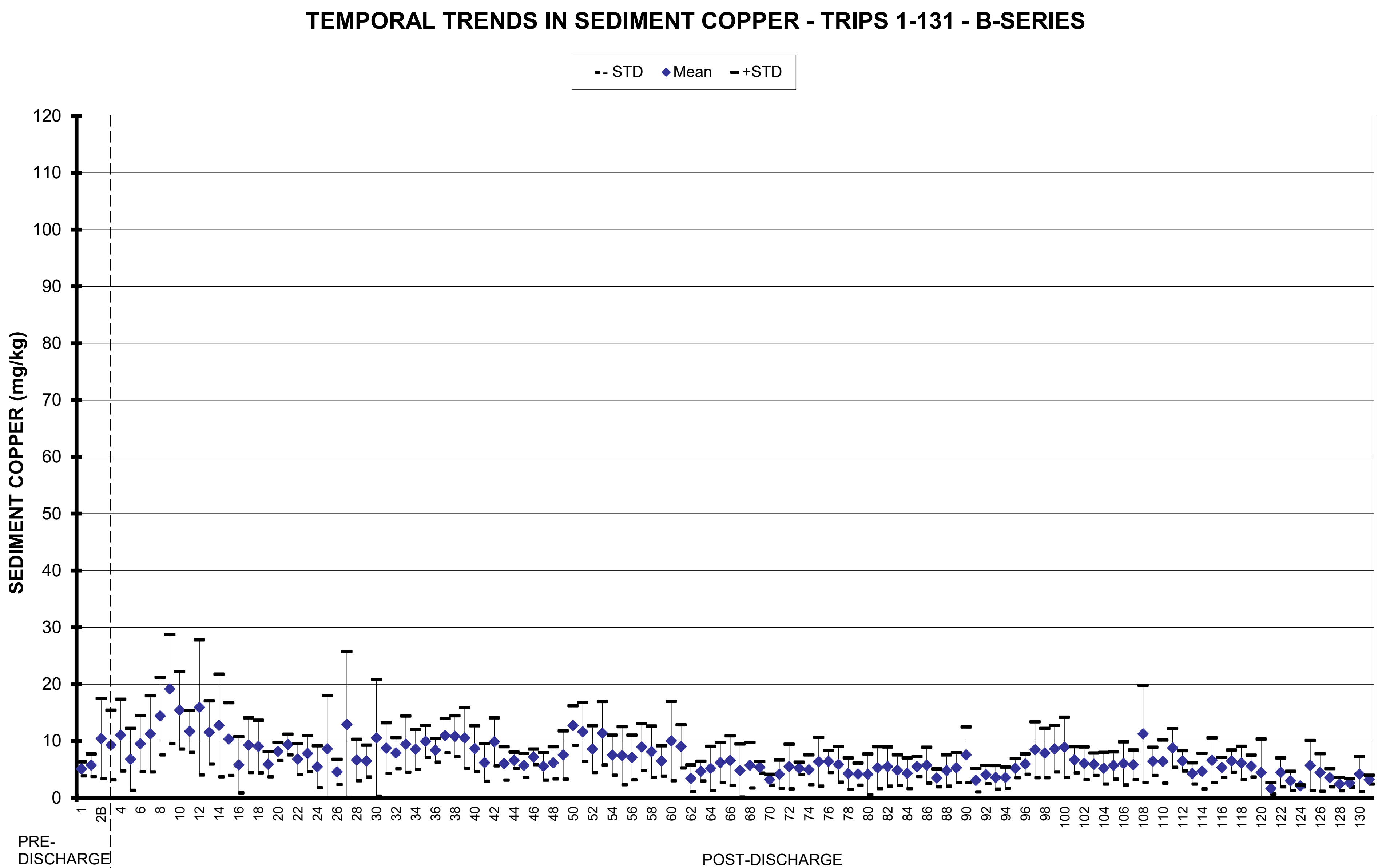
TEMPORAL TRENDS IN SEDIMENT CHROMIUM - TRIPS 1-131 - R4
- STD
Mean
+STD
SEDIMENT CHROMIUM (mg/kg)
PRE-
DISCHARGE
POST-DISCHARGE



SPATIAL TRENDS IN SEDIMENT COPPER - TRIPS 128-131
- STD
Mean
+ STD
SEDIMENT COPPER (mg/kg)
0
10
20
30
40
50
60
70
80
90
100
110
120
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

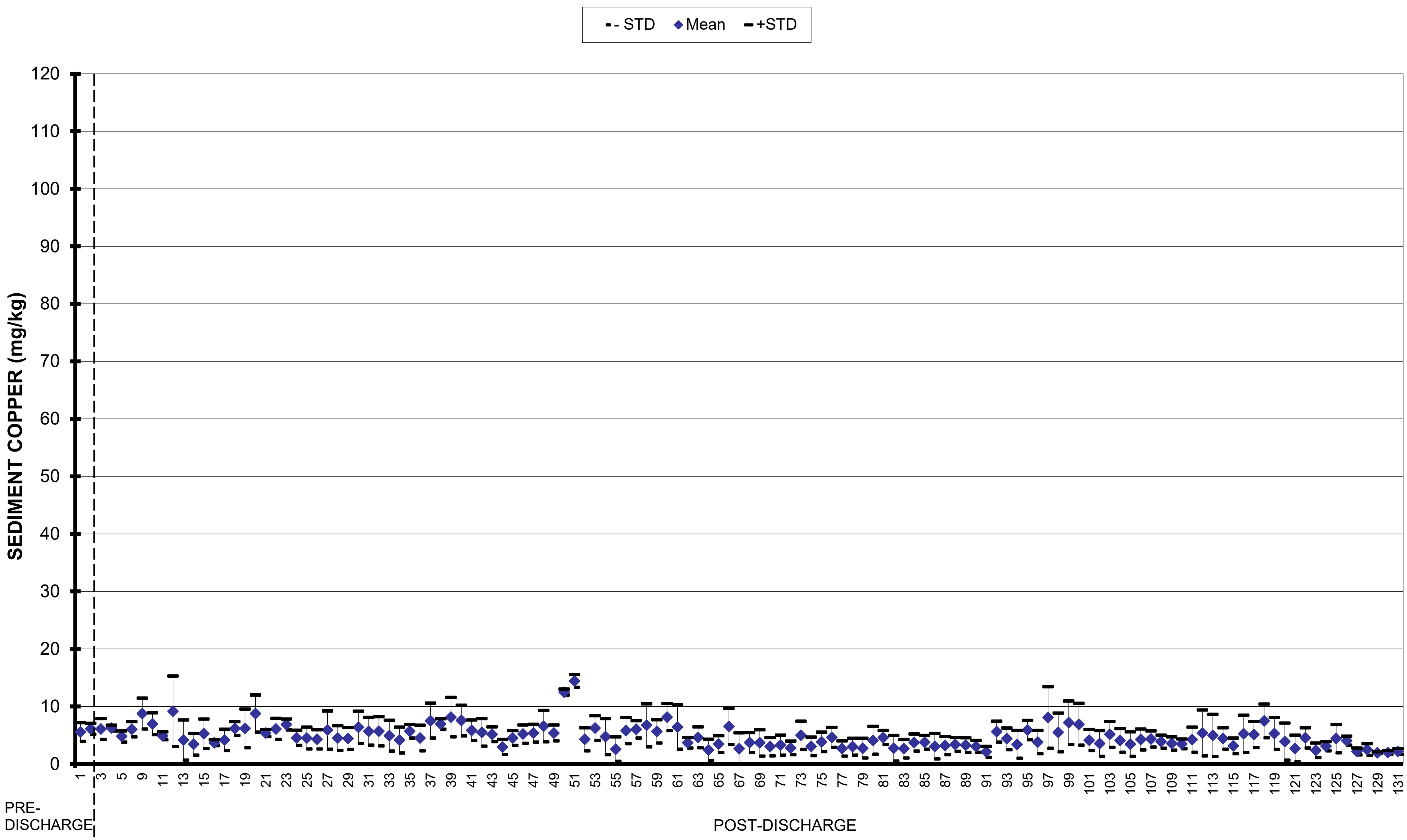
TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - A-SERIES



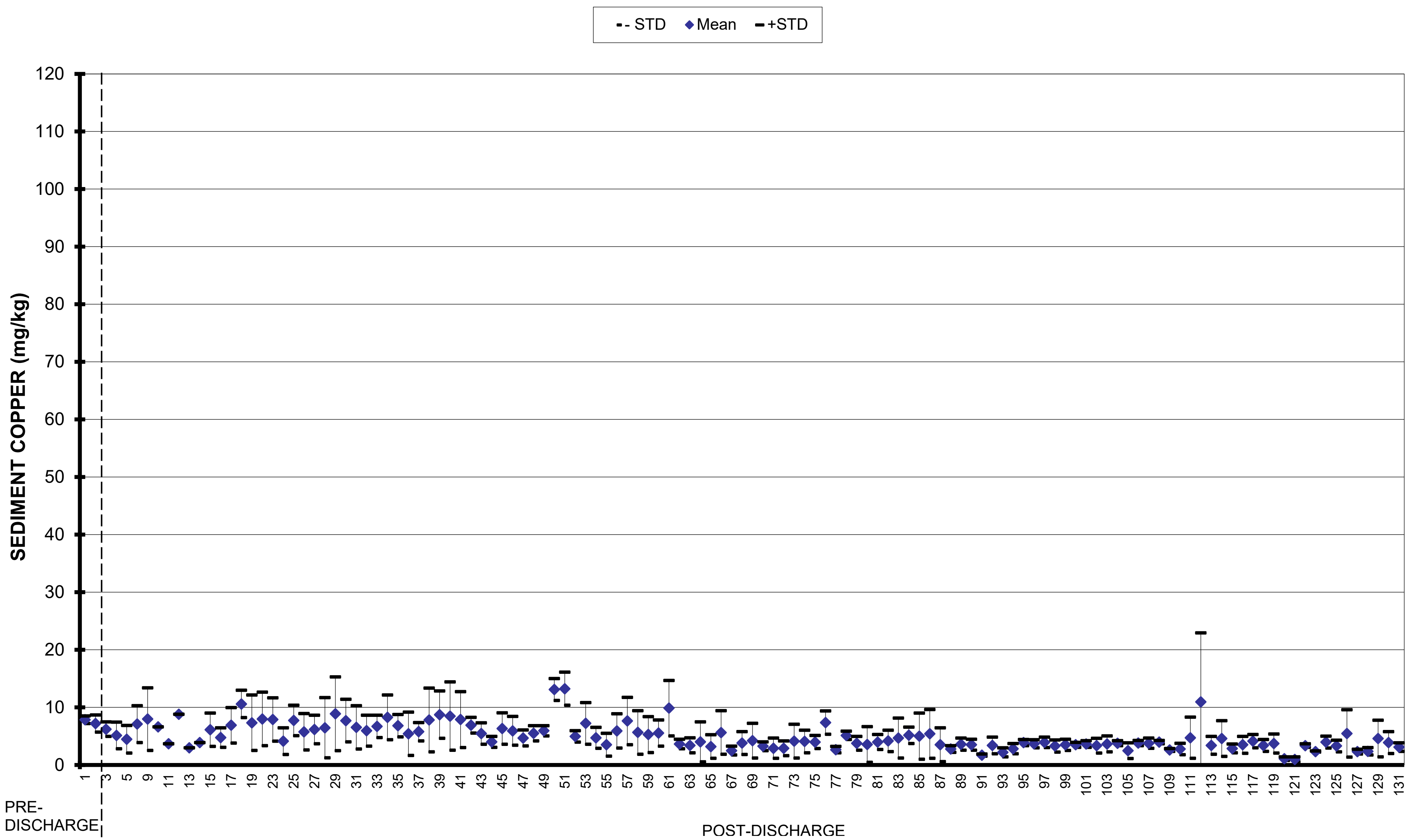


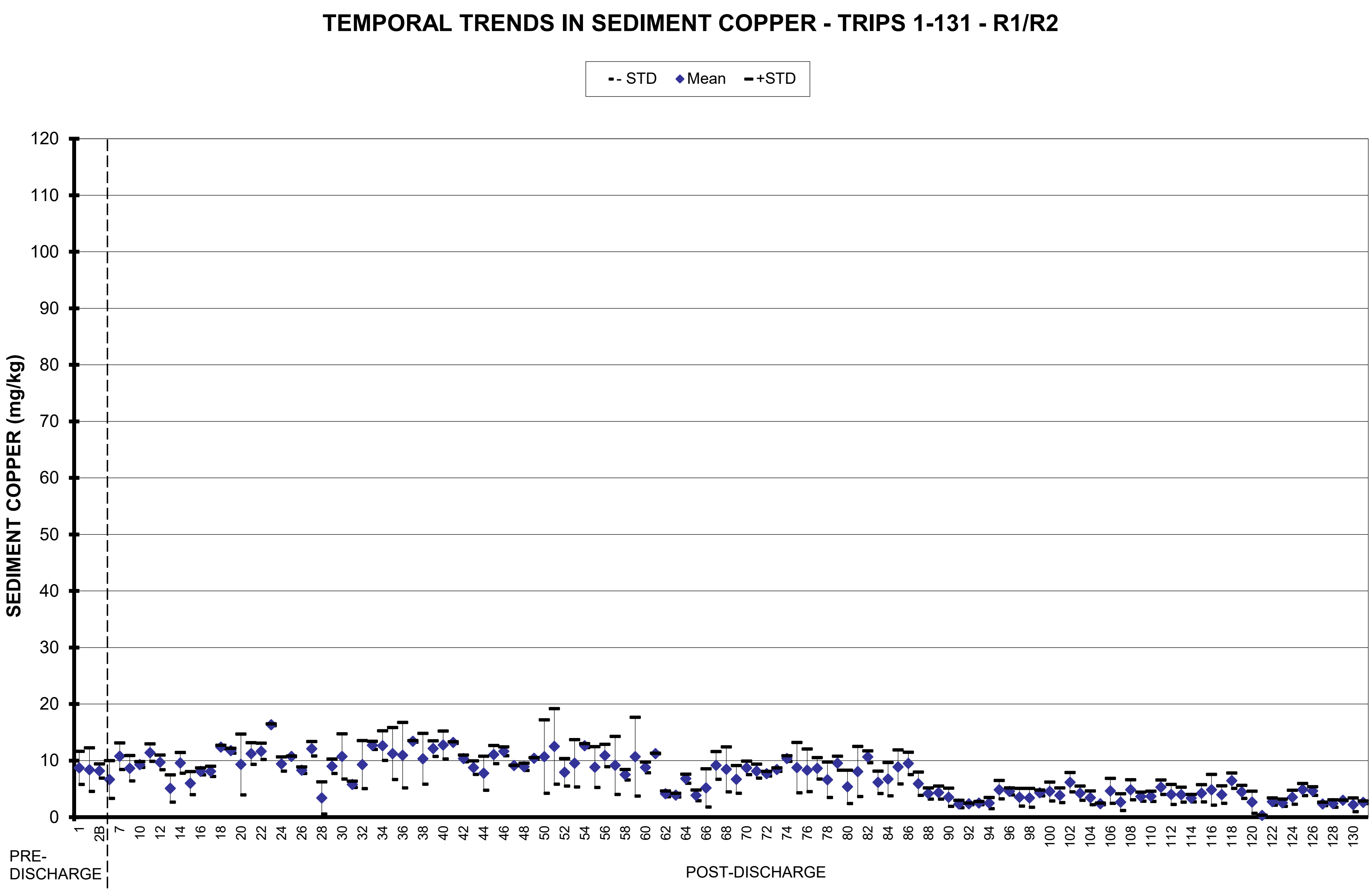
TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT COPPER (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - C-SERIES

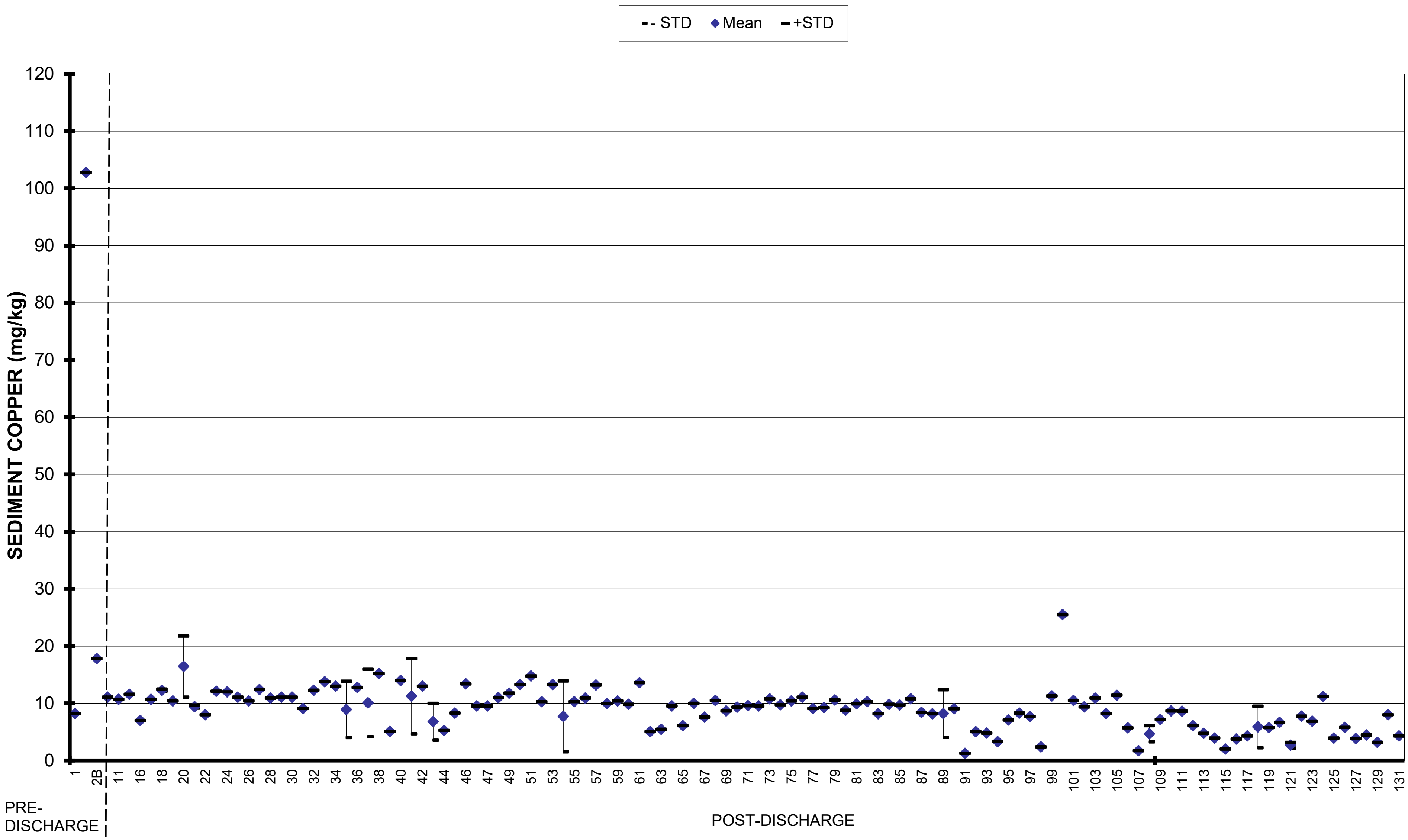


TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - D-SERIES

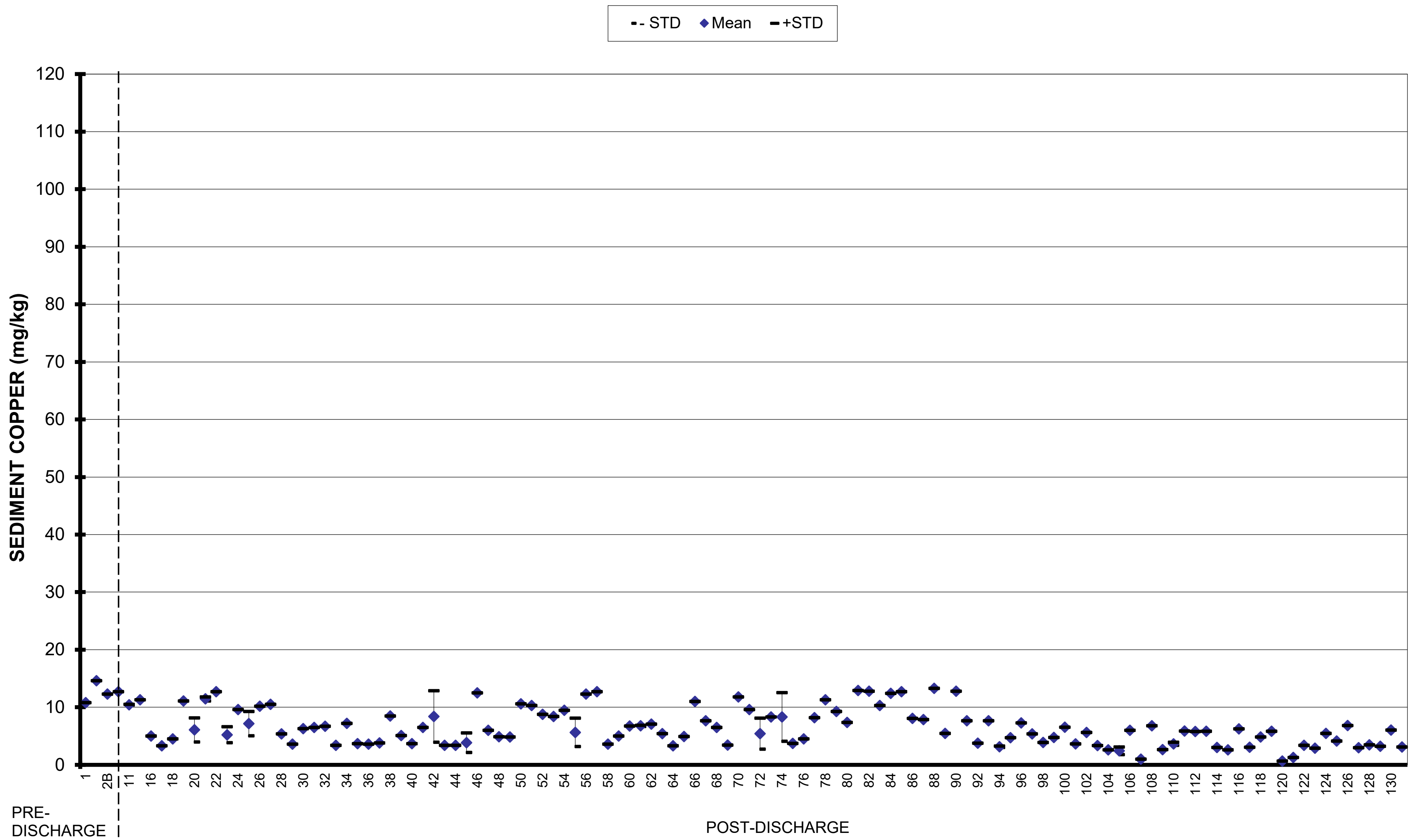


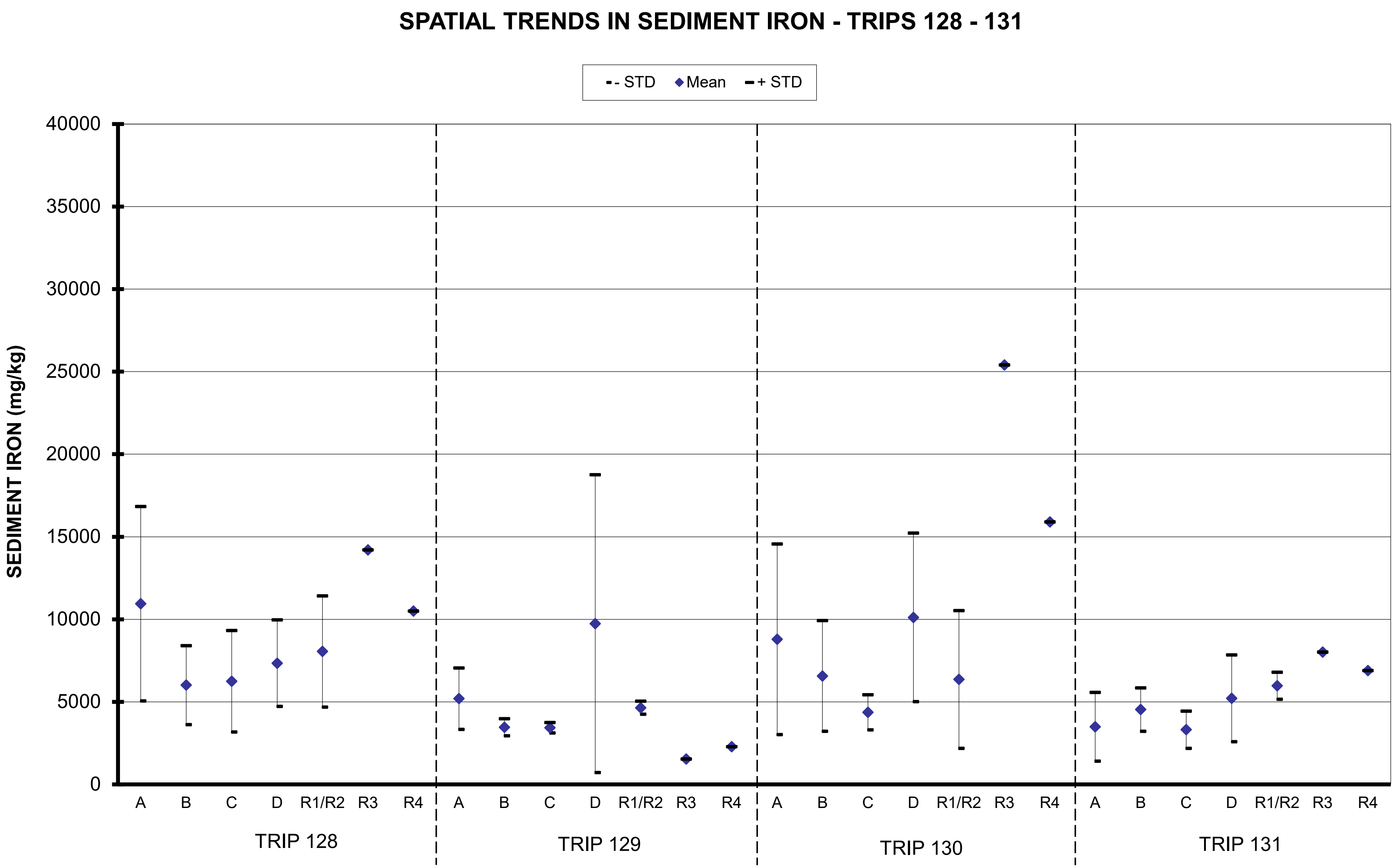

TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT COPPER (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - R3

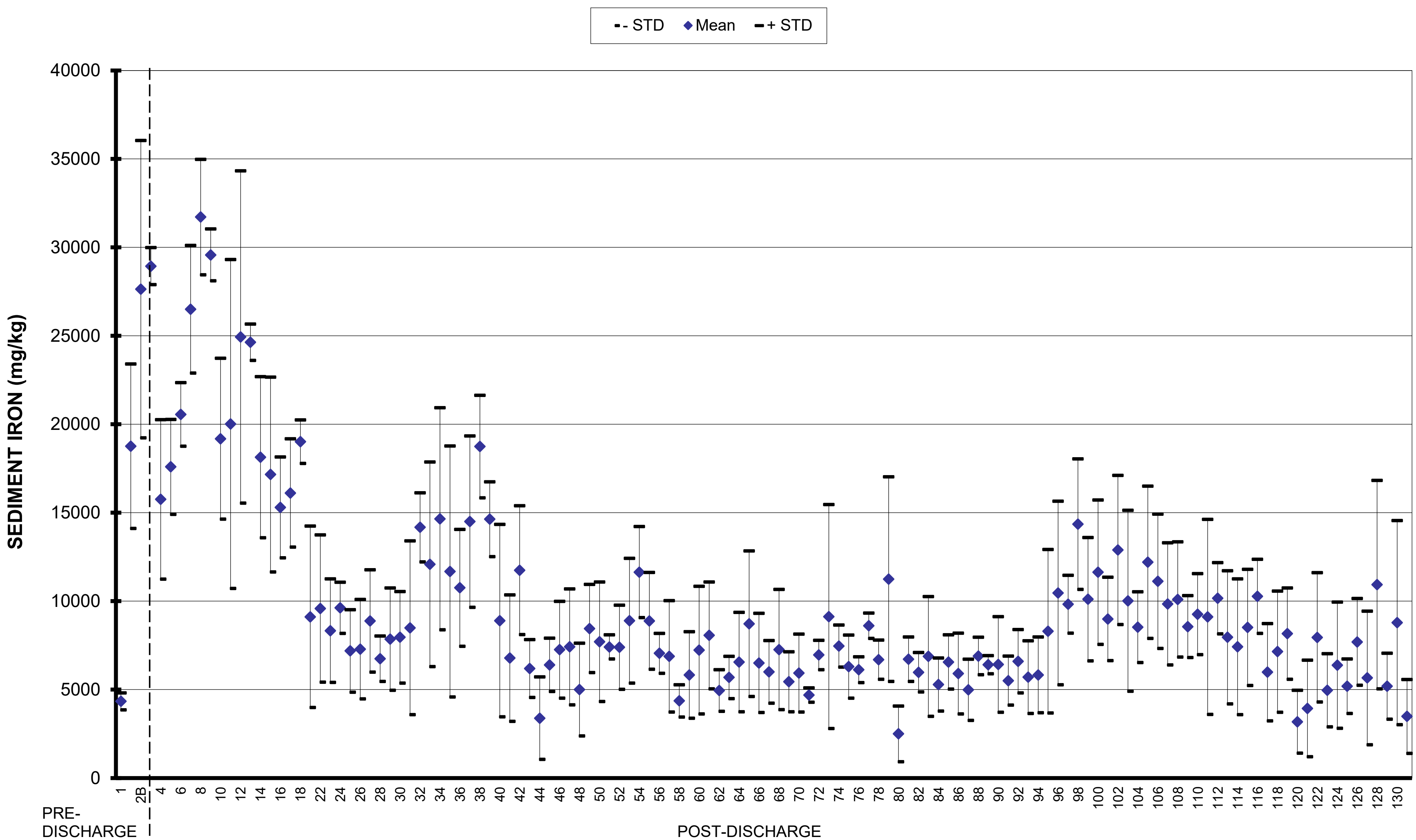


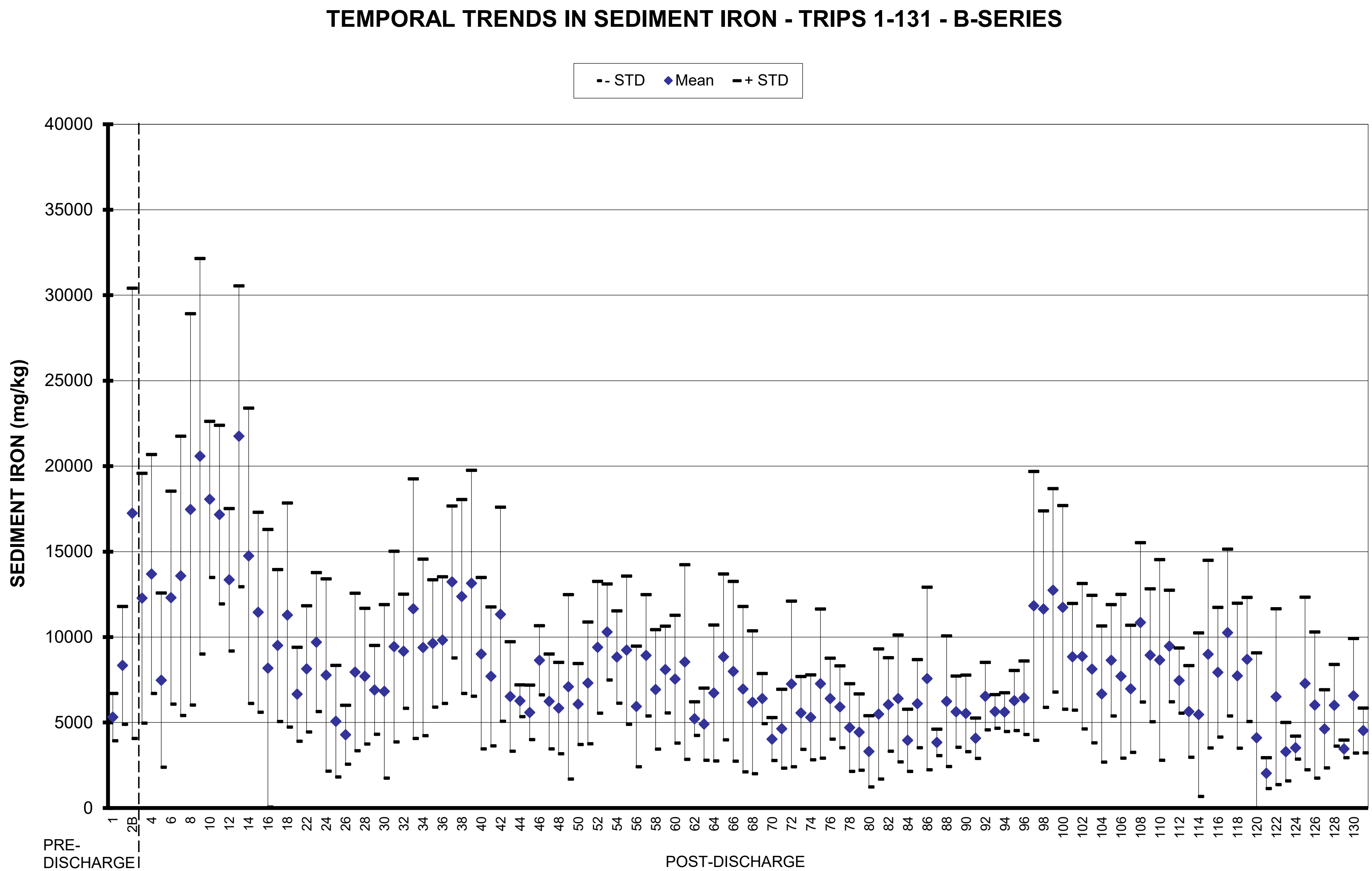
TEMPORAL TRENDS IN SEDIMENT COPPER - TRIPS 1-131 - R4

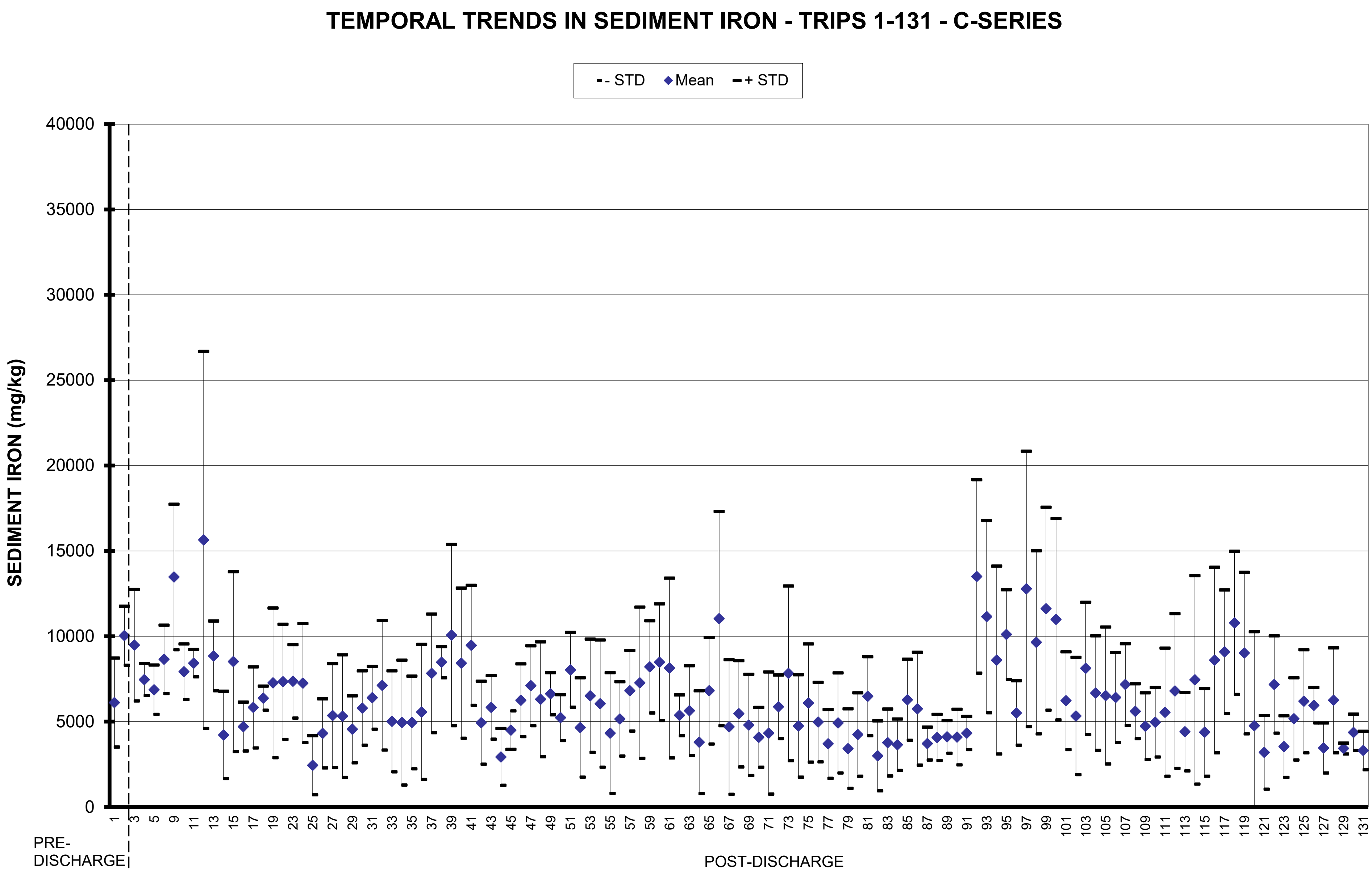



SPATIAL TRENDS IN SEDIMENT IRON - TRIPS 128 - 131
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131

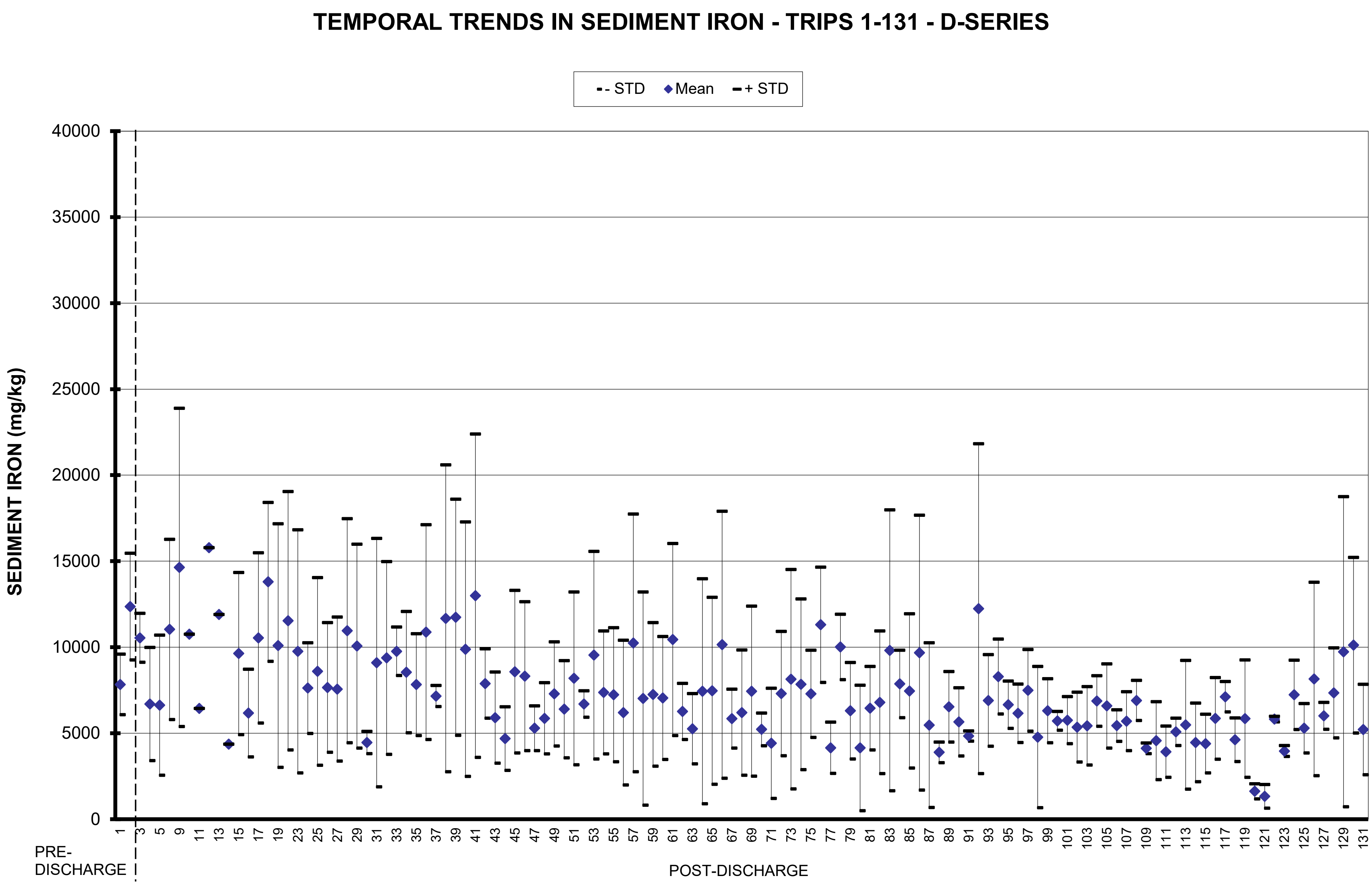
TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - A-SERIES



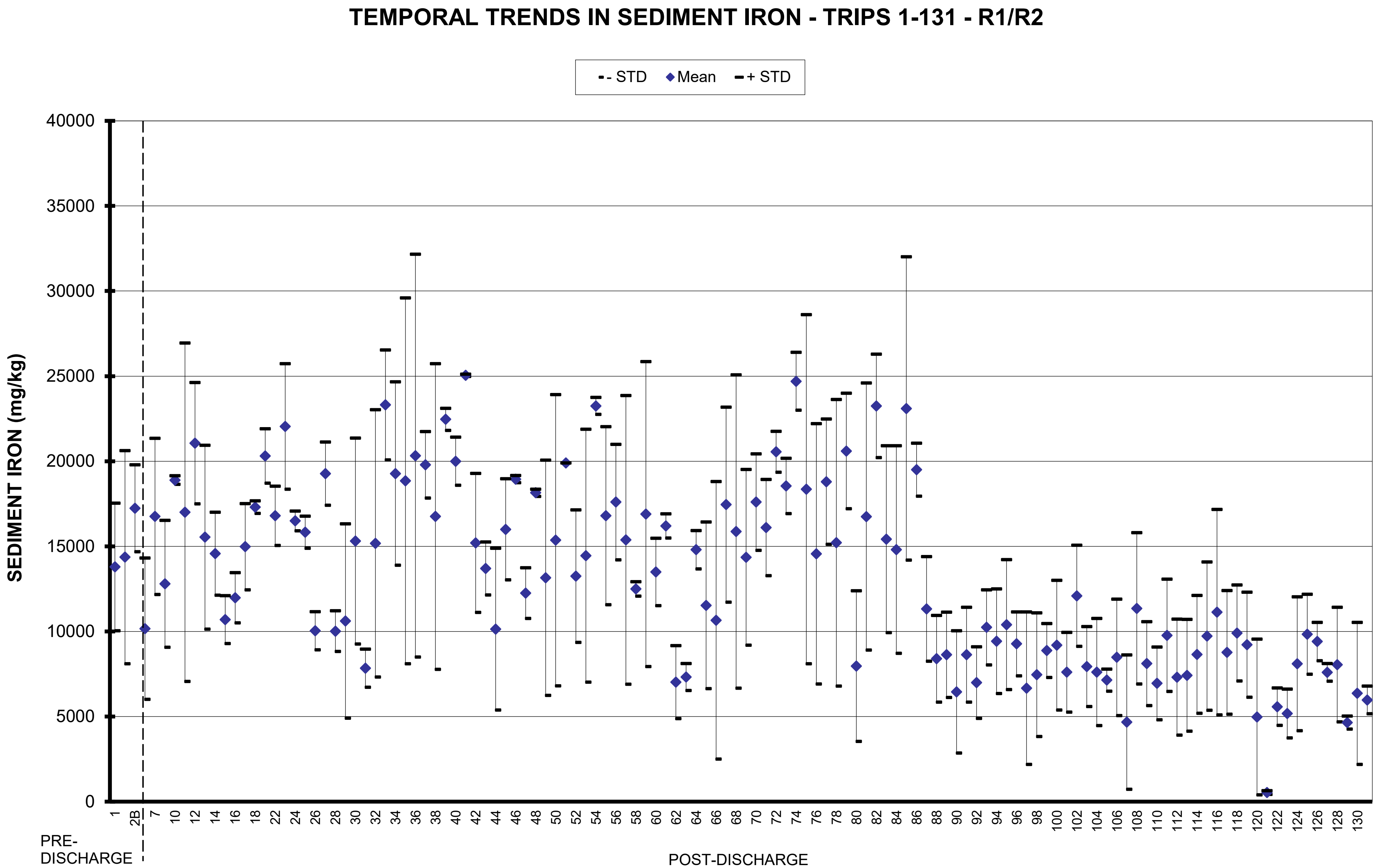

TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - B-SERIES
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-
DISCHARGE
POST-DISCHARGE



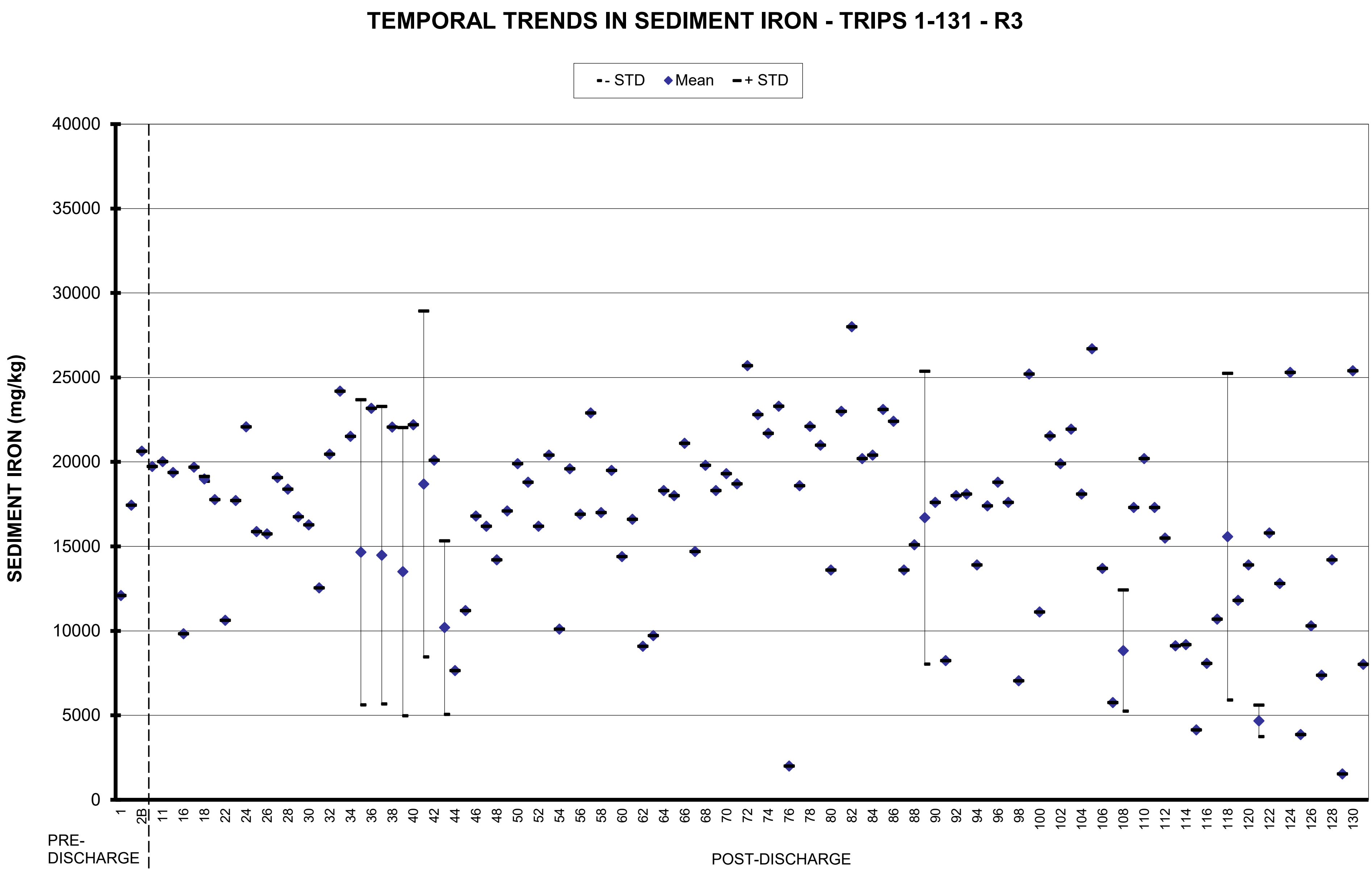
TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - C-SERIES
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
0
5000
10000
15000
20000
25000
30000
35000
40000
PRE-DISCHARGE
POST-DISCHARGE



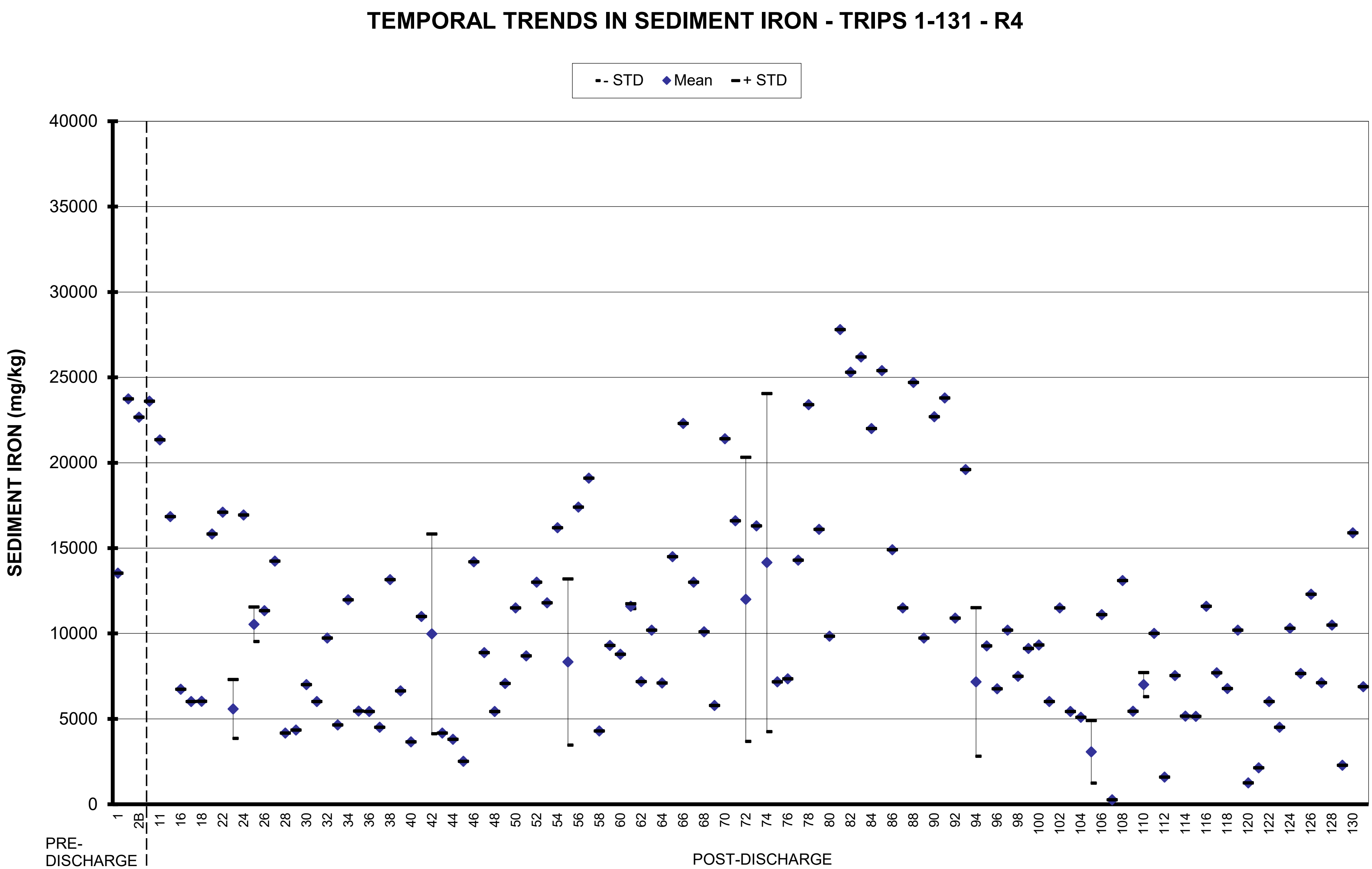
TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - D-SERIES
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-
DISCHARGE
POST-DISCHARGE



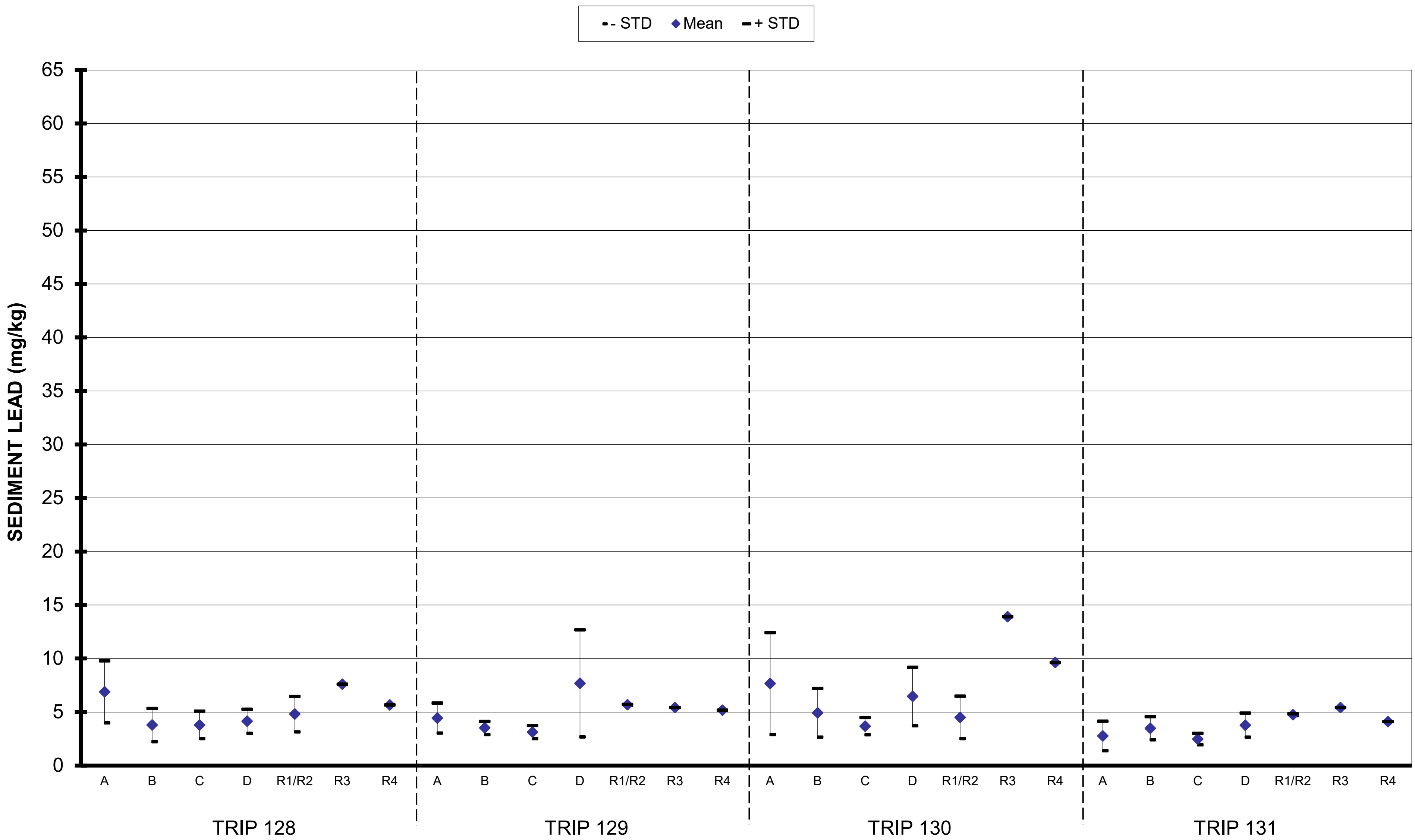
TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - R1/R2
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-DISCHARGE
POST-DISCHARGE

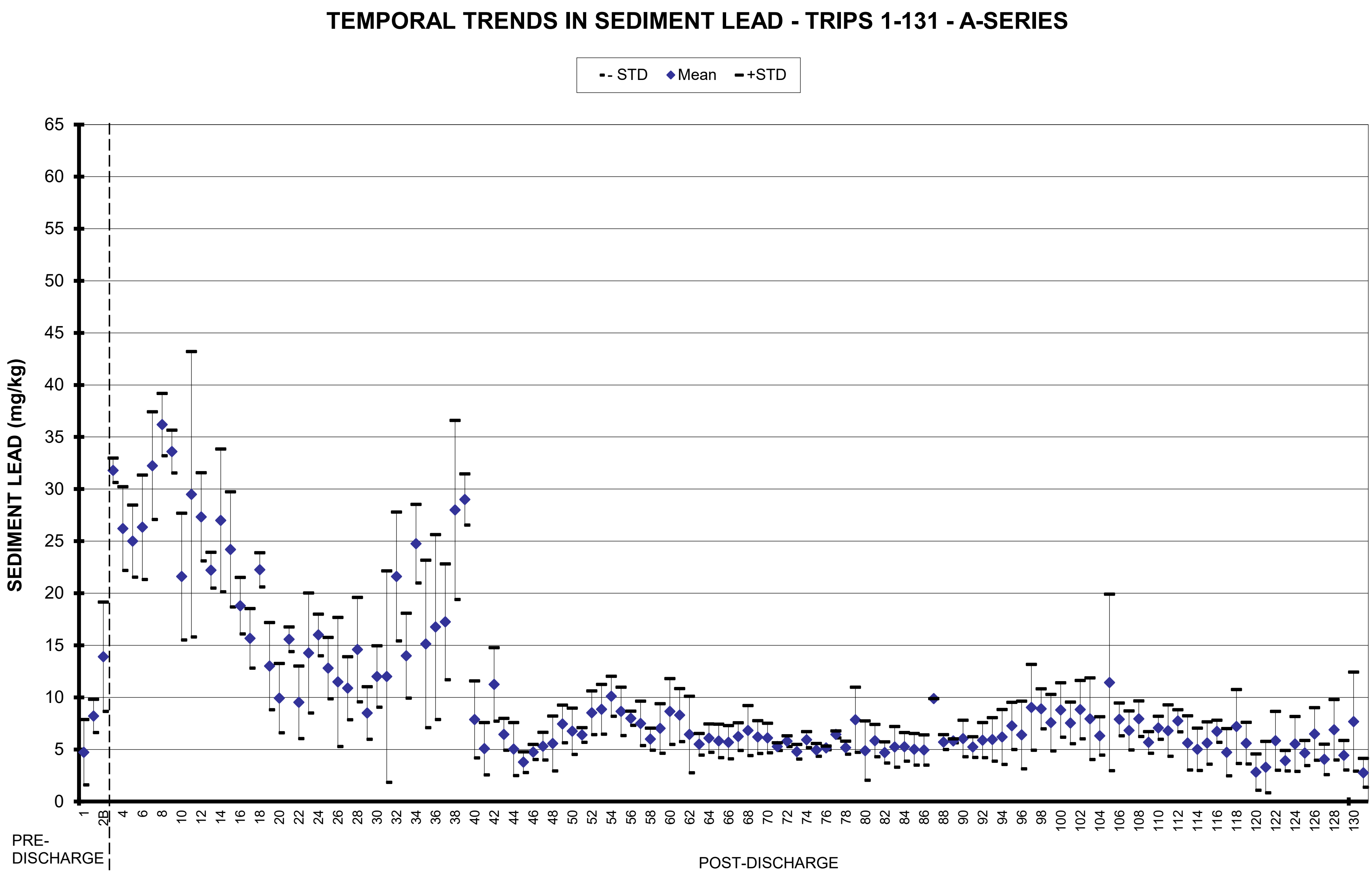


TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - R3
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-DISCHARGE
POST-DISCHARGE

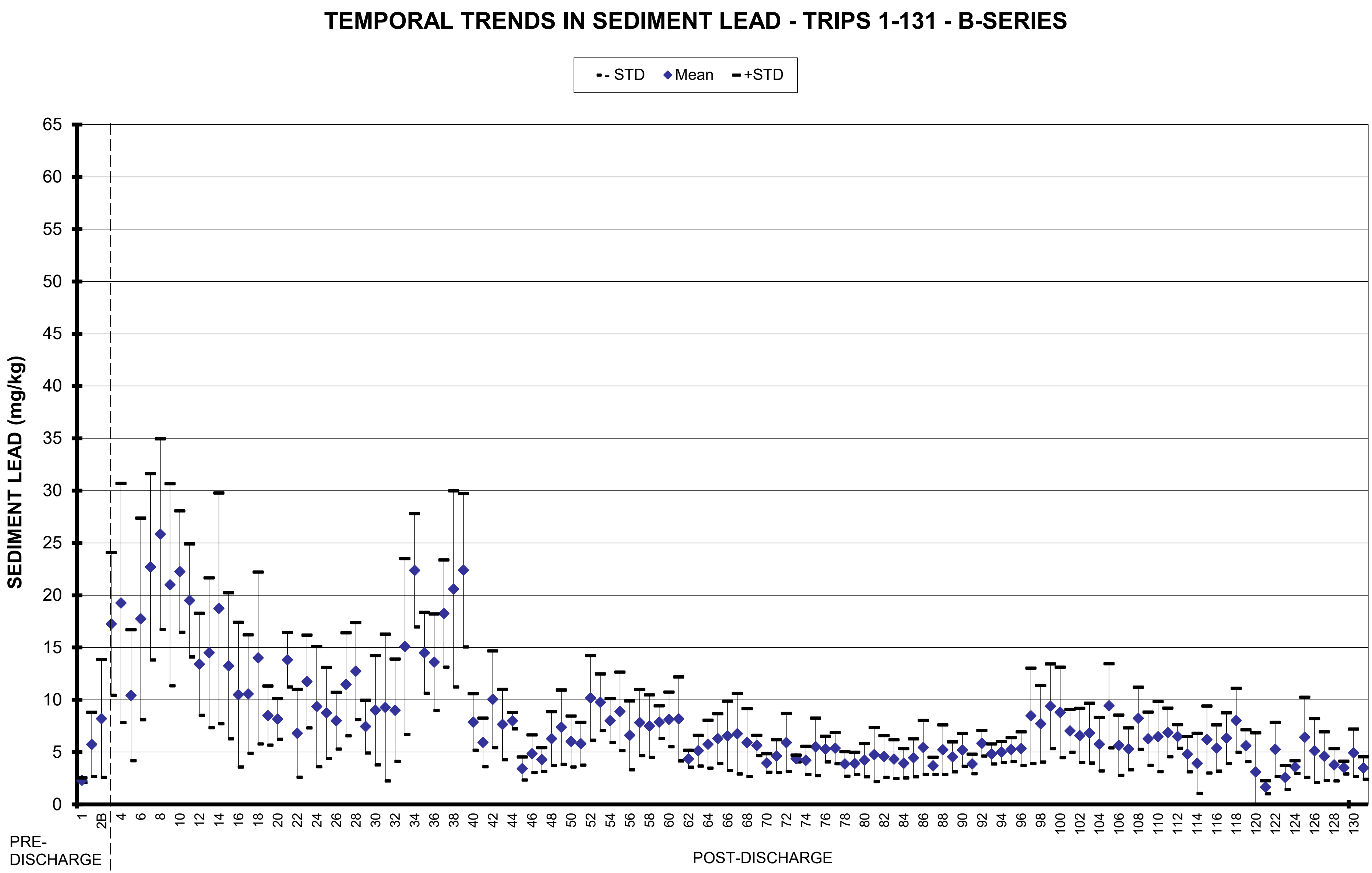

TEMPORAL TRENDS IN SEDIMENT IRON - TRIPS 1-131 - R4
- STD
Mean
+ STD
SEDIMENT IRON (mg/kg)
40000
35000
30000
25000
20000
15000
10000
5000
0
PRE-DISCHARGE
POST-DISCHARGE

SPATIAL TRENDS IN SEDIMENT LEAD - TRIPS 128-131



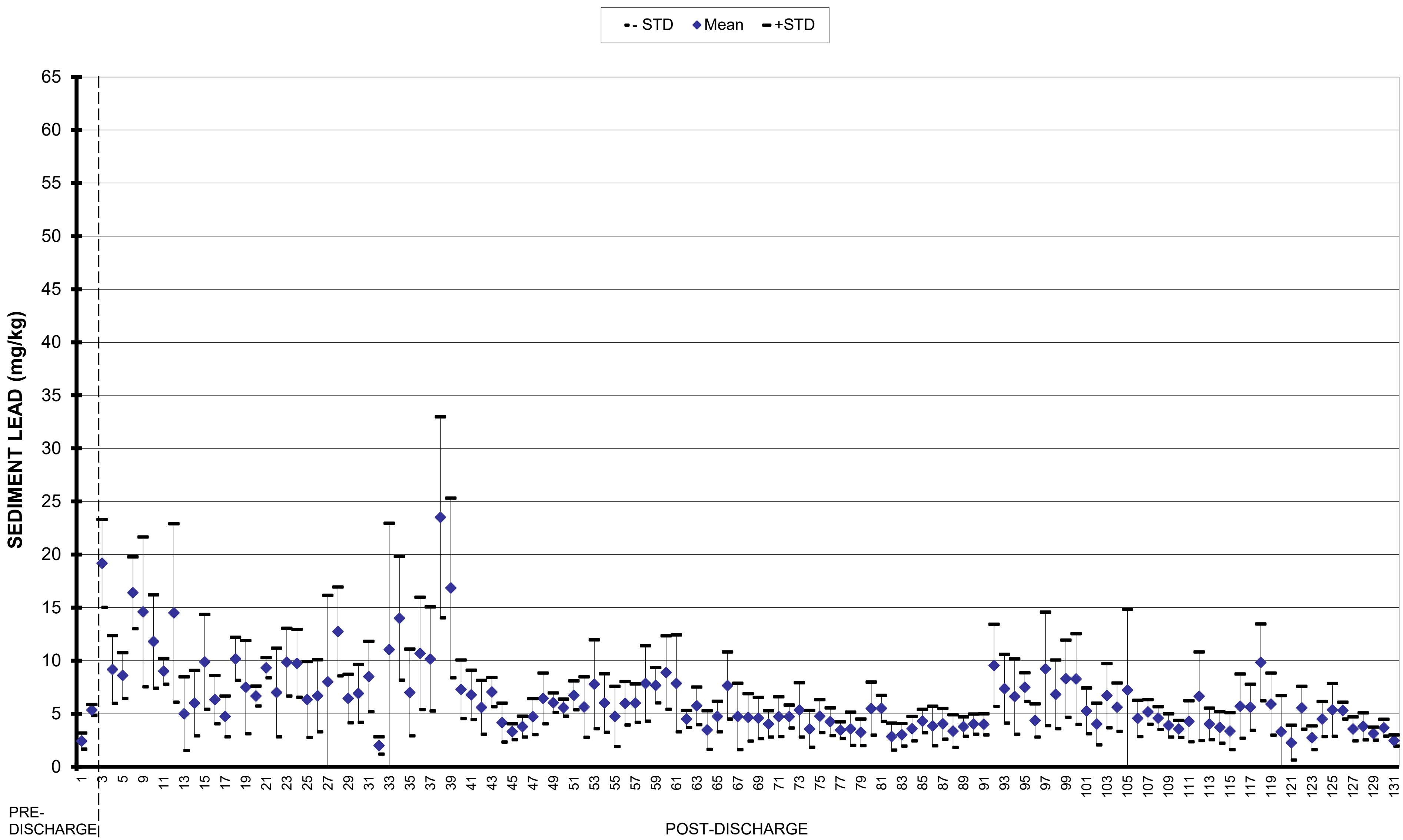


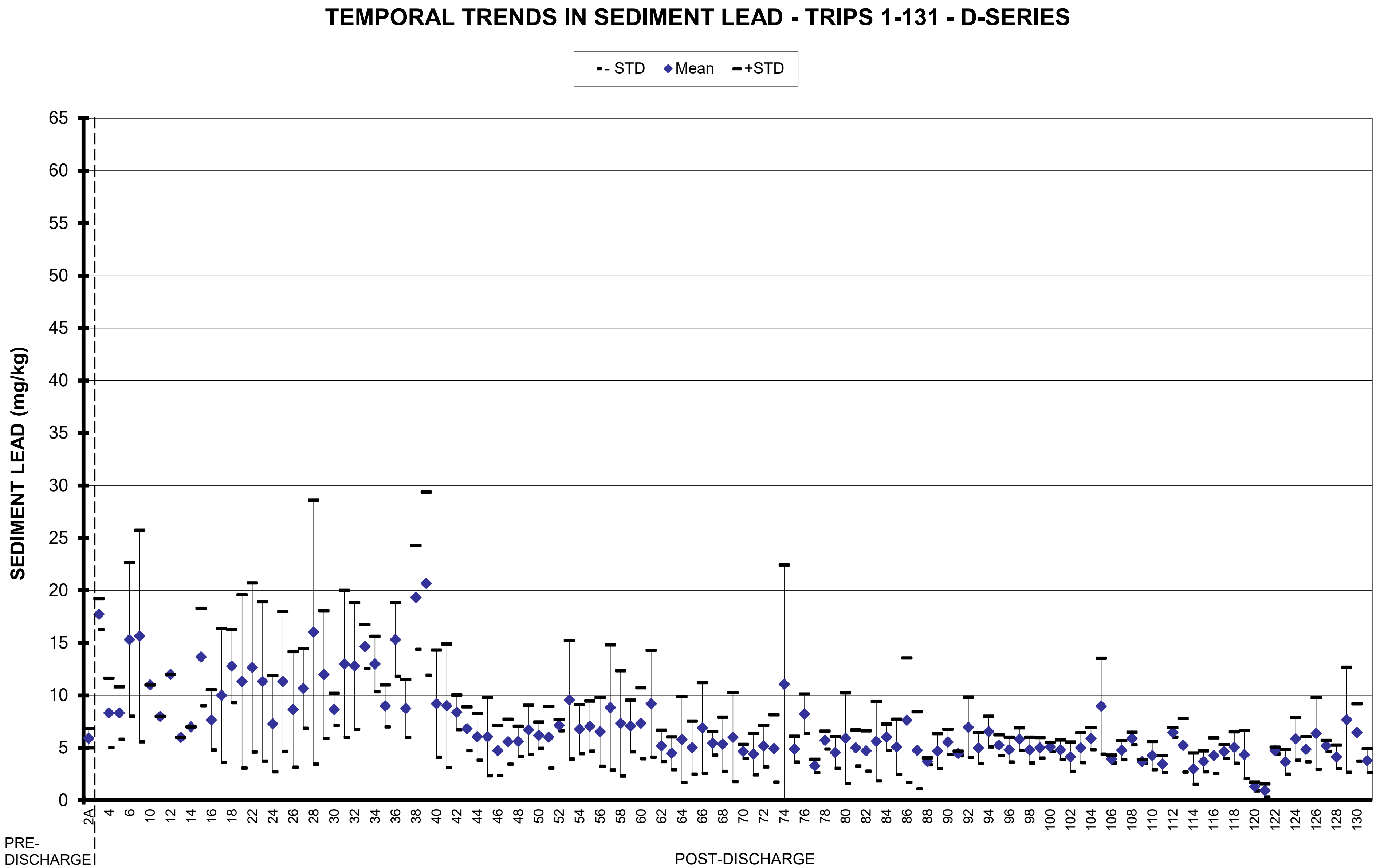
TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - A-SERIES
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

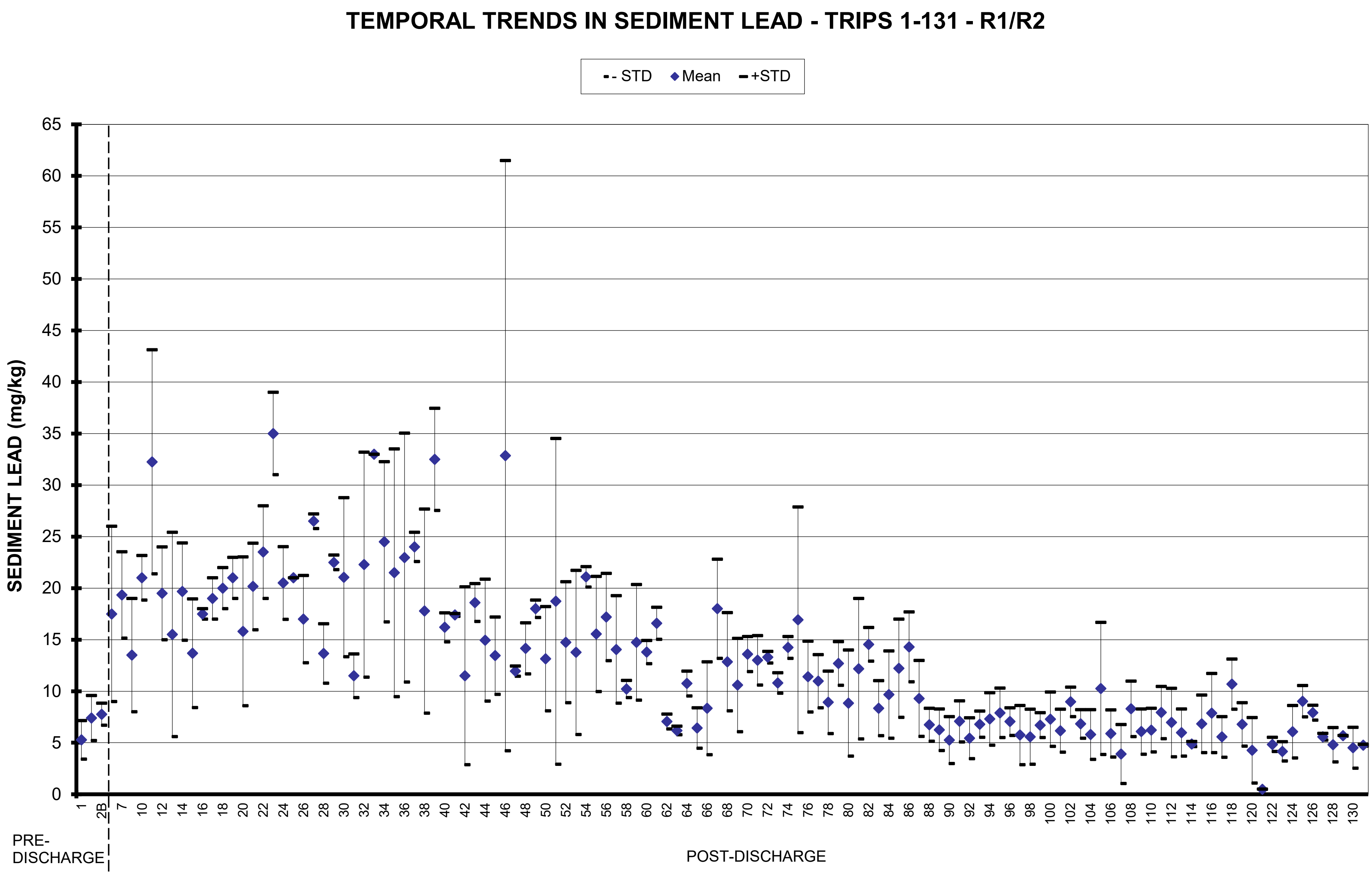


TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
PRE-
DISCHARGE
POST-DISCHARGE

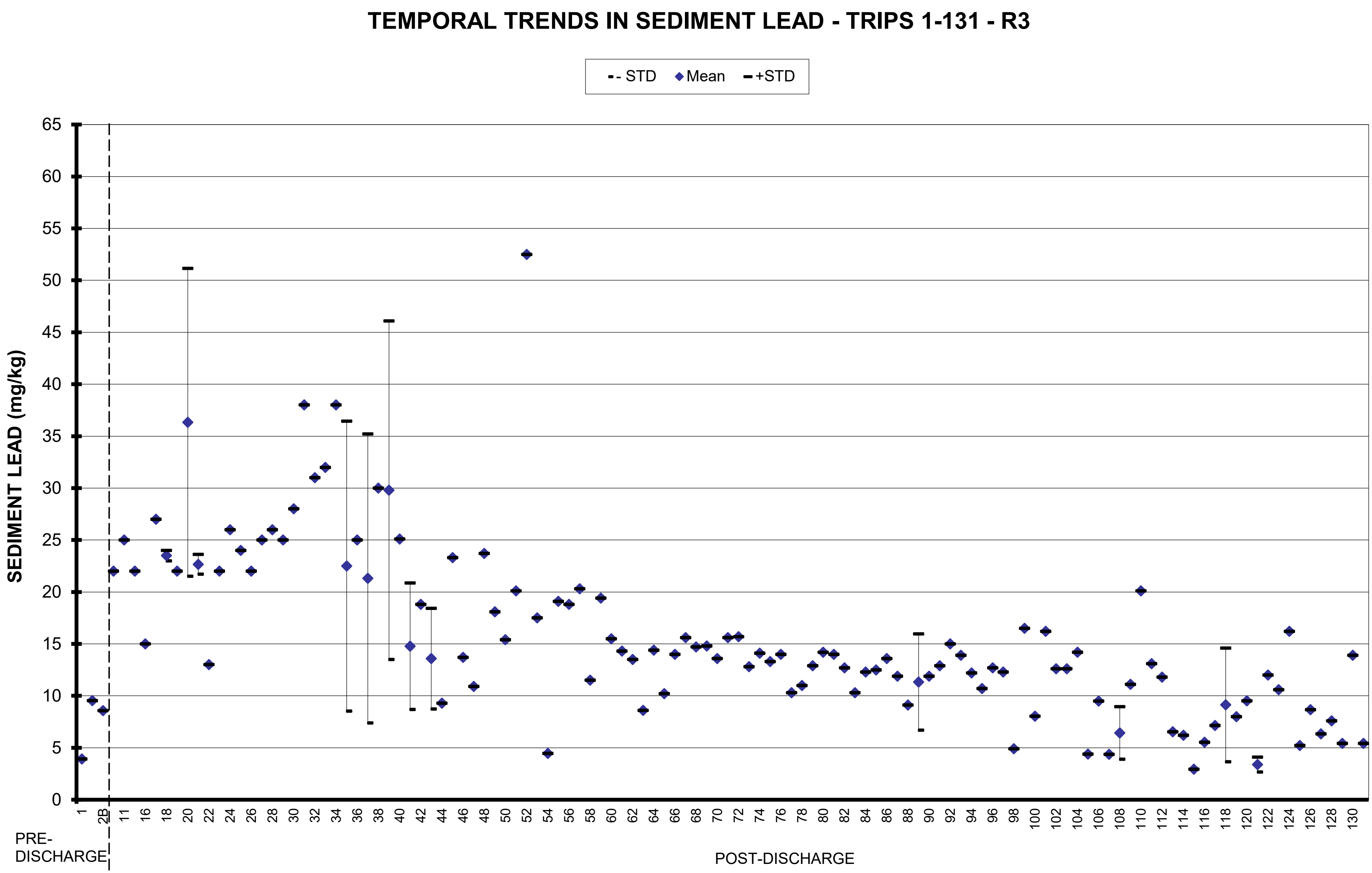
TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - C-SERIES



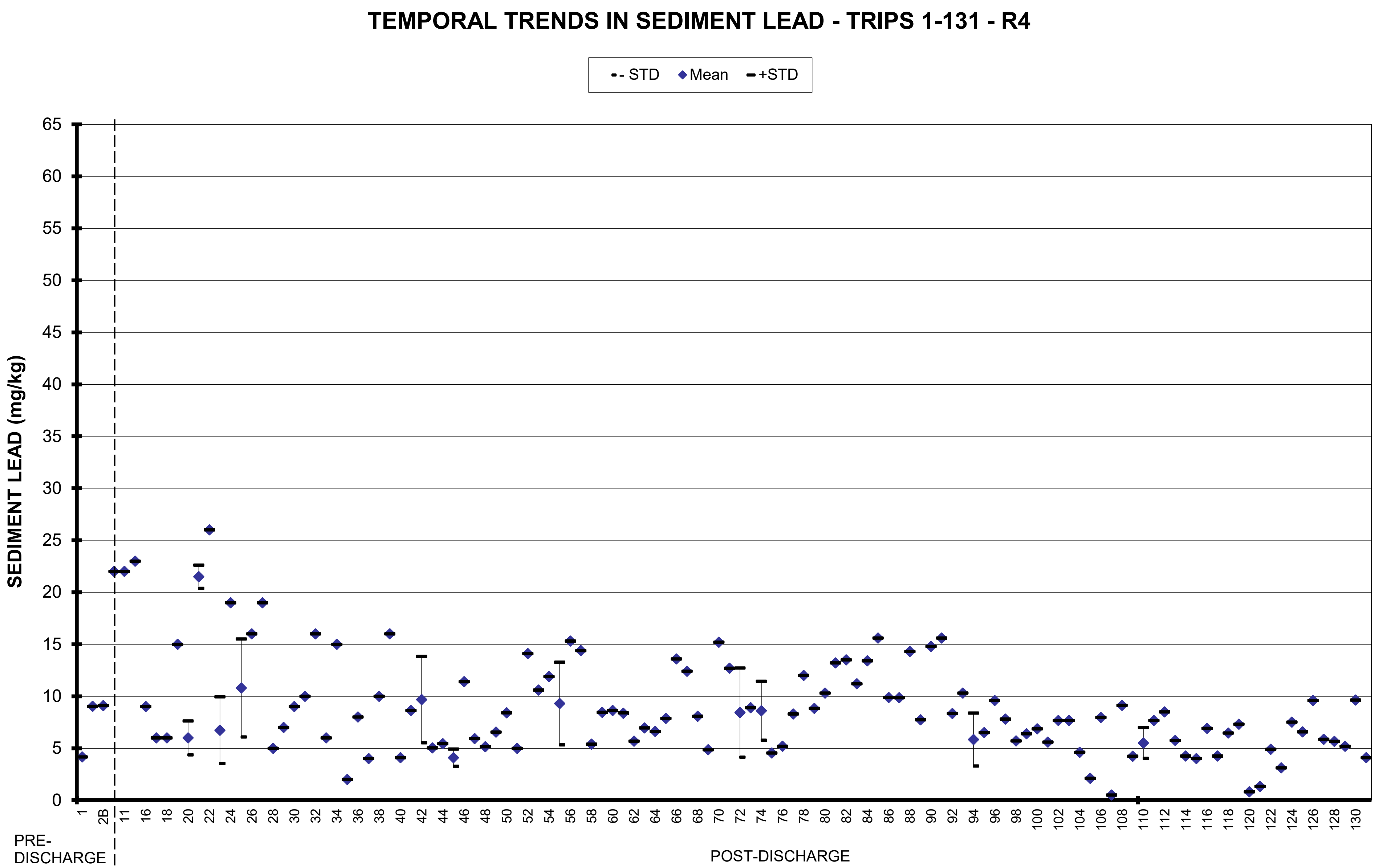

TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - D-SERIES
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE



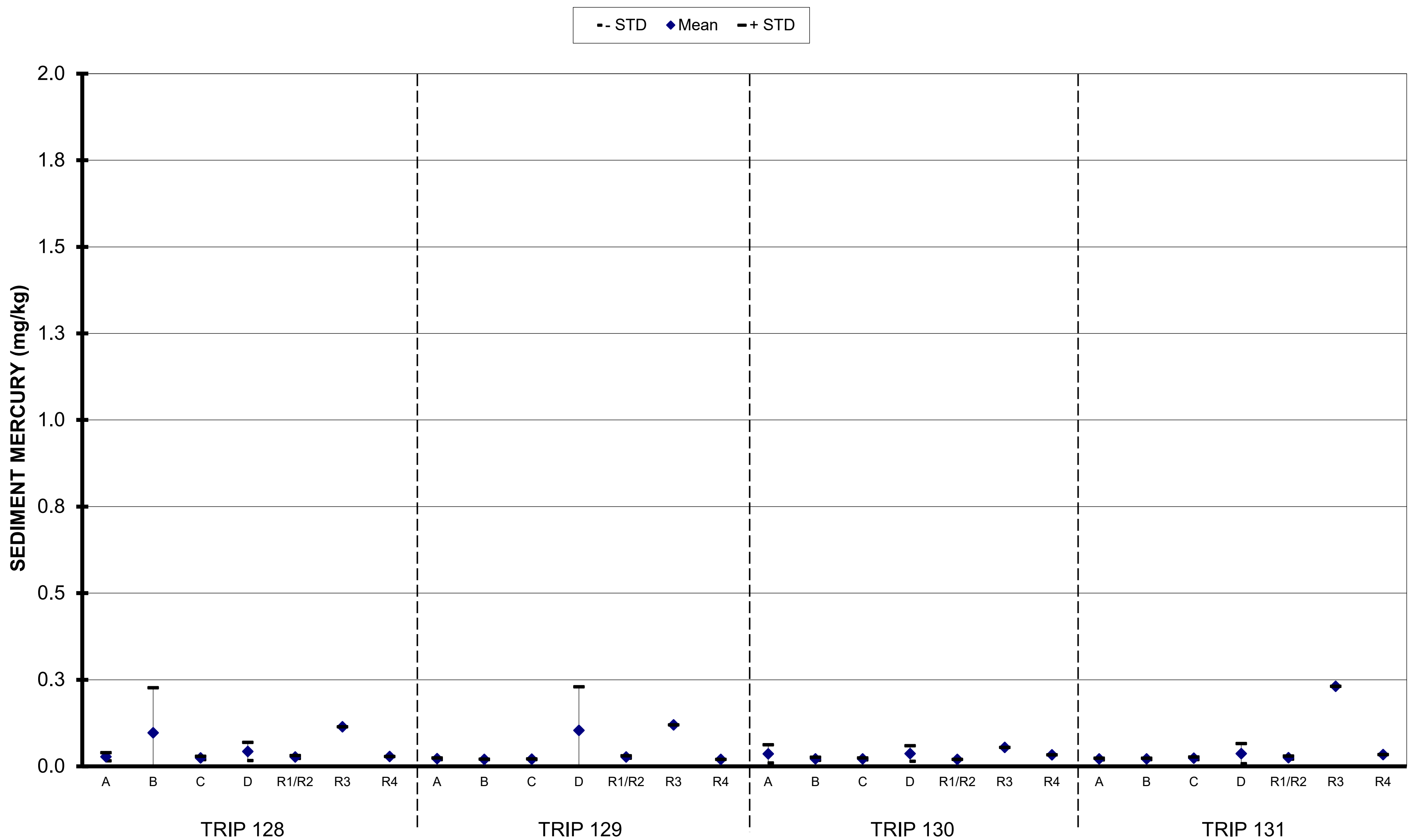
TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1
2B
7
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

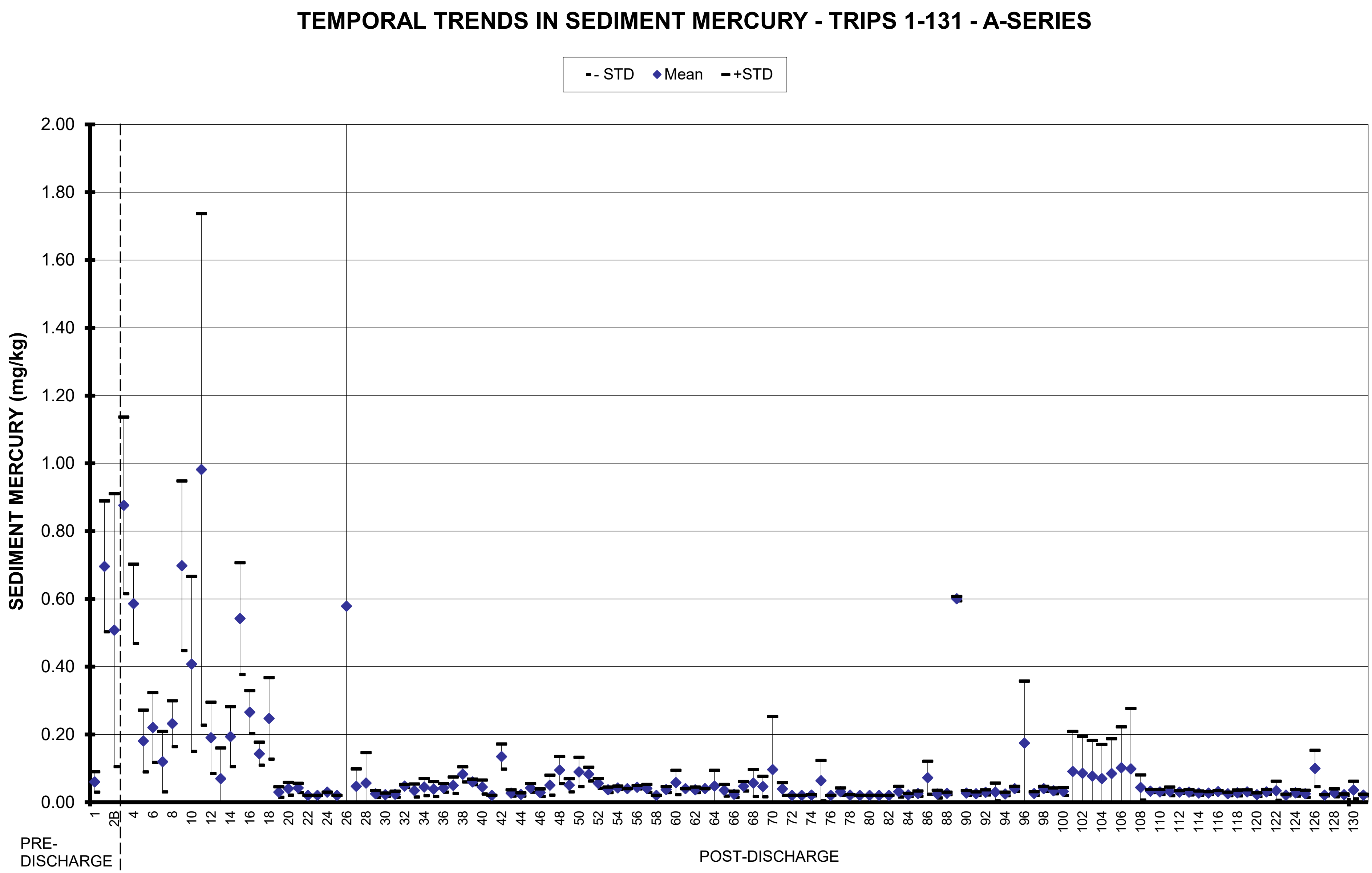


TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - R3
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

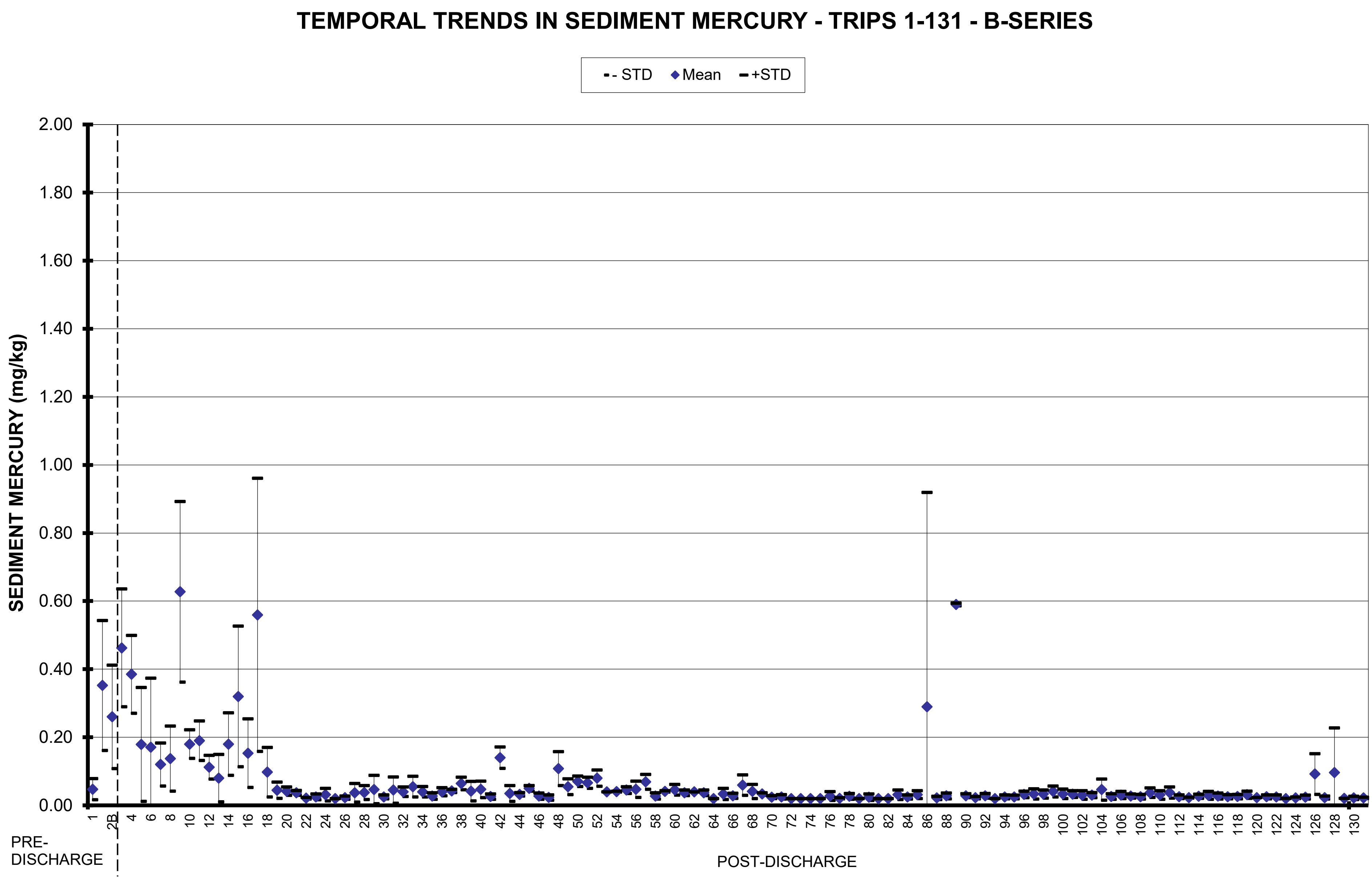

TEMPORAL TRENDS IN SEDIMENT LEAD - TRIPS 1-131 - R4
- STD
Mean
+STD
SEDIMENT LEAD (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

SPATIAL TRENDS IN SEDIMENT MERCURY - TRIPS 128-131



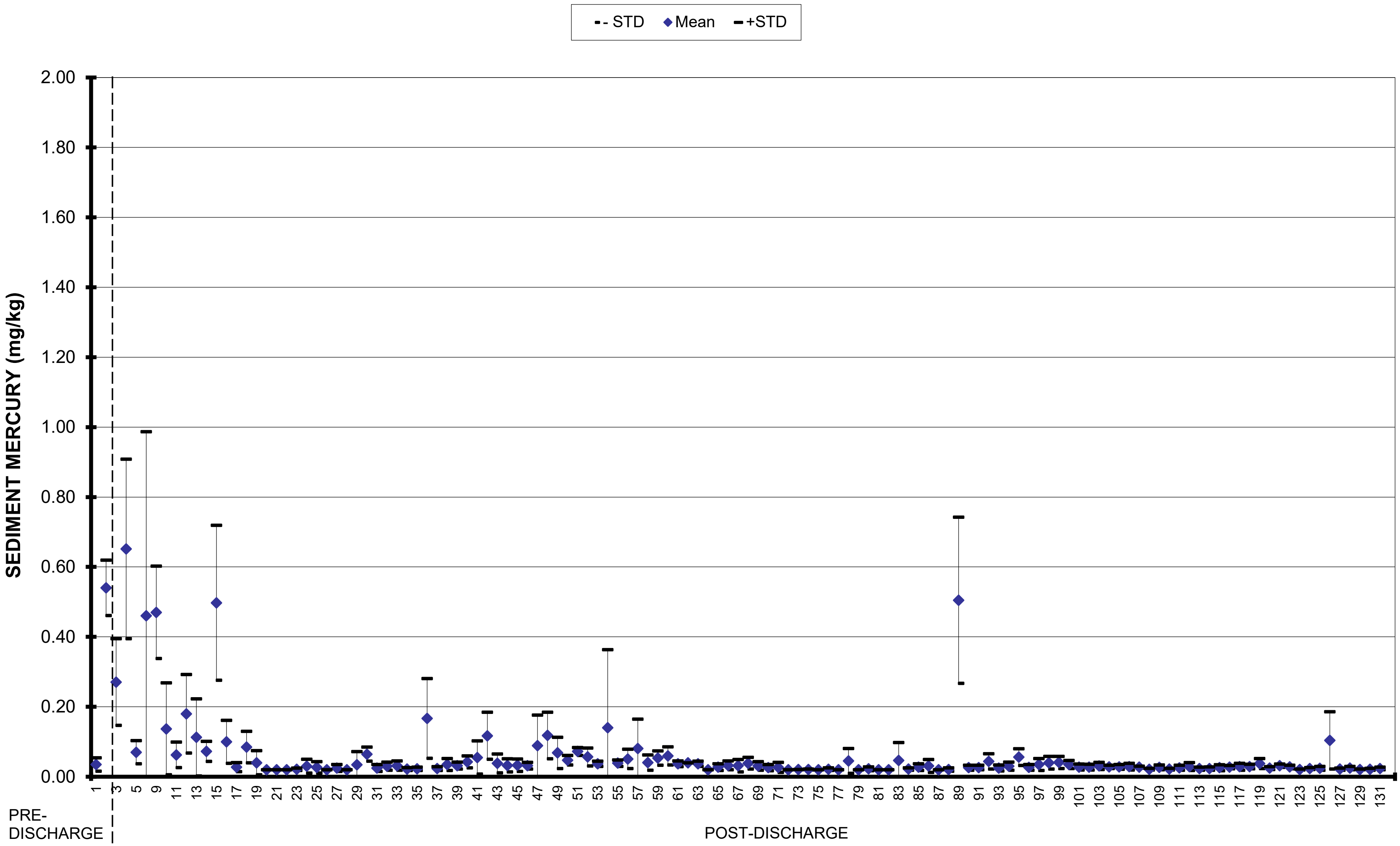


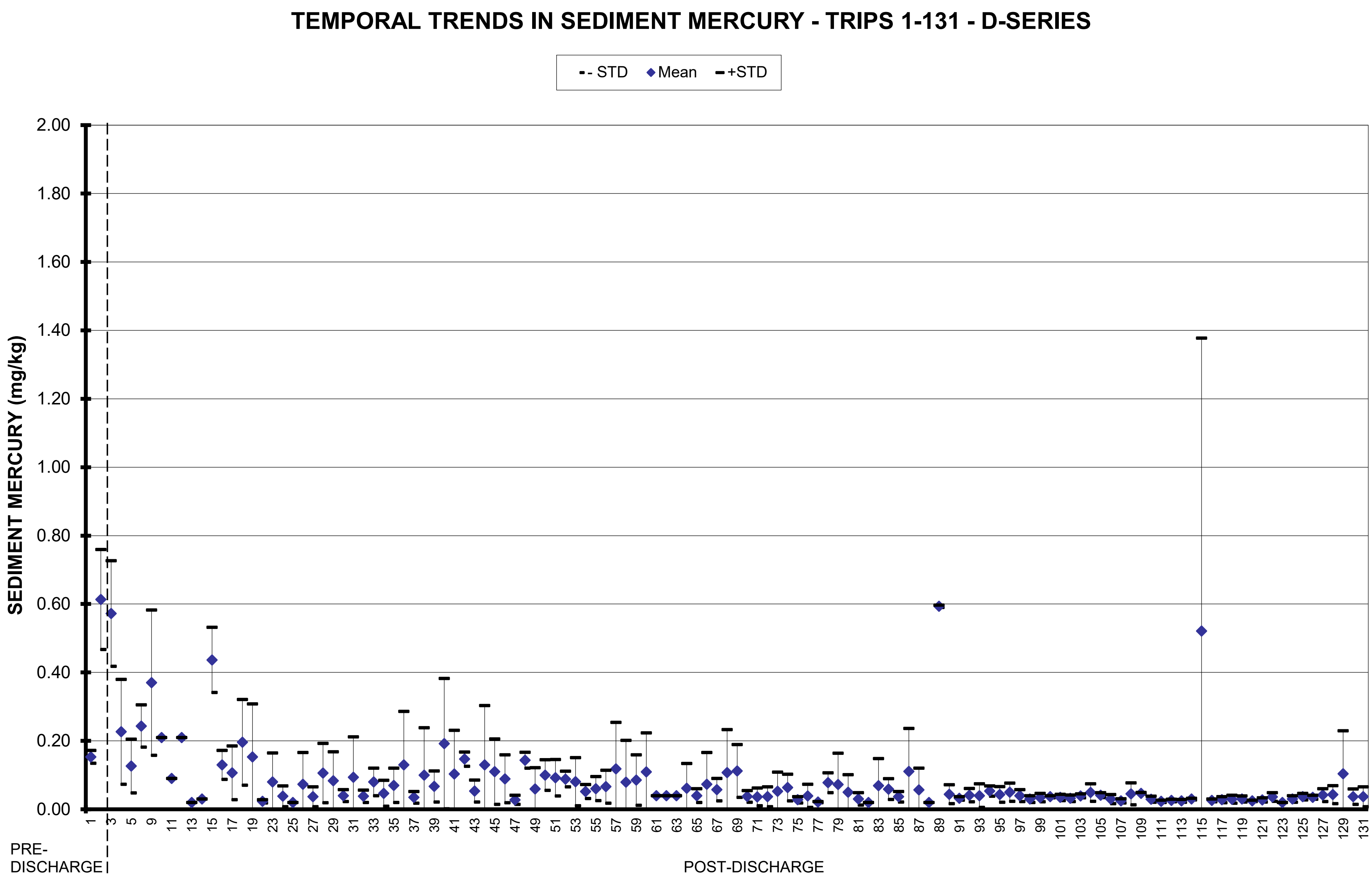
TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - A-SERIES
- STD
Mean
+STD
SEDIMENT MERCURY (mg/kg)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
PRE-DISCHARGE
POST-DISCHARGE

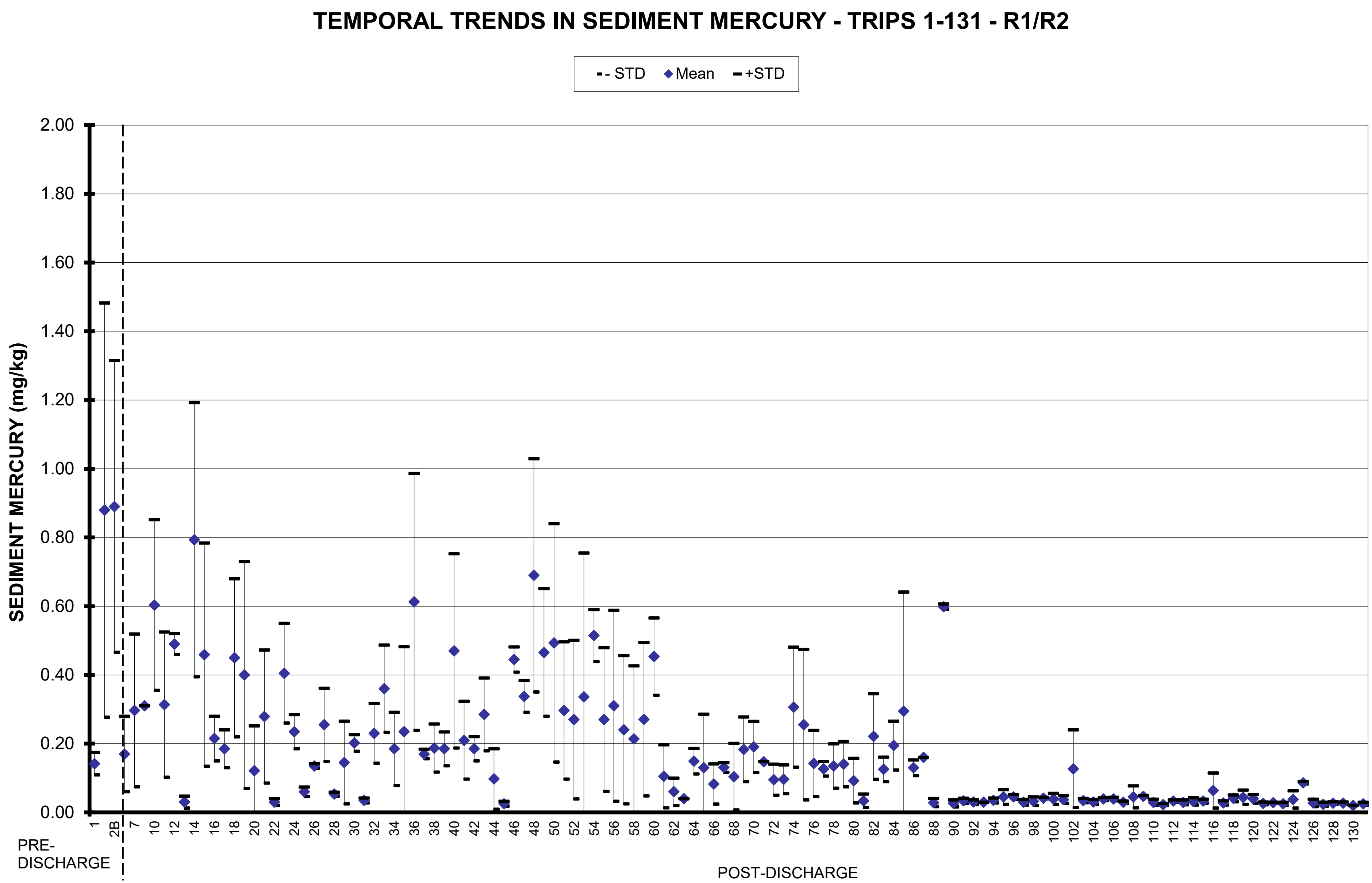


TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT MERCURY (mg/kg)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1
2B
4
6
8
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

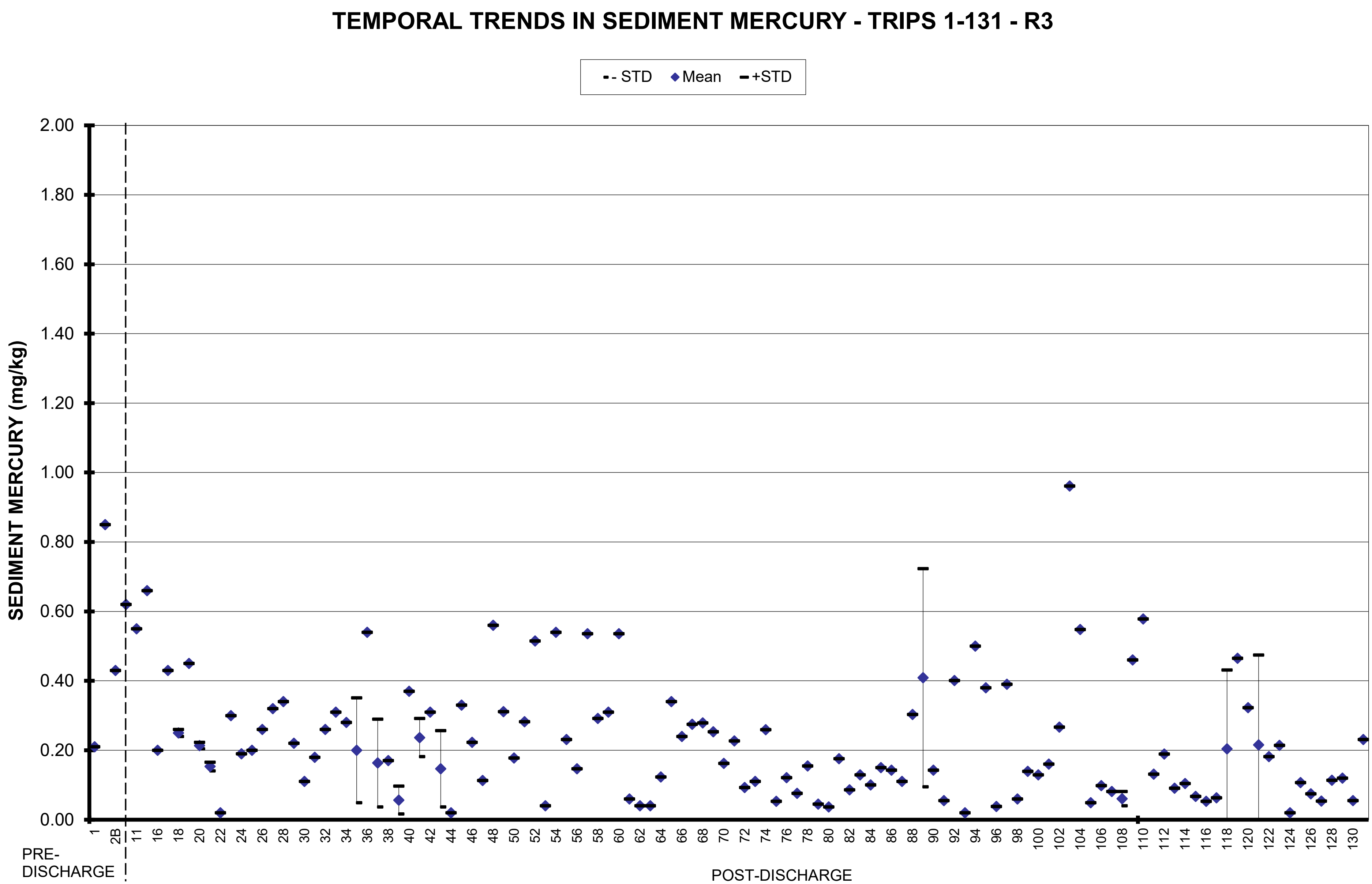
TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - C-SERIES




TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - D-SERIES
- STD
Mean
+STD
SEDIMENT MERCURY (mg/kg)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
PRE-DISCHARGE
POST-DISCHARGE

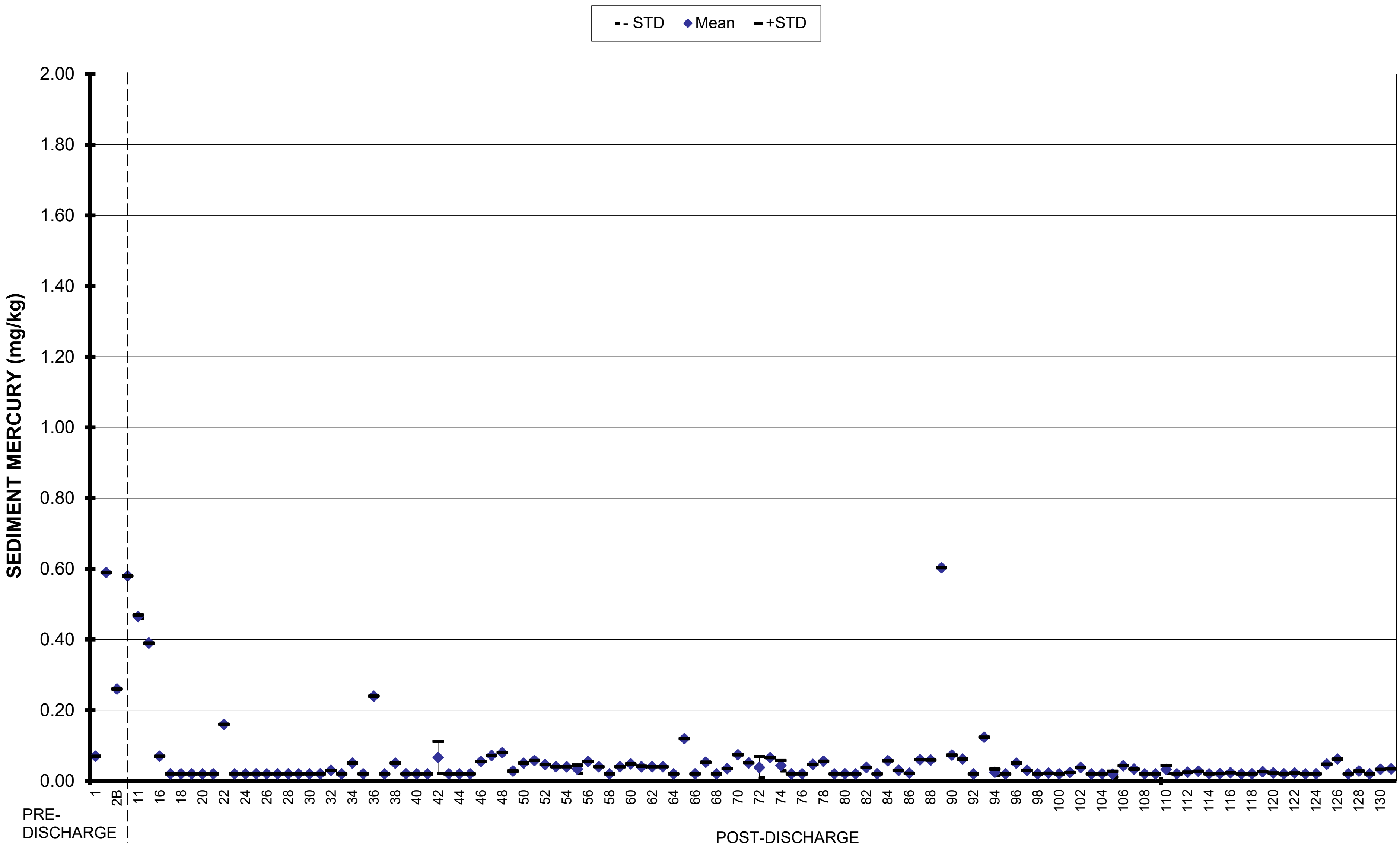


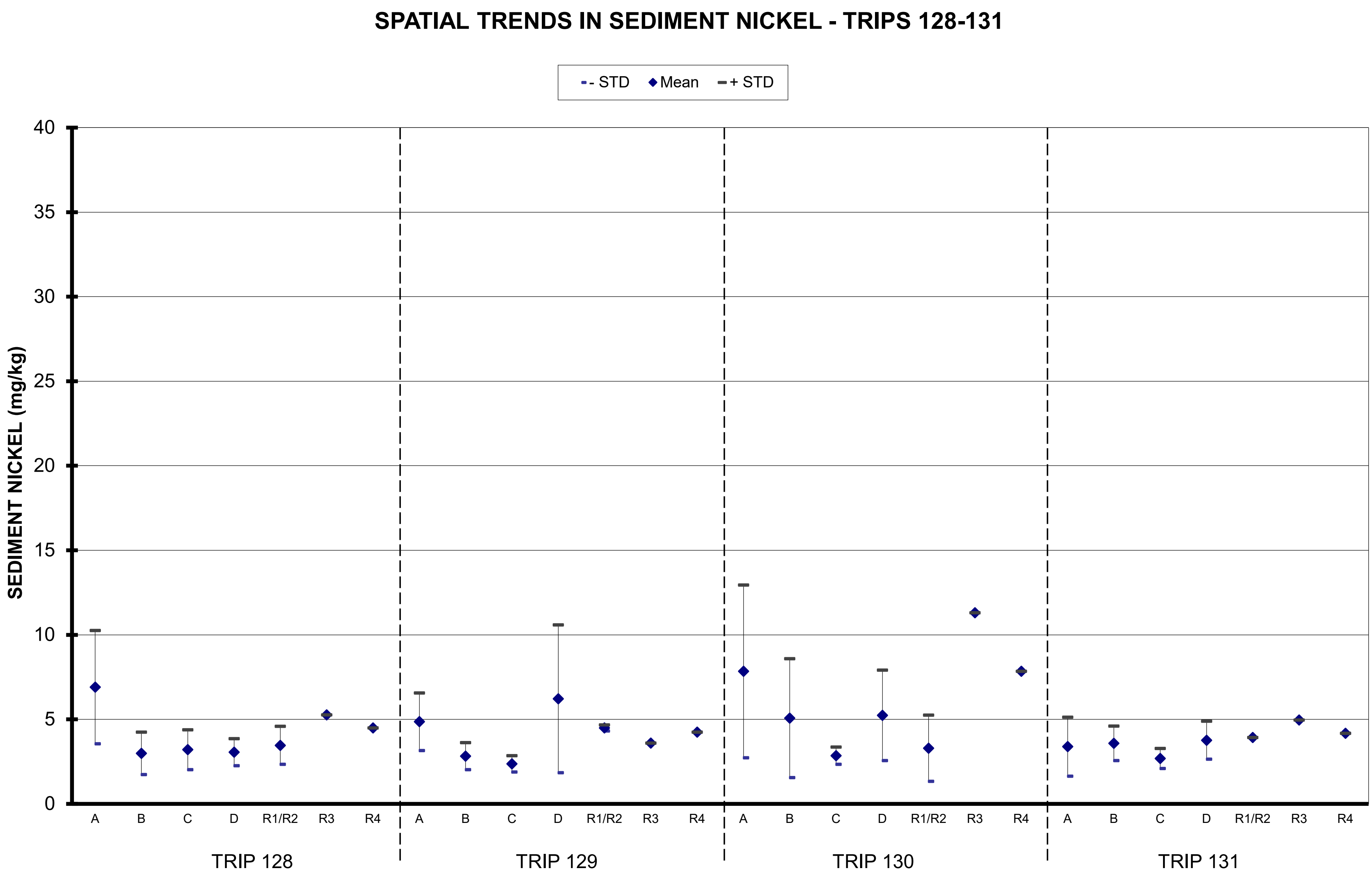
TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT MERCURY (mg/kg)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
PRE-DISCHARGE
POST-DISCHARGE

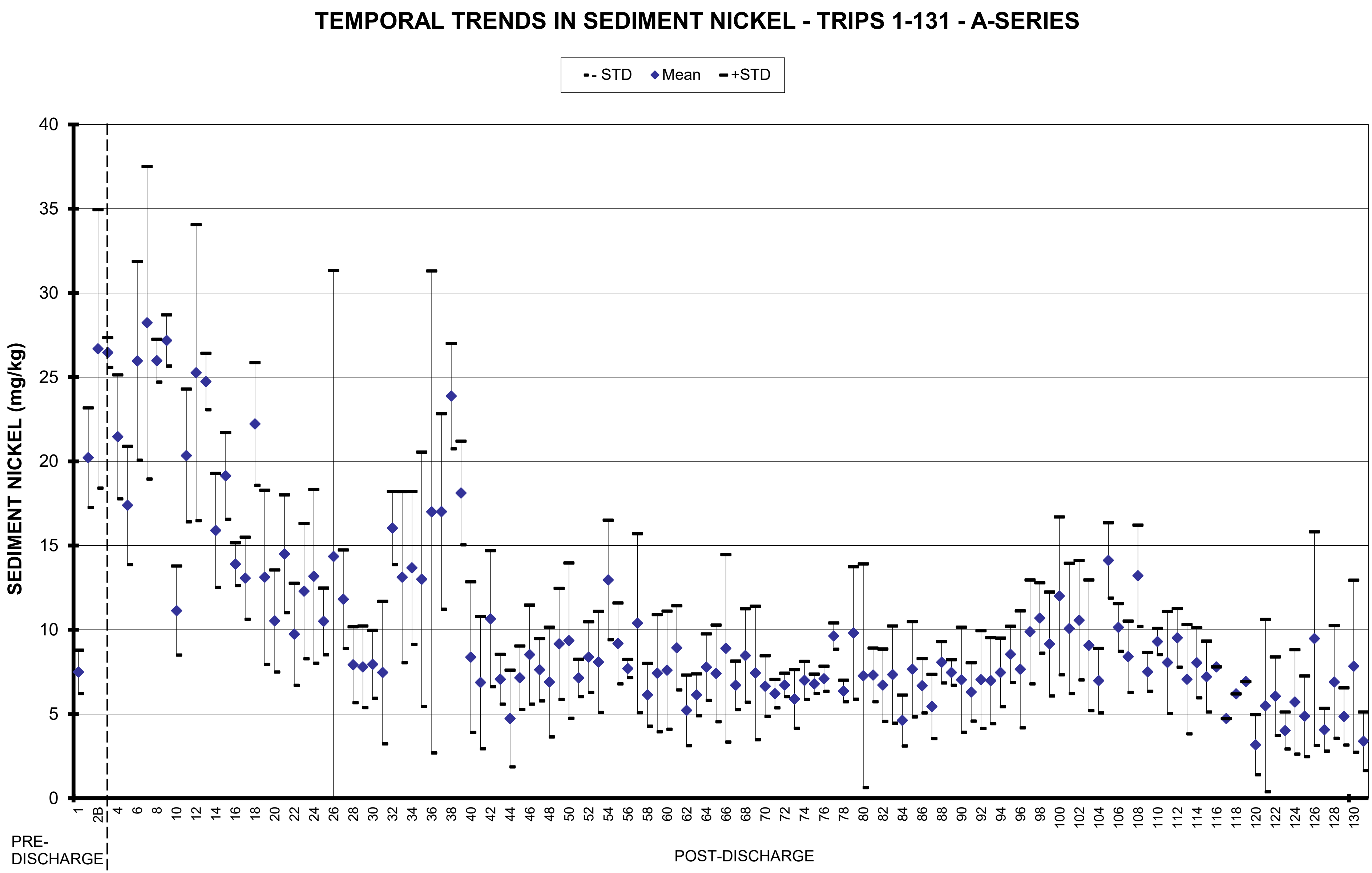


TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - R3
- STD
Mean
+STD
SEDIMENT MERCURY (mg/kg)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

TEMPORAL TRENDS IN SEDIMENT MERCURY - TRIPS 1-131 - R4

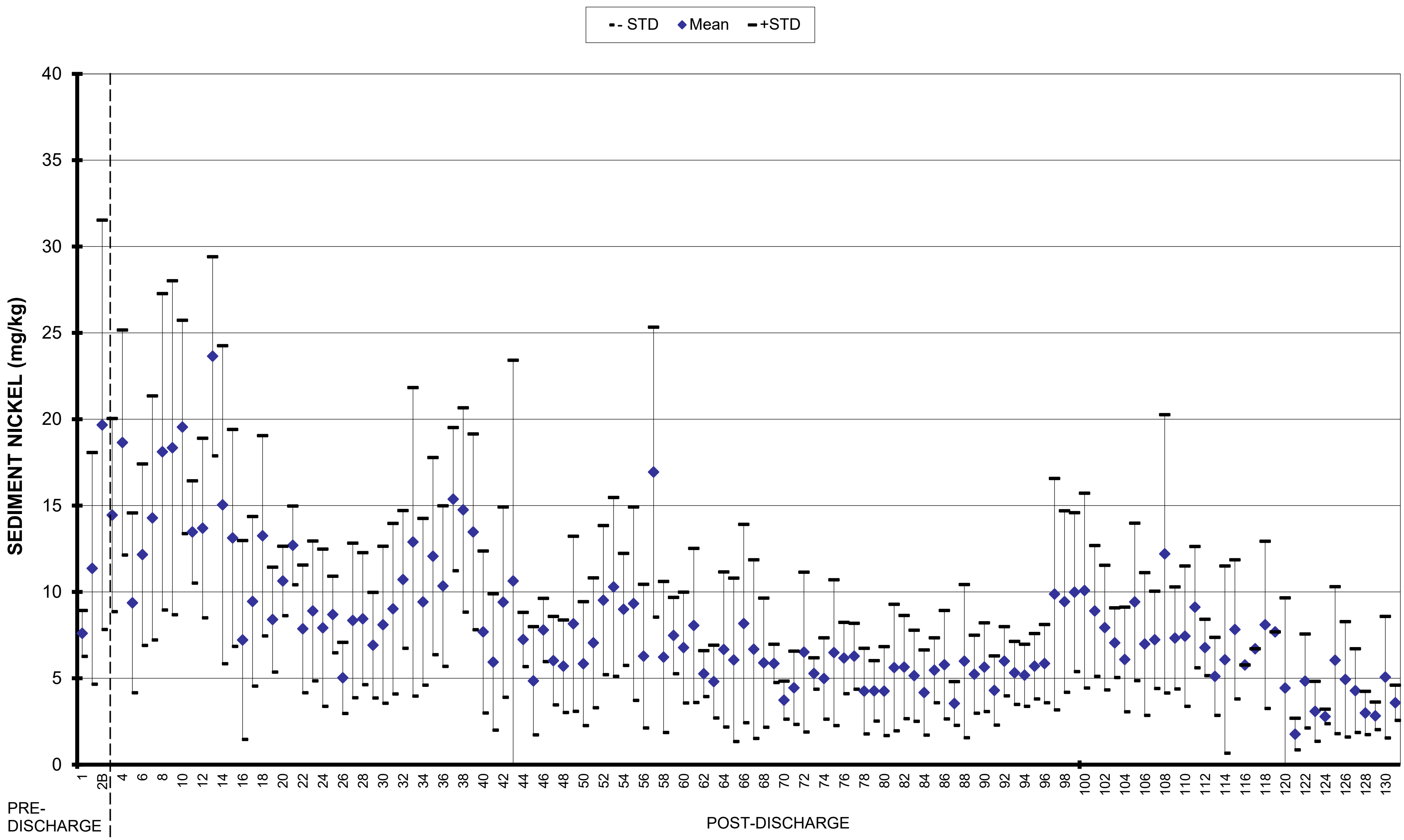


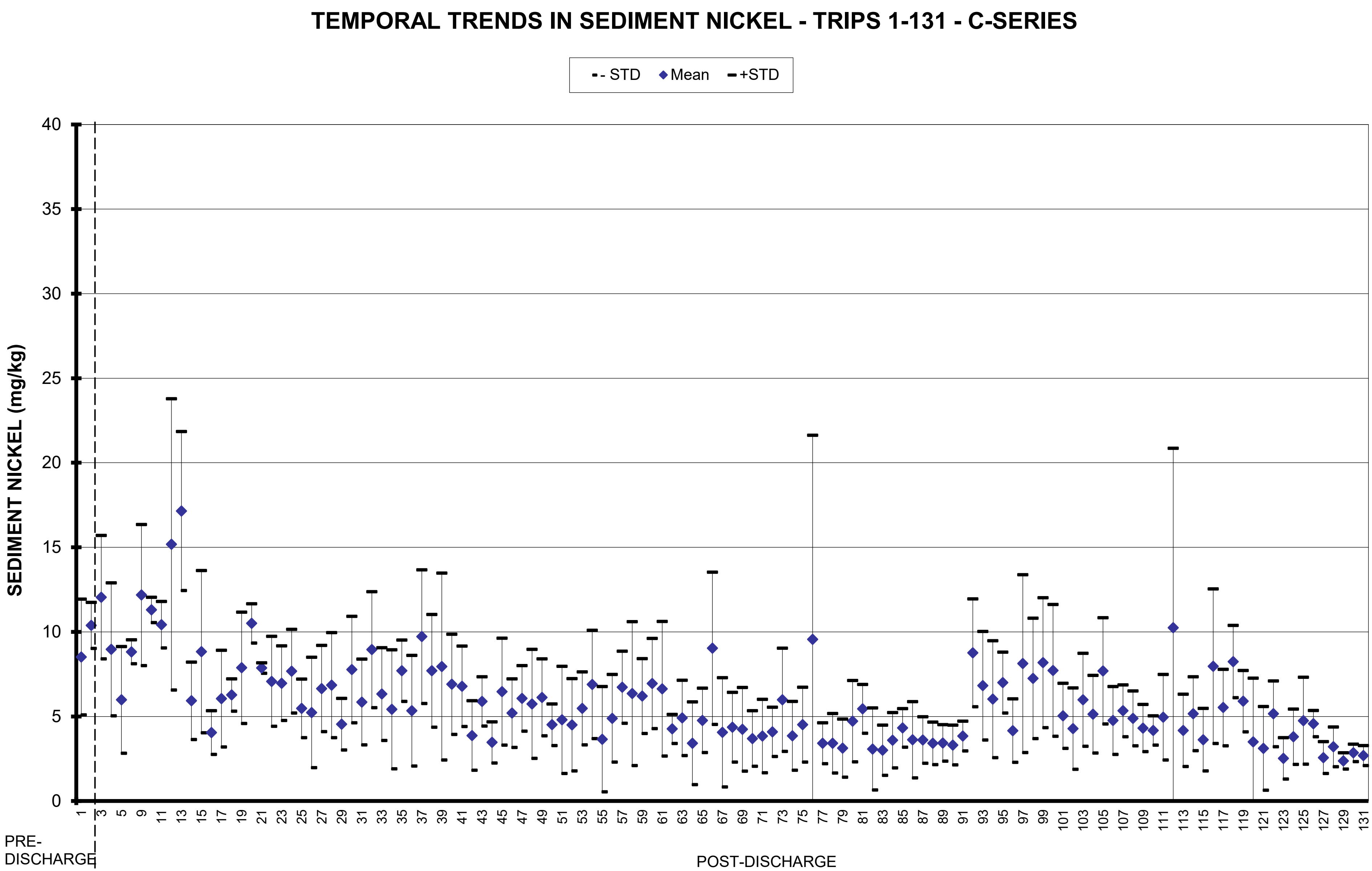

SPATIAL TRENDS IN SEDIMENT NICKEL - TRIPS 128-131
- STD
Mean
+ STD
SEDIMENT NICKEL (mg/kg)
0
5
10
15
20
25
30
35
40
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131



TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - A-SERIES
- STD
Mean
+STD
SEDIMENT NICKEL (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

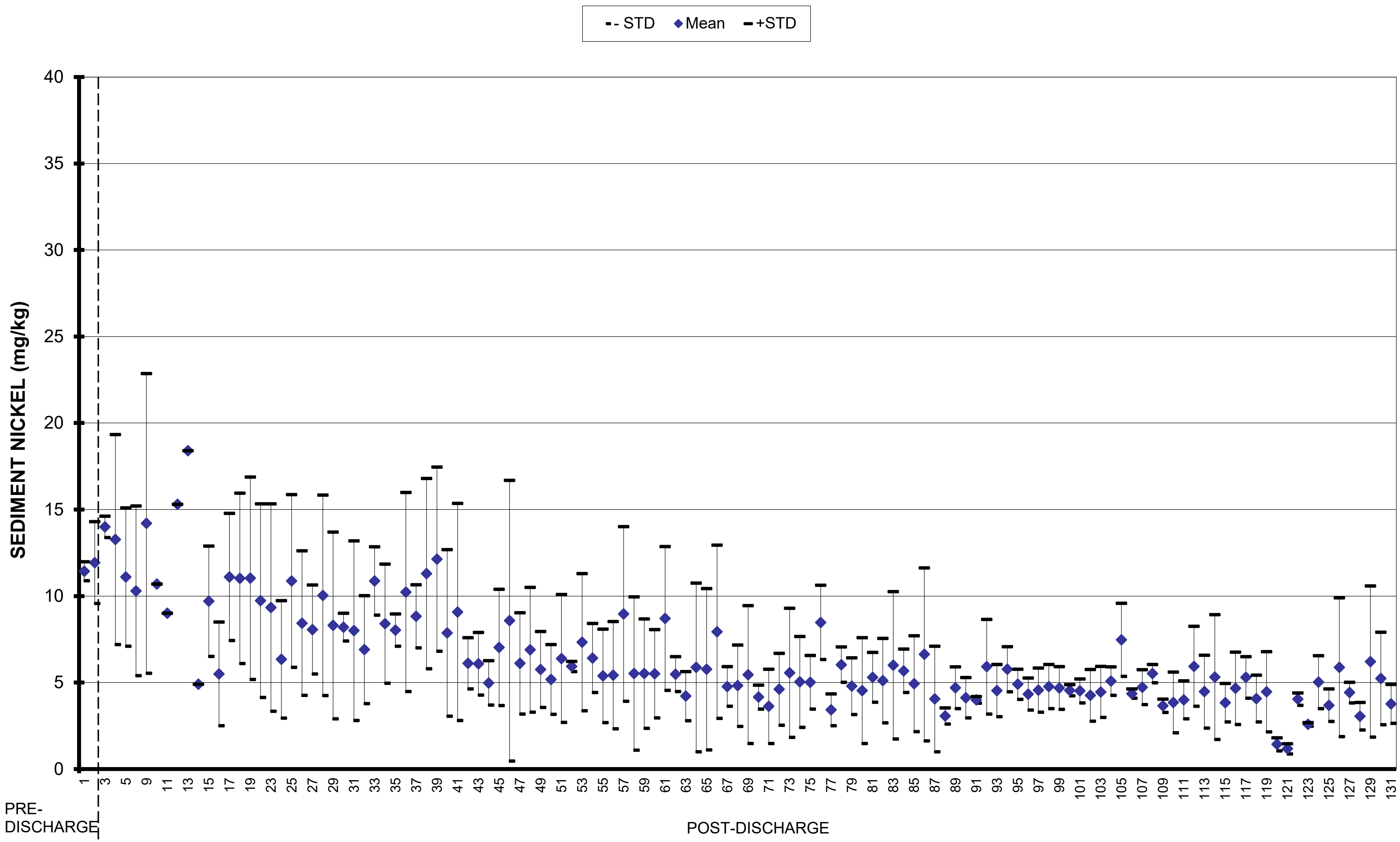
TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - B-SERIES

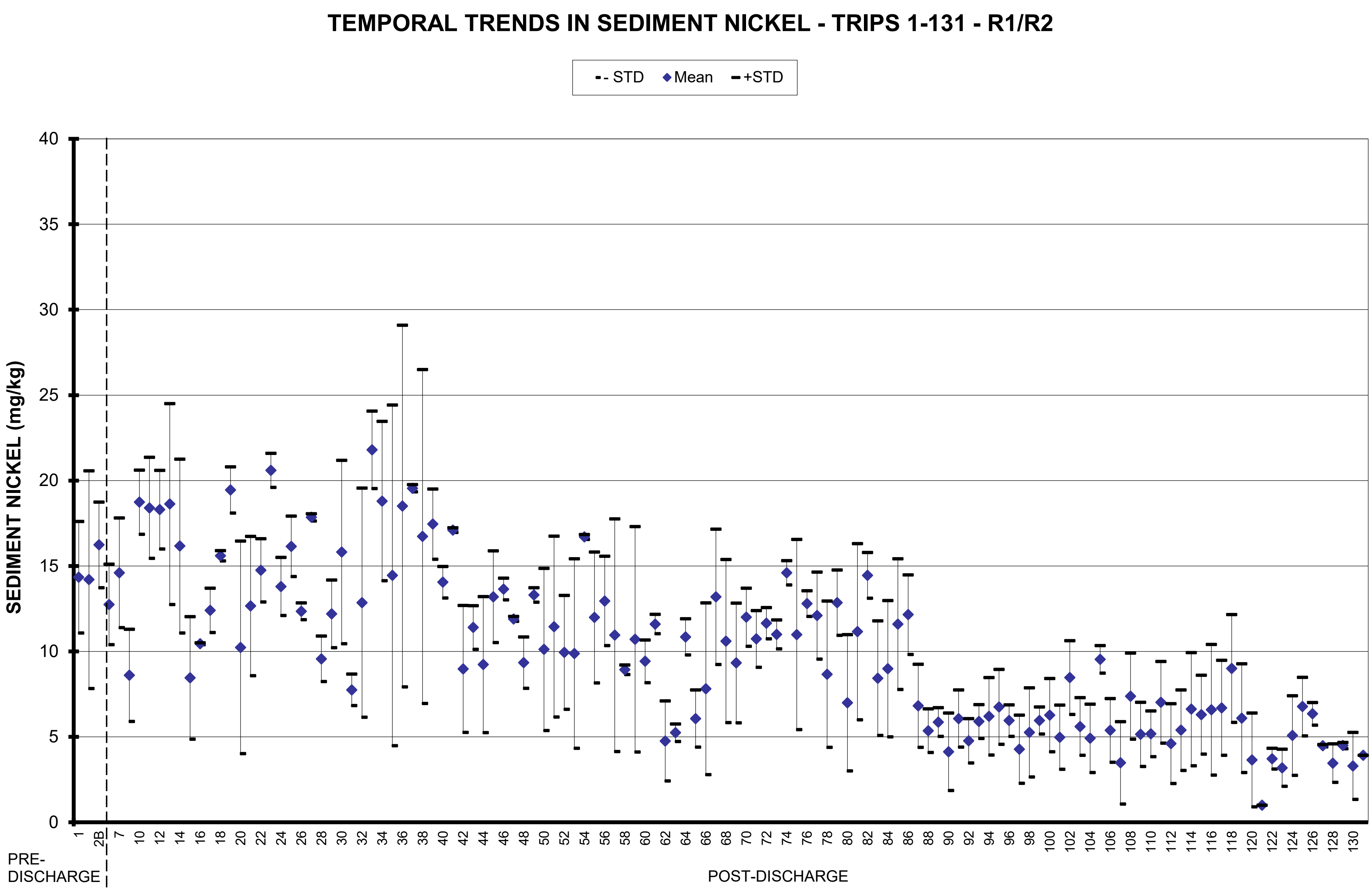


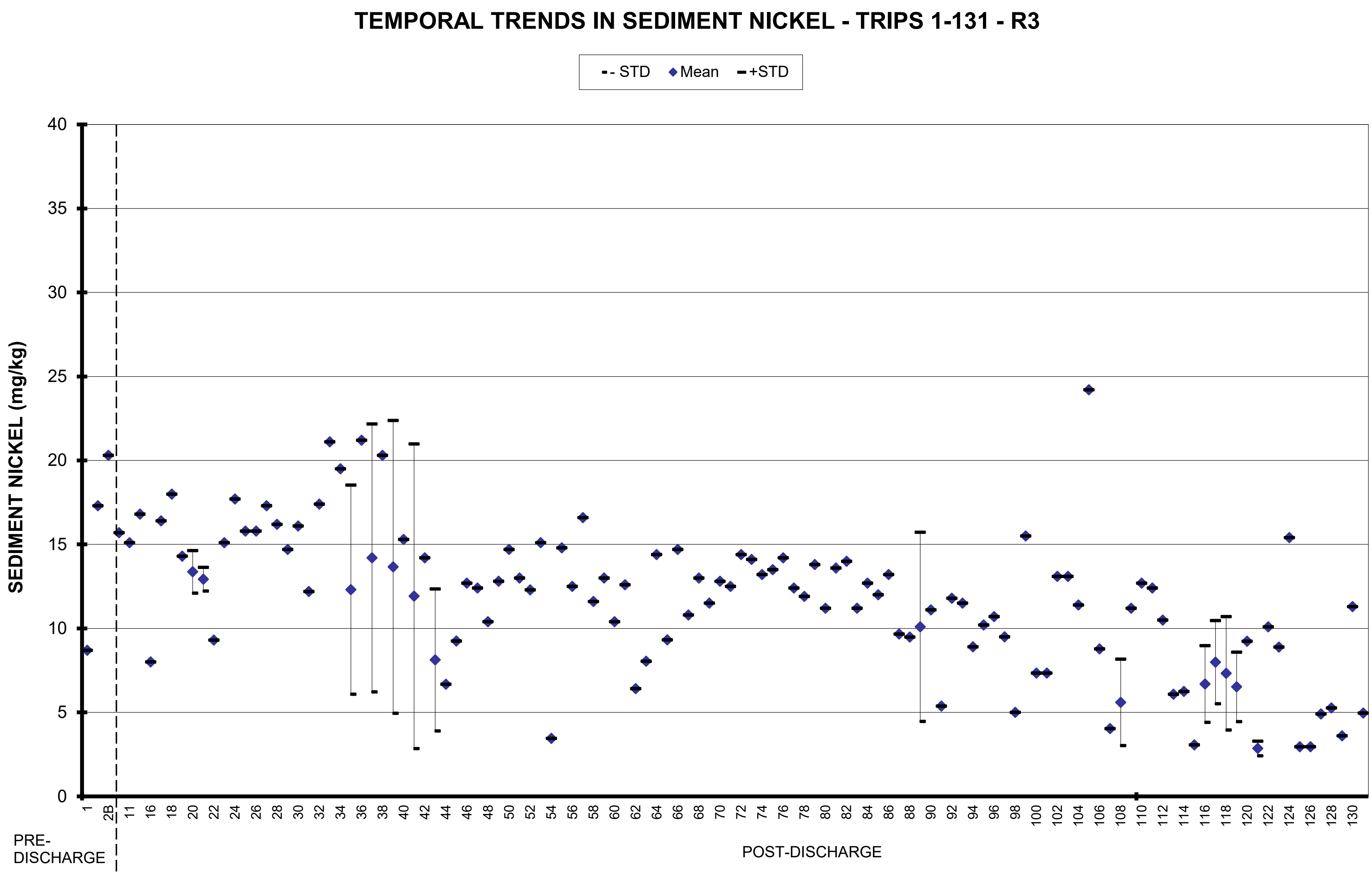


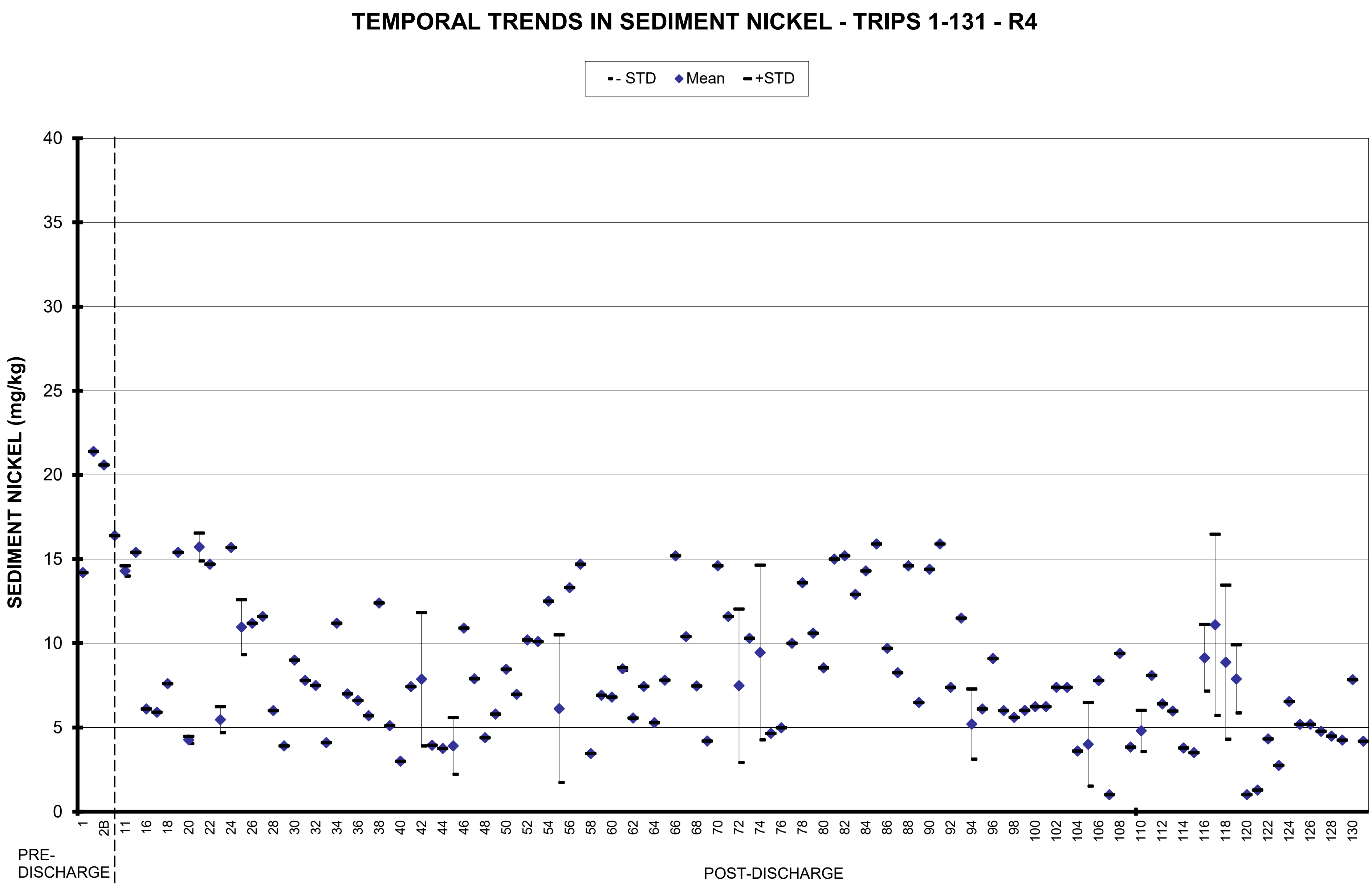
TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - C-SERIES
- STD
Mean
+STD
SEDIMENT NICKEL (mg/kg)
0
5
10
15
20
25
30
35
40
PRE-
DISCHARGE
POST-DISCHARGE

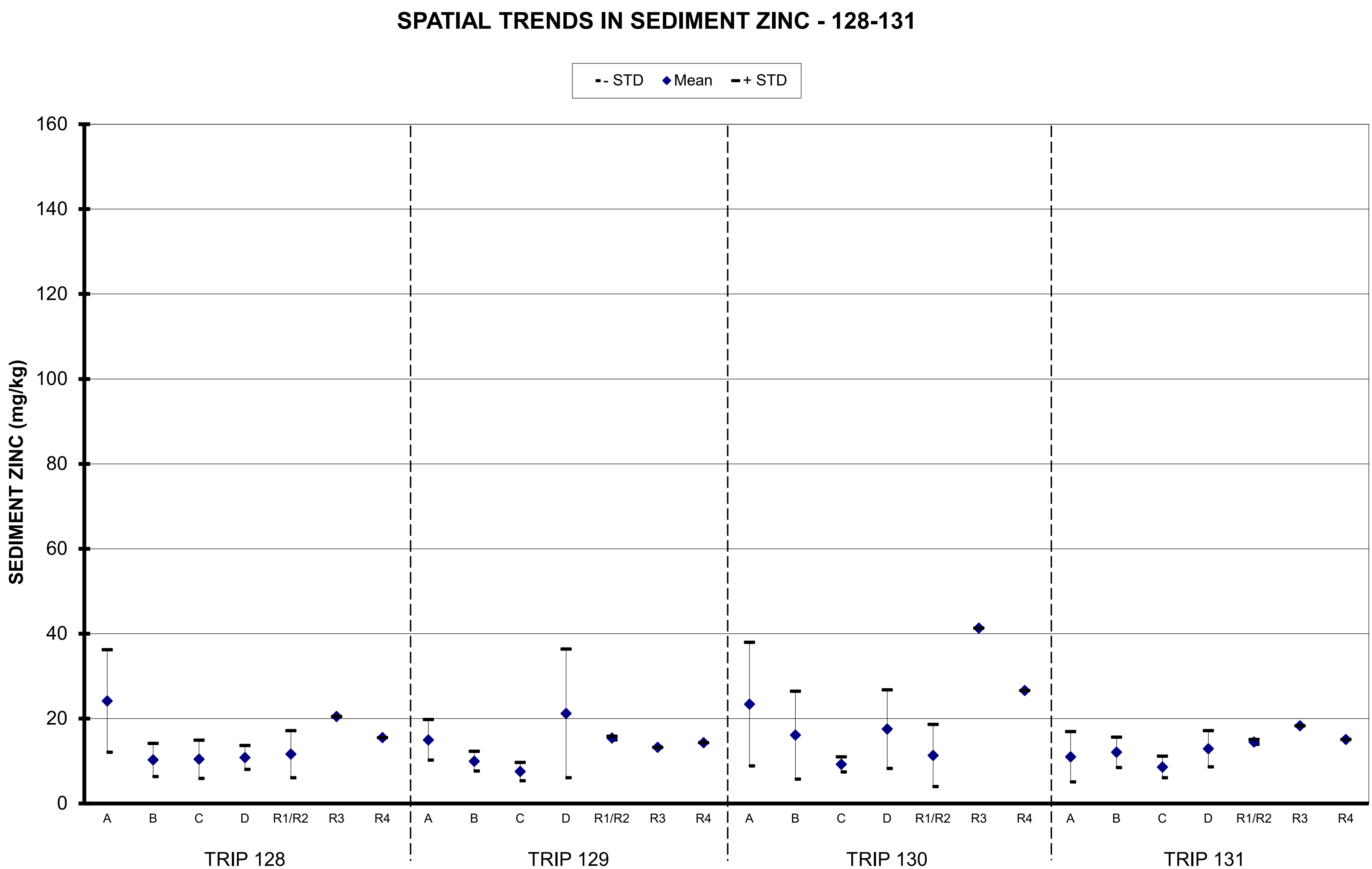
TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 D-SERIES

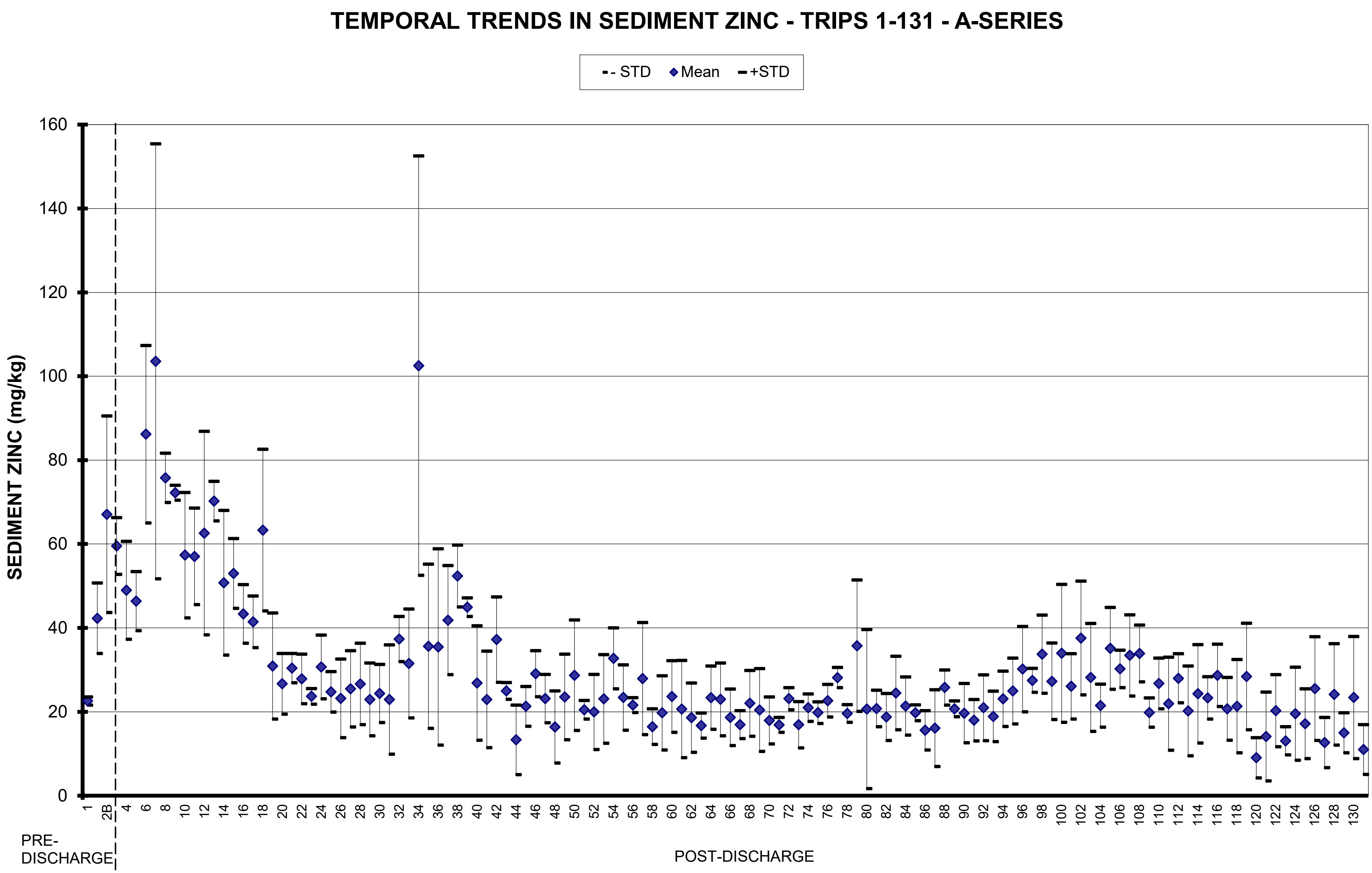


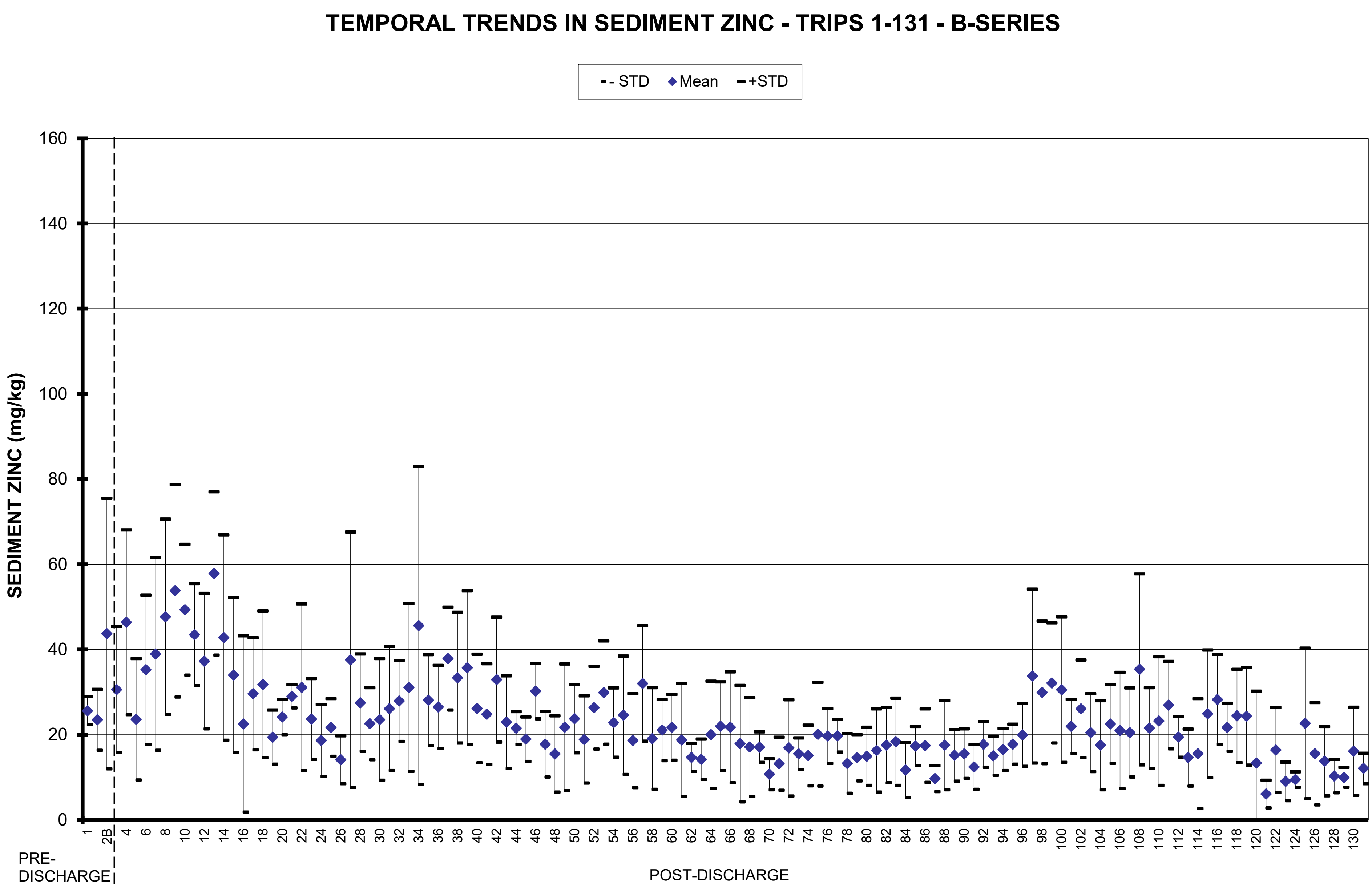

TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - R1/R2
- STD
Mean
+STD
SEDIMENT NICKEL (mg/kg)
0
5
10
15
20
25
30
35
40
1
2B
7
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-DISCHARGE
POST-DISCHARGE


TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - R3
- STD
Mean
+STD
SEDIMENT NICKEL (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

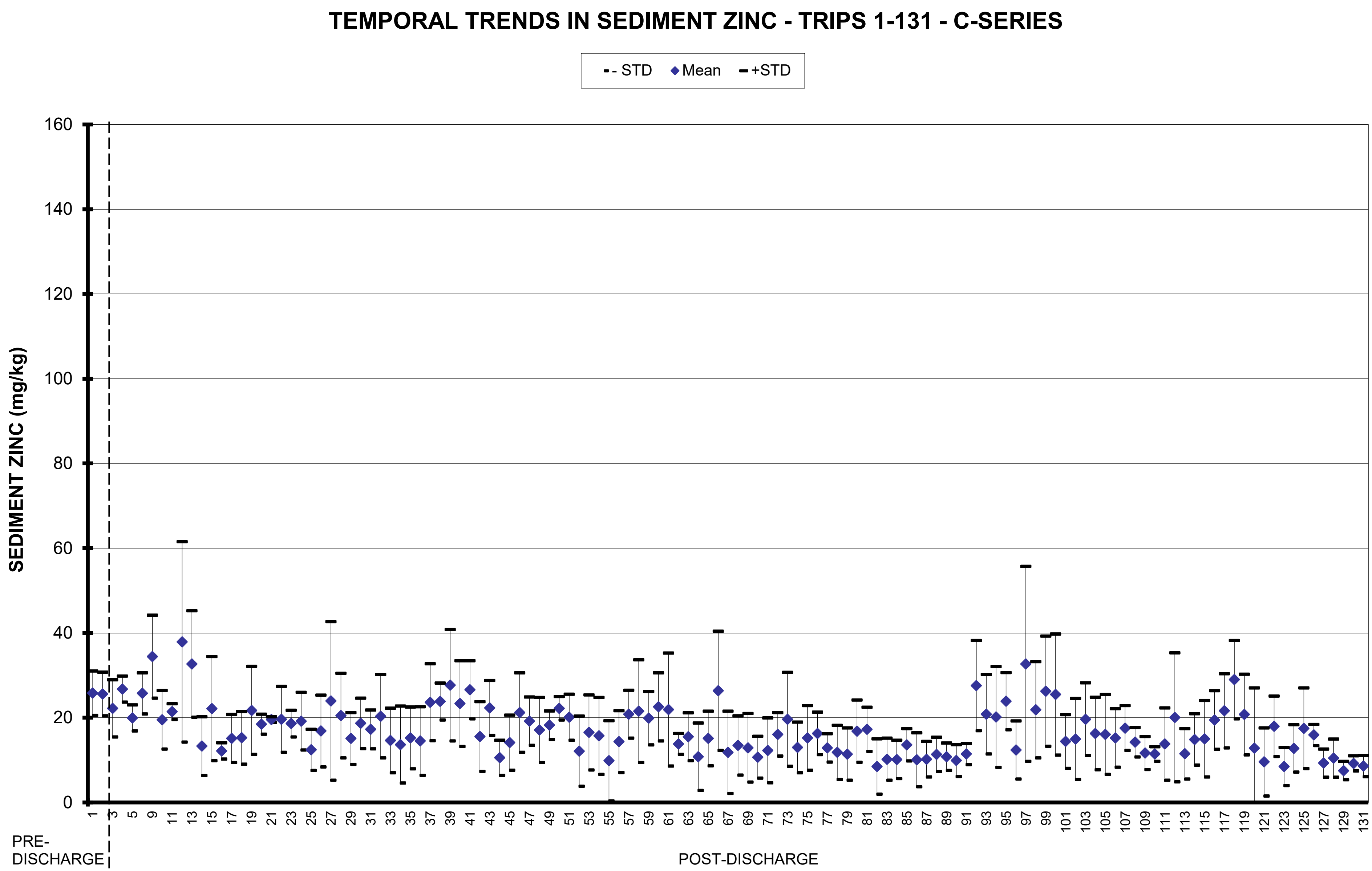

TEMPORAL TRENDS IN SEDIMENT NICKEL - TRIPS 1-131 - R4
- STD
Mean
+STD
SEDIMENT NICKEL (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE


SPATIAL TRENDS IN SEDIMENT ZINC - 128-131
- STD
Mean
+ STD
SEDIMENT ZINC (mg/kg)
0
20
40
60
80
100
120
140
160
A
B
C
D
R1/R2
R3
R4
TRIP 128
TRIP 129
TRIP 130
TRIP 131


TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - A-SERIES
- STD
Mean
+STD
SEDIMENT ZINC (mg/kg)
PRE-DISCHARGE
POST-DISCHARGE

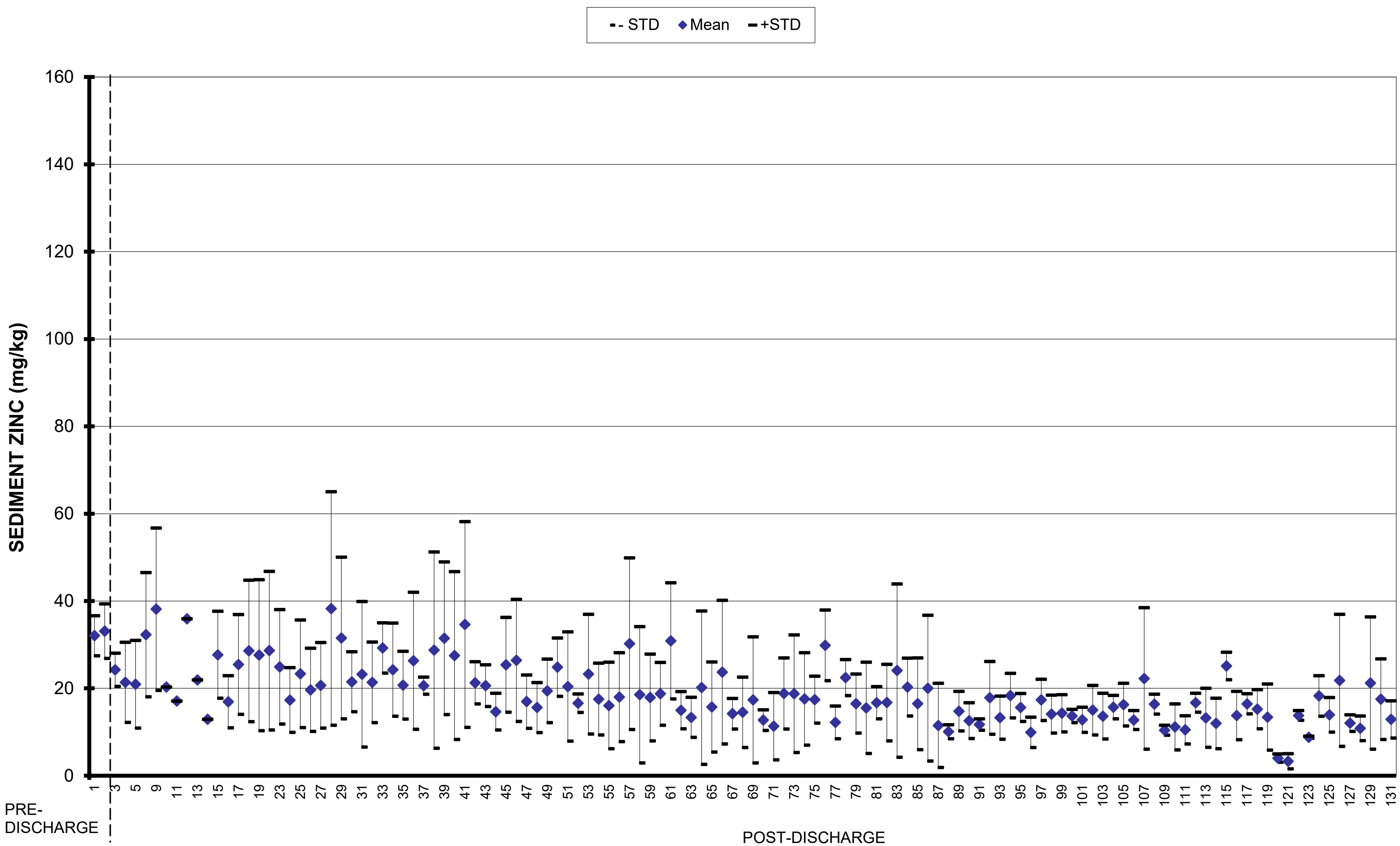


TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - B-SERIES
- STD
Mean
+STD
SEDIMENT ZINC (mg/kg)
160
140
120
100
80
60
40
20
0
PRE-
DISCHARGE
POST-DISCHARGE

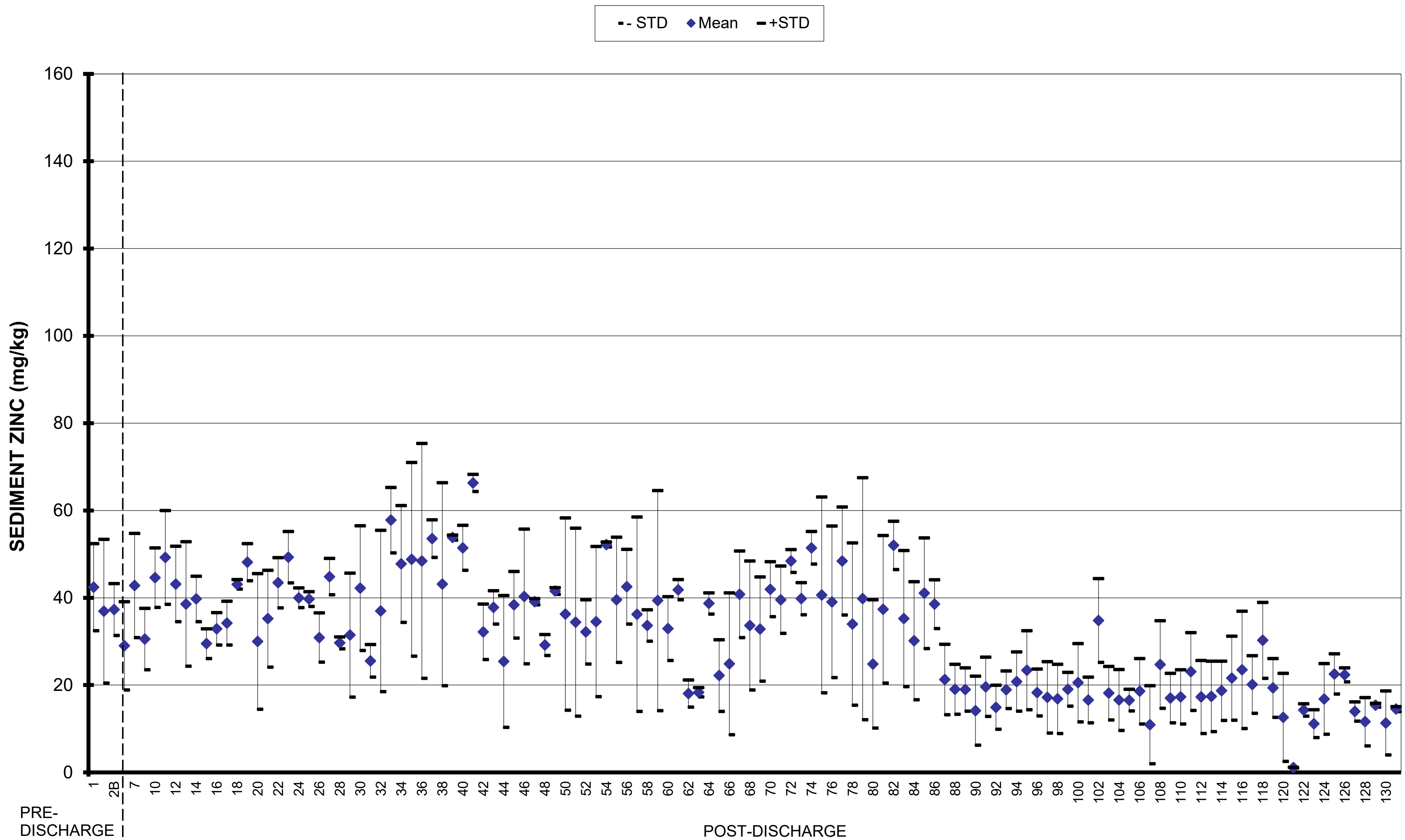


TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - C-SERIES
- STD
Mean
+STD
SEDIMENT ZINC (mg/kg)
0
20
40
60
80
100
120
140
160
PRE-DISCHARGE
POST-DISCHARGE

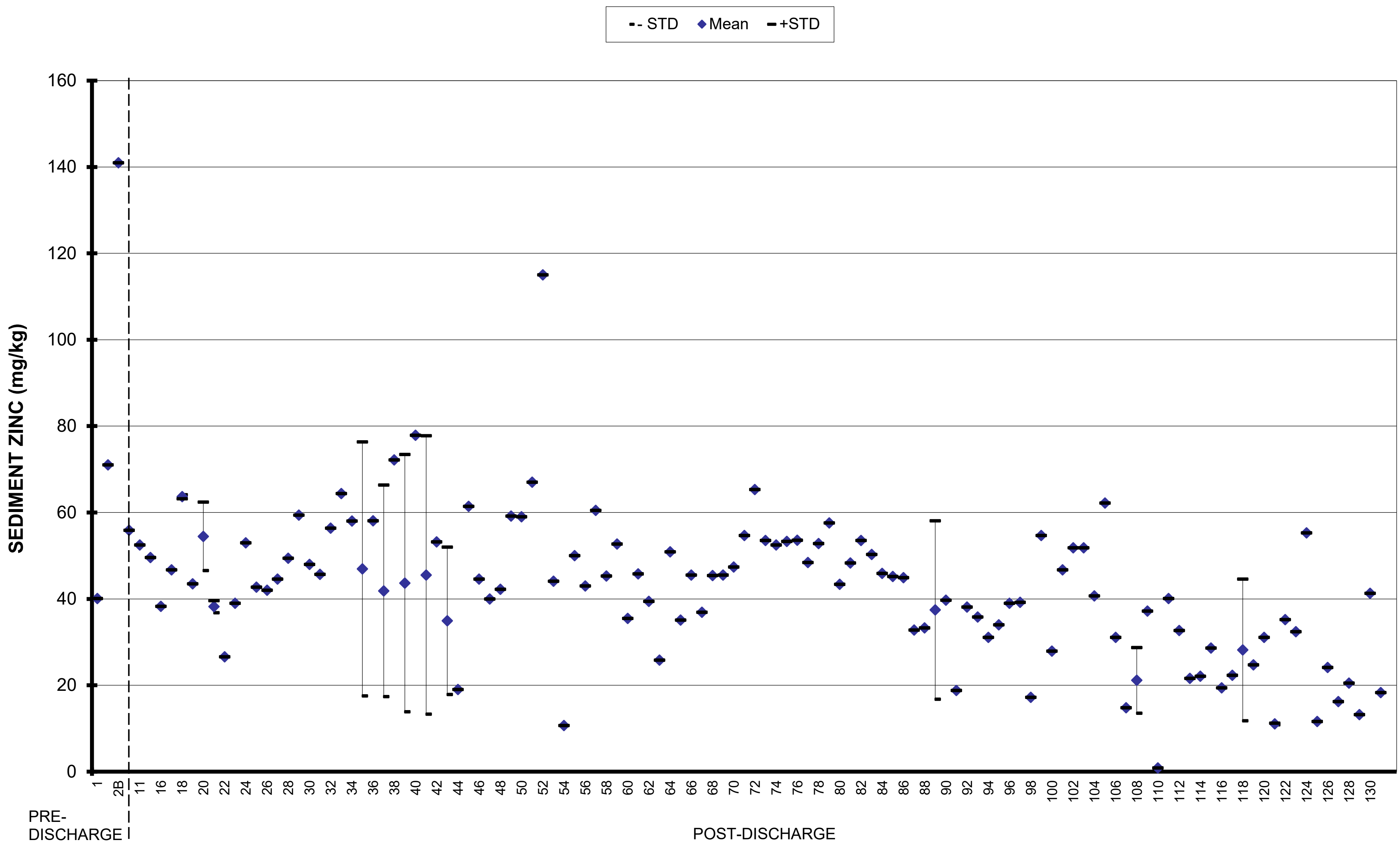
TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - D-SERIES

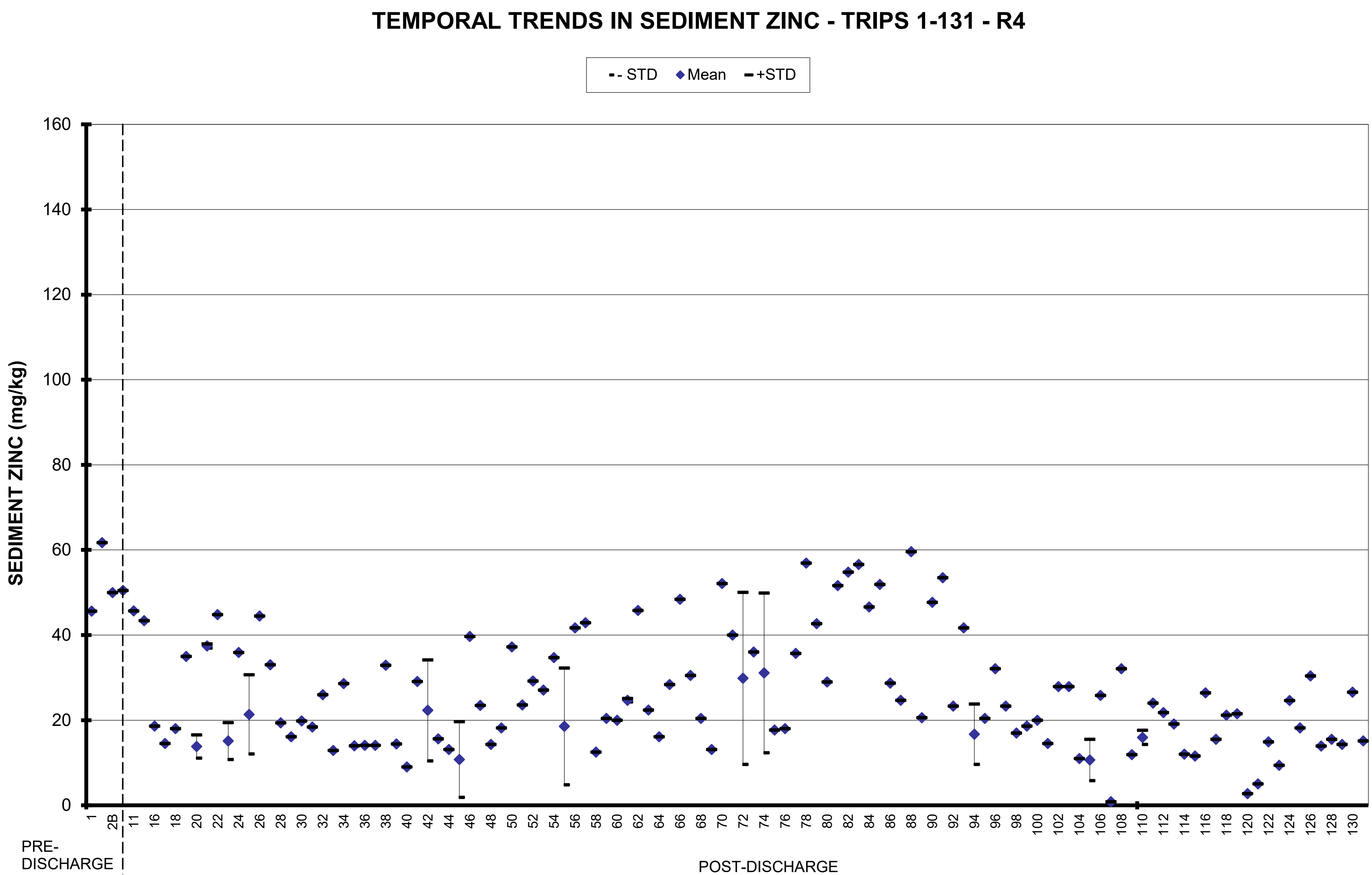


TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - R1/R2



TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - R3

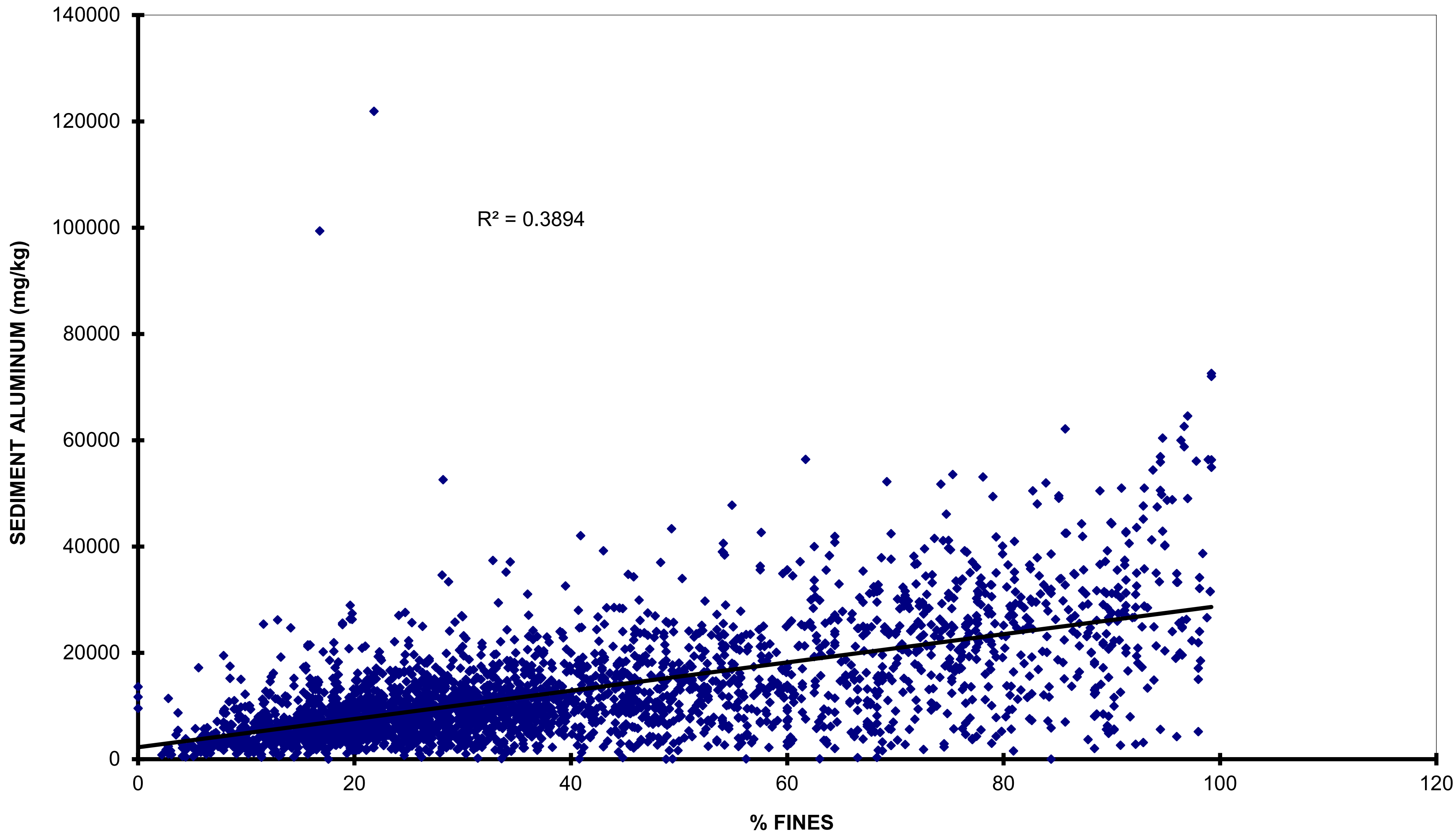



TEMPORAL TRENDS IN SEDIMENT ZINC - TRIPS 1-131 - R4
- STD
Mean
+STD
SEDIMENT ZINC (mg/kg)
160
140
120
100
80
60
40
20
0
1
2B
11
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50
52
54
56
58
60
62
64
66
68
70
72
74
76
78
80
82
84
86
88
90
92
94
96
98
100
102
104
106
108
110
112
114
116
118
120
122
124
126
128
130
PRE-
DISCHARGE
POST-DISCHARGE

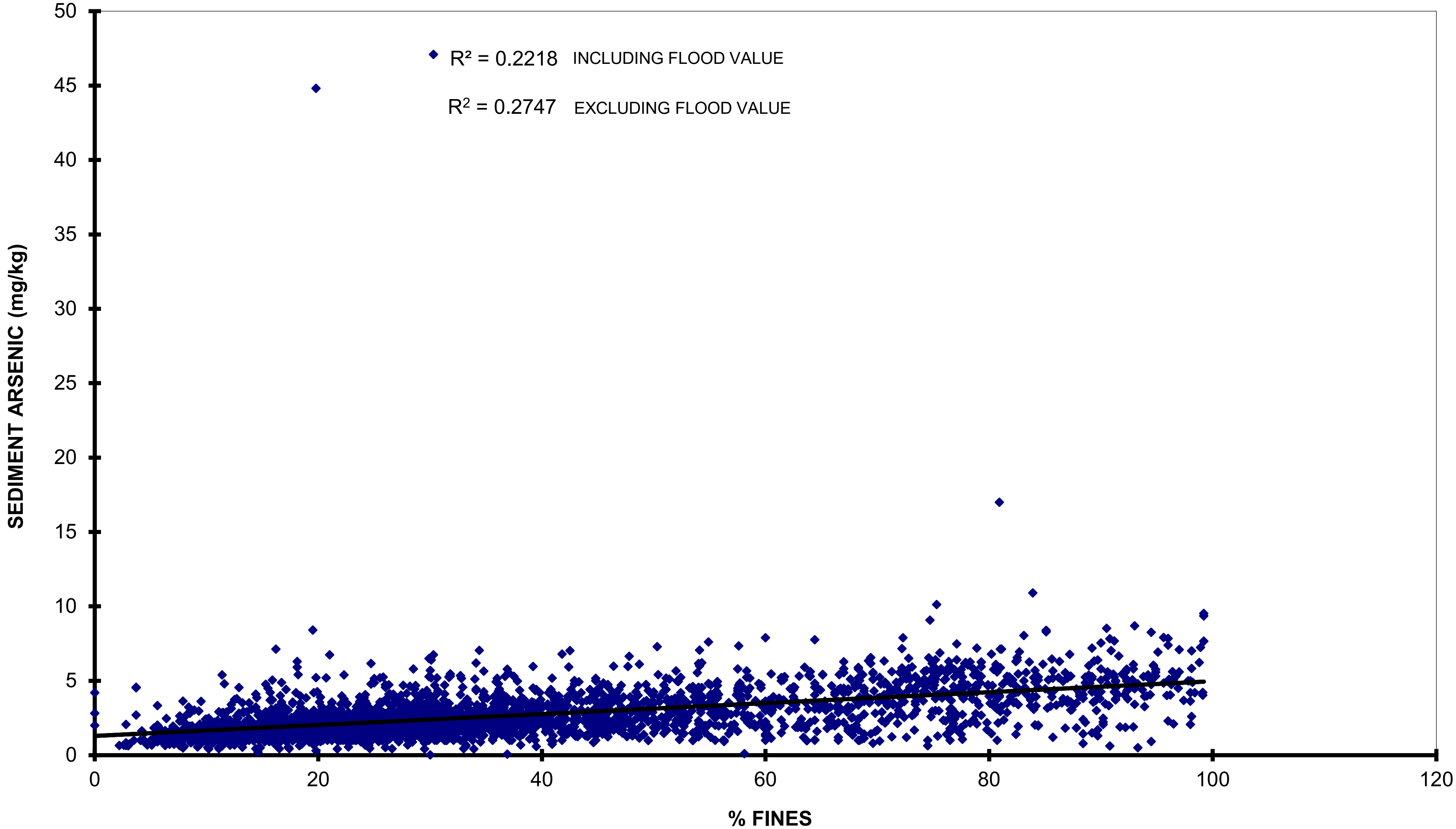
Attachment C

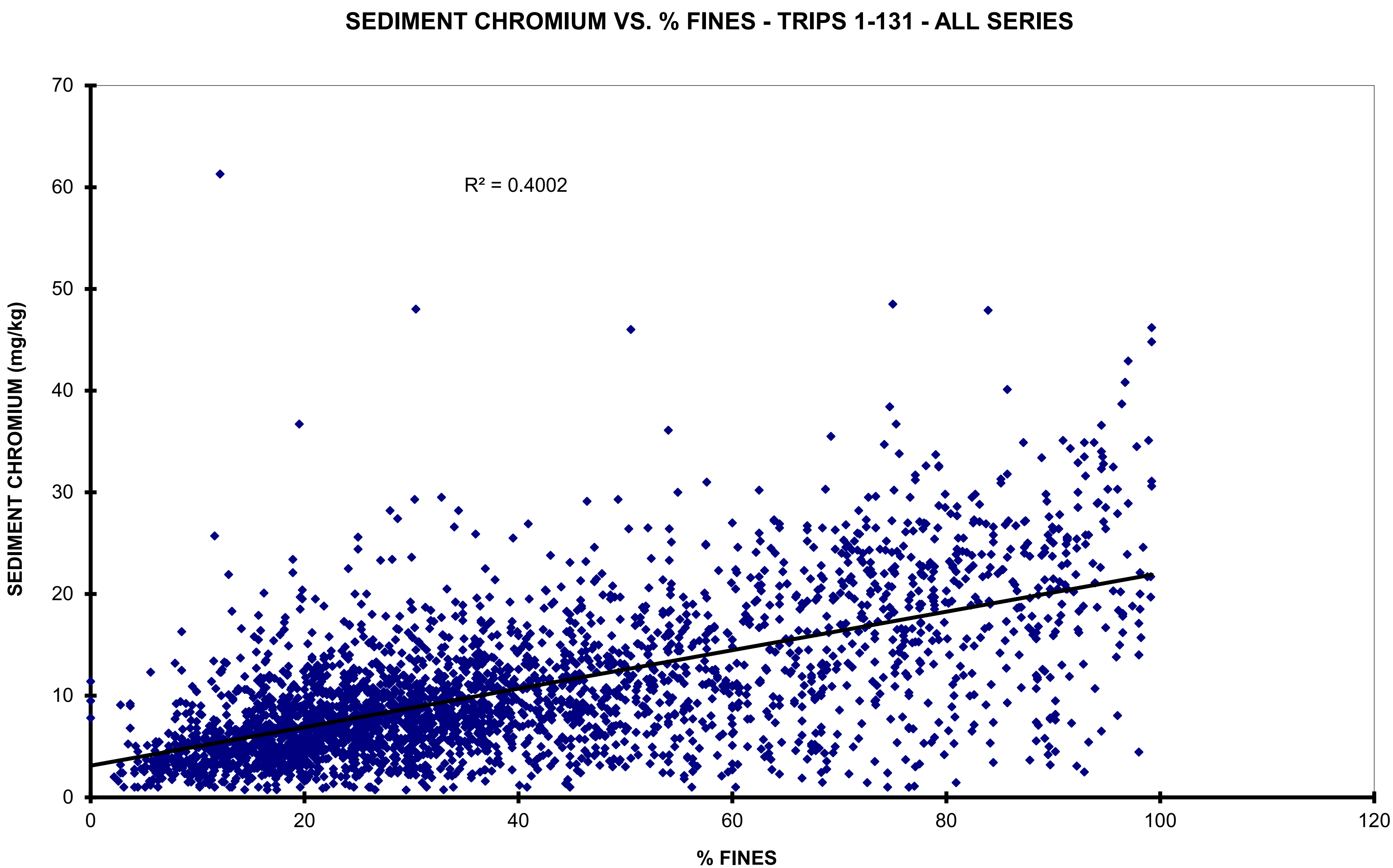
Sediment Parameters vs. Percent Fines

SEDIMENT ALUMINUM VS. % FINES - TRIPS 1-131 - ALL SERIES

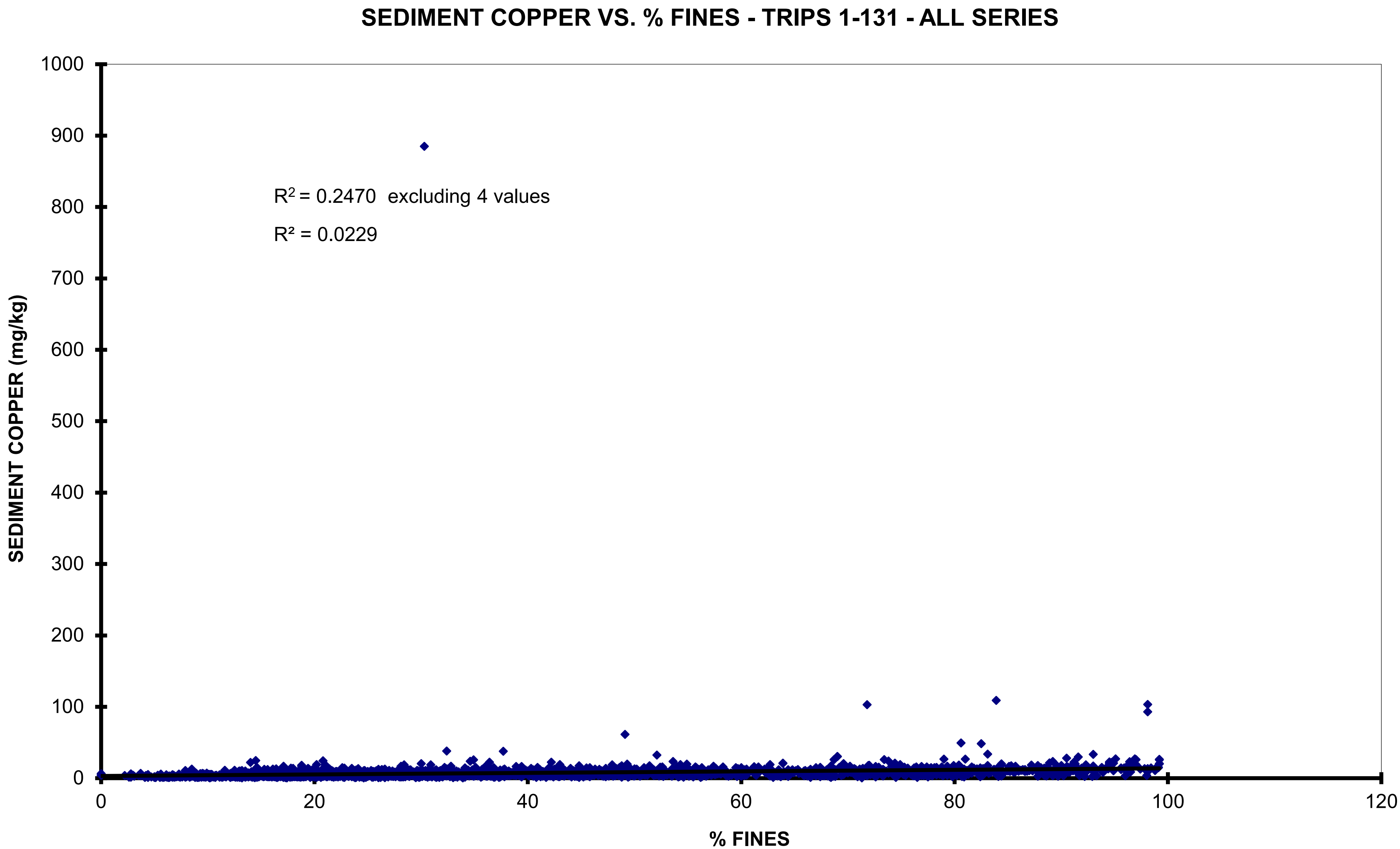


SEDIMENT ARSENIC VS. % FINES - TRIPS 1-131 - ALL SERIES

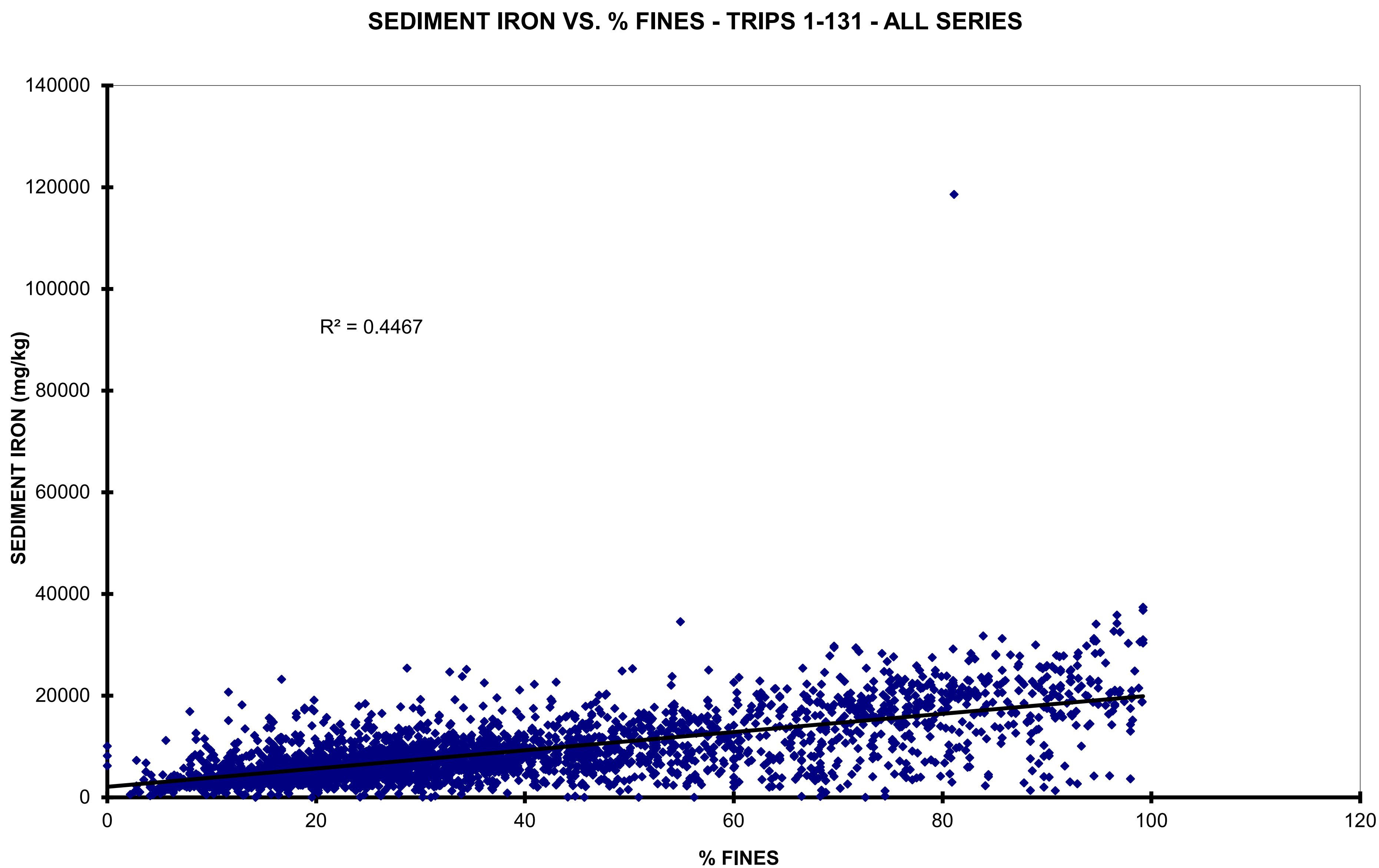


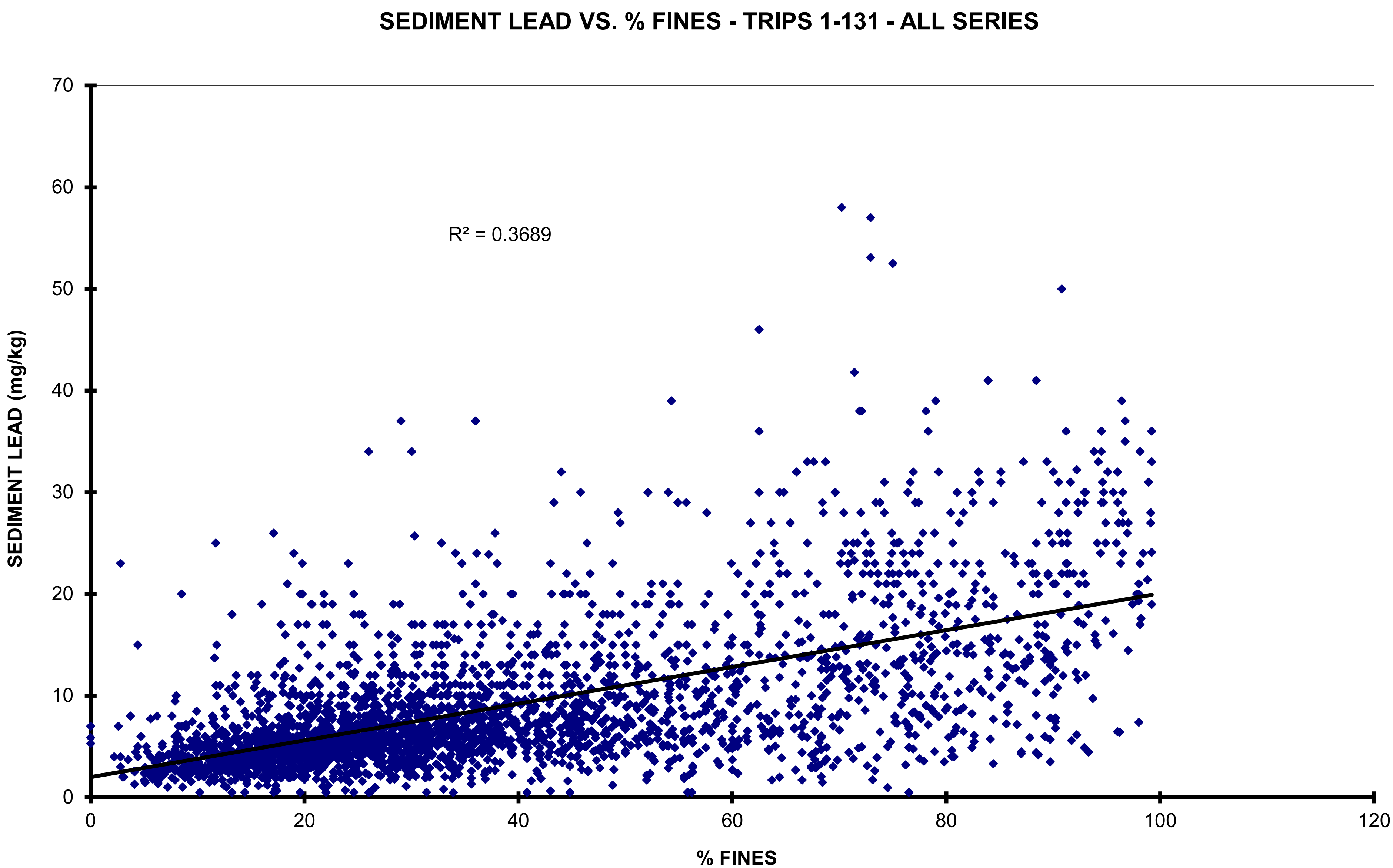


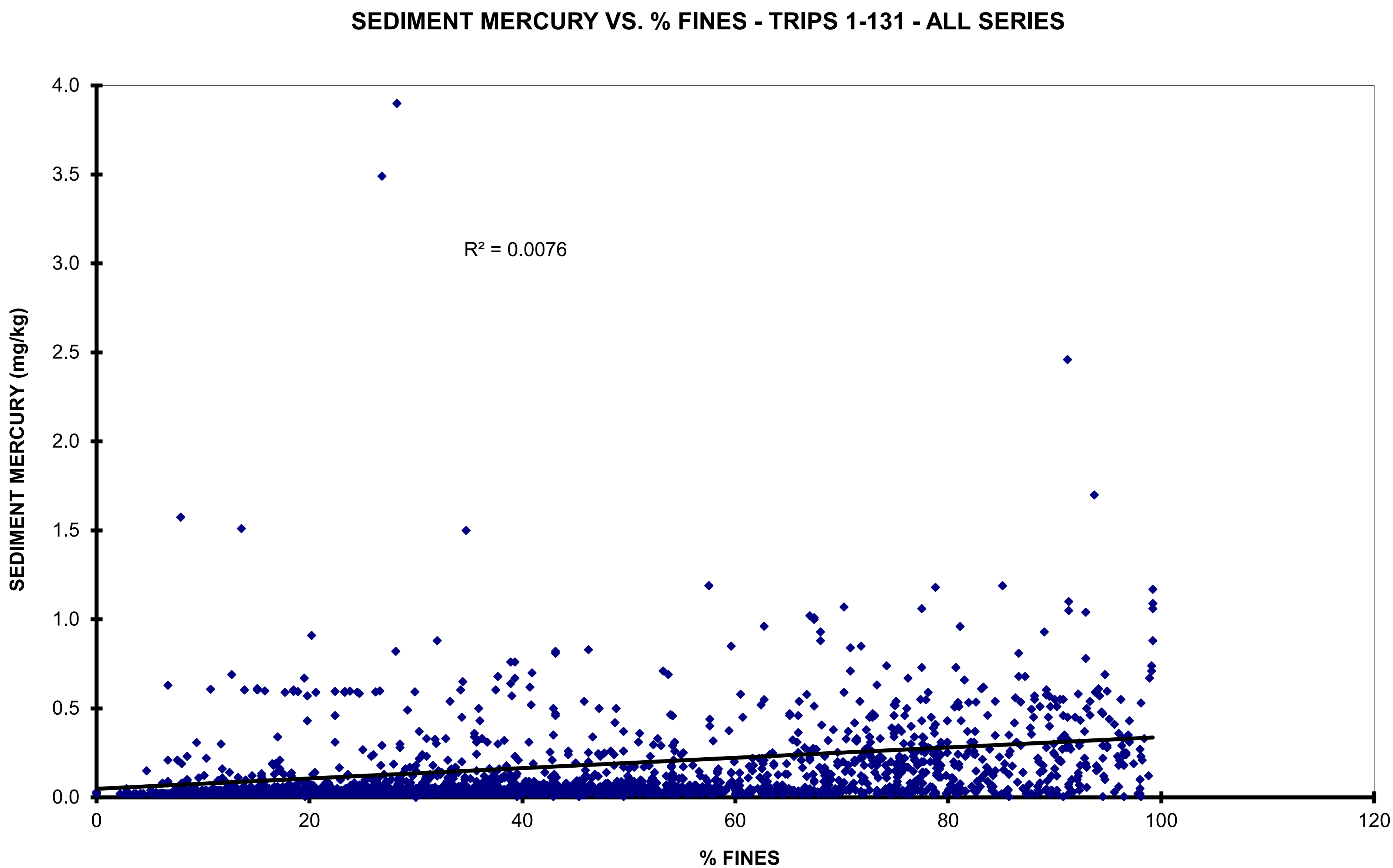
SEDIMENT CHROMIUM VS. % FINES - TRIPS 1-131 - ALL SERIES
R² = 0.4002
SEDIMENT CHROMIUM (mg/kg)
0
10
20
30
40
50
60
70
0
20
40
60
80
100
120
% FINES



SEDIMENT COPPER VS. % FINES - TRIPS 1-131 - ALL SERIES
$R^2 = 0.2470$ excluding 4 values
$R^2 = 0.0229$
SEDIMENT COPPER (mg/kg)
% FINES
0
100
200
300
400
500
600
700
800
900
1000
0
20
40
60
80
100
120

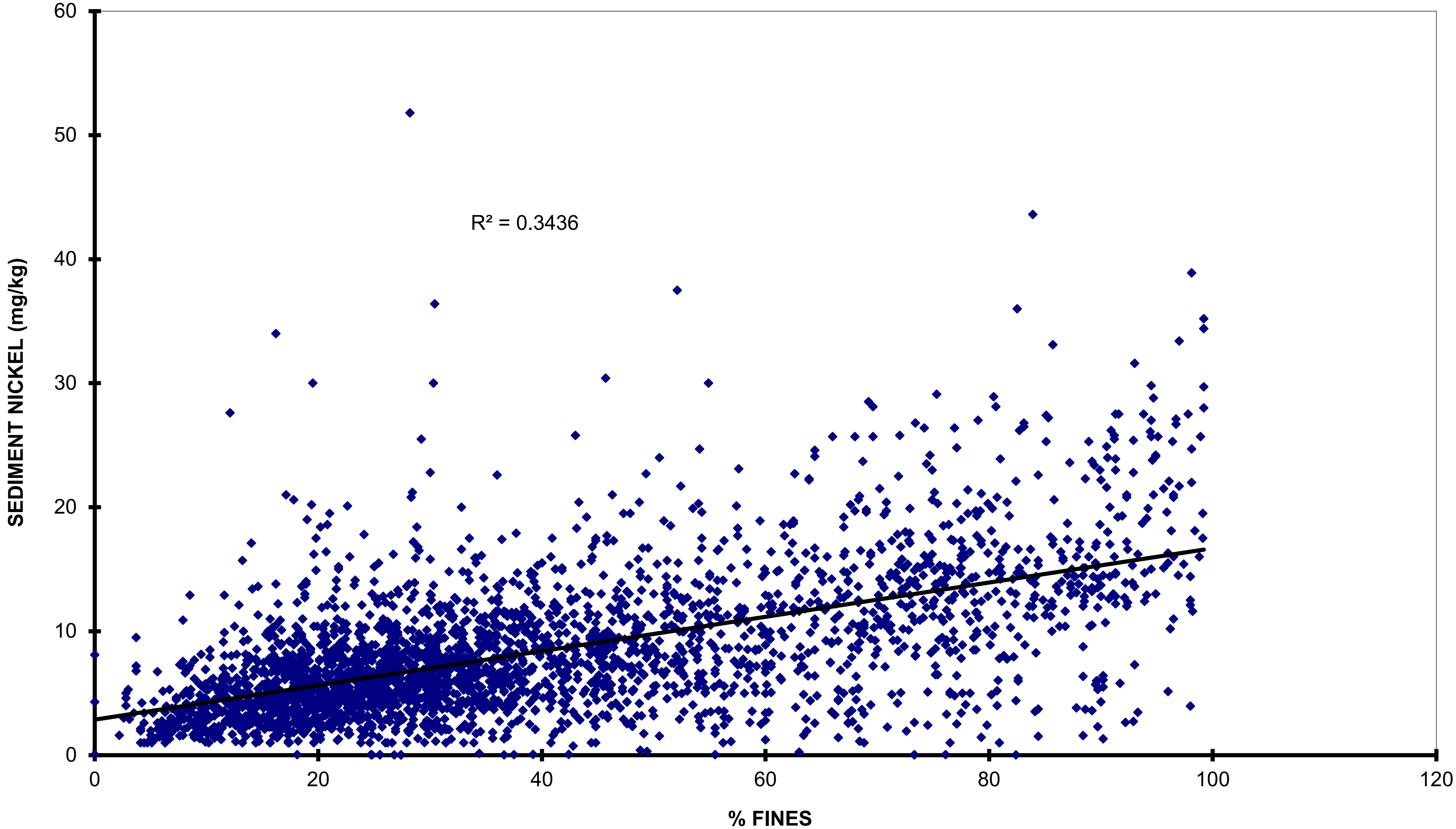

SEDIMENT IRON VS. % FINES - TRIPS 1-131 - ALL SERIES
SEDIMENT IRON (mg/kg)
140000
120000
100000
80000
60000
40000
20000
0
R² = 0.4467
0
20
40
60
80
100
120
% FINES

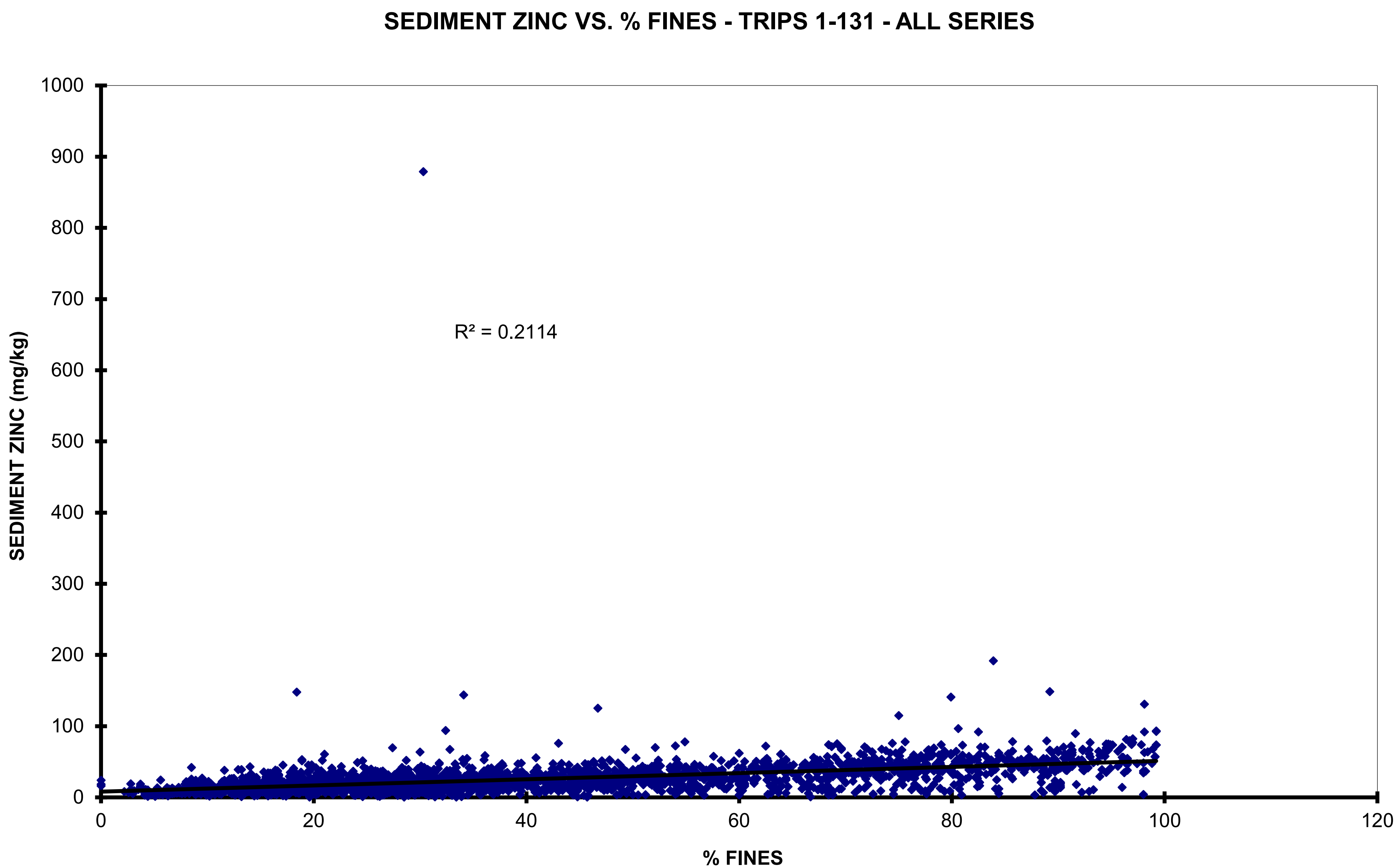

SEDIMENT LEAD VS. % FINES - TRIPS 1-131 - ALL SERIES
R² = 0.3689
SEDIMENT LEAD (mg/kg)
0
10
20
30
40
50
60
70
0
20
40
60
80
100
120
% FINES



SEDIMENT MERCURY VS. % FINES - TRIPS 1-131 - ALL SERIES
R² = 0.0076
SEDIMENT MERCURY (mg/kg)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
% FINES

SEDIMENT NICKEL VS. % FINES - TRIPS 1-131 - ALL SERIES




SEDIMENT ZINC VS. % FINES - TRIPS 1-131 - ALL SERIES
SEDIMENT ZINC (mg/kg)
1000
900
800
700
600
500
400
300
200
100
0
R² = 0.2114
0
20
40
60
80
100
120
% FINES

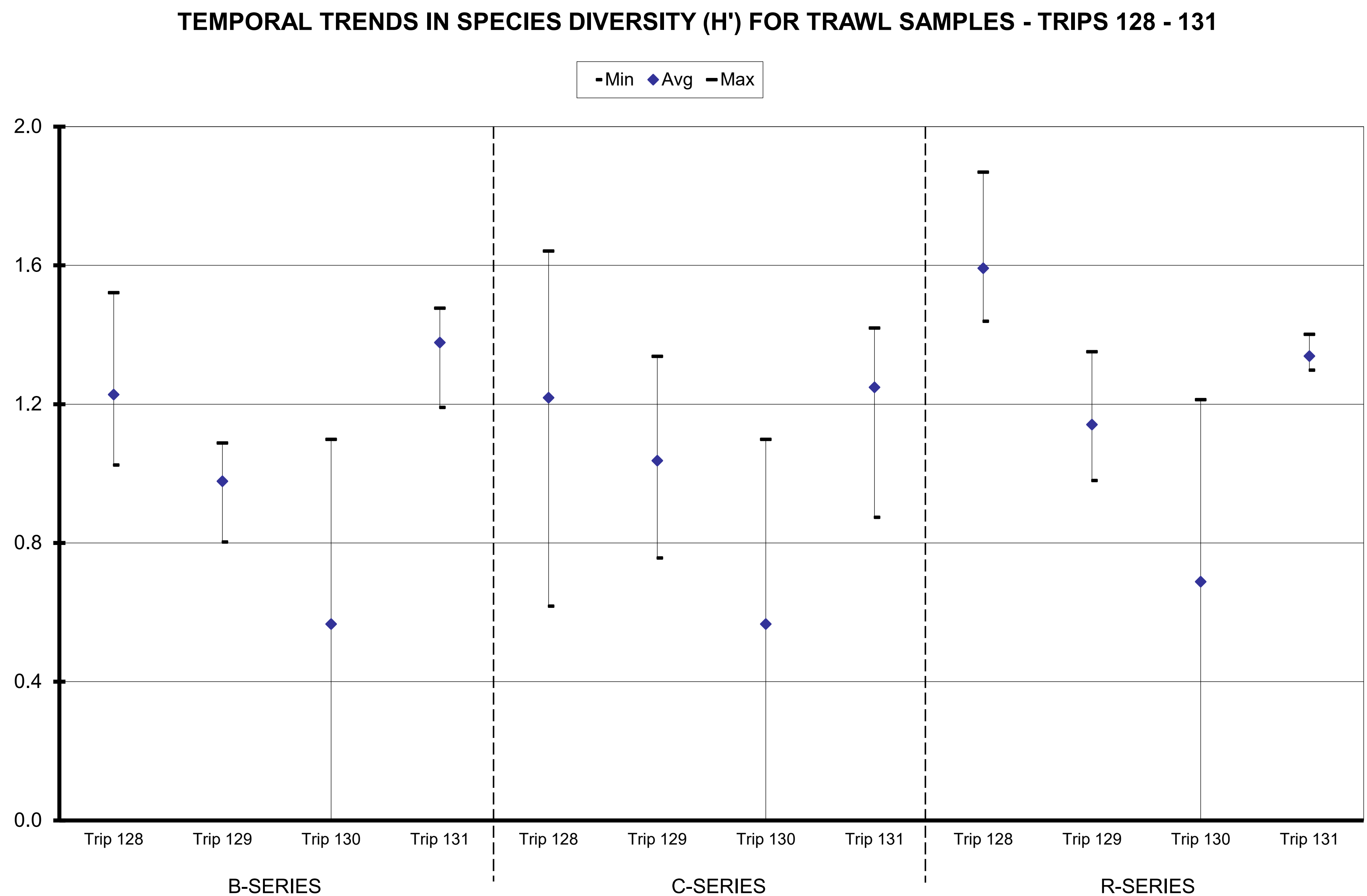
Attachment D

Spatial and Temporal Trend Analyses, Trawl

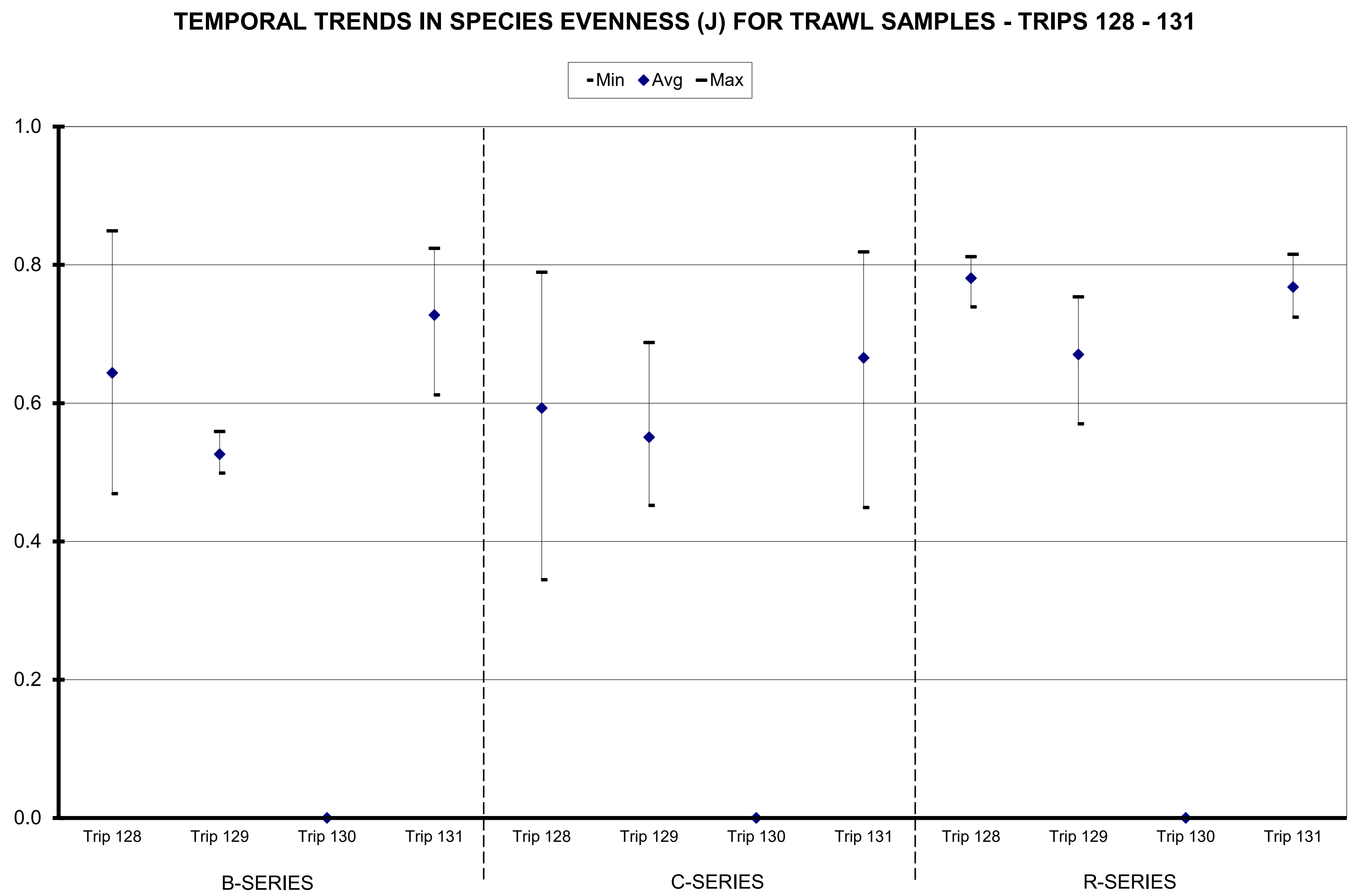
TRAWL CALCULATIONS USED FOR SPATIAL AND TEMPORAL TREND ANALYSIS

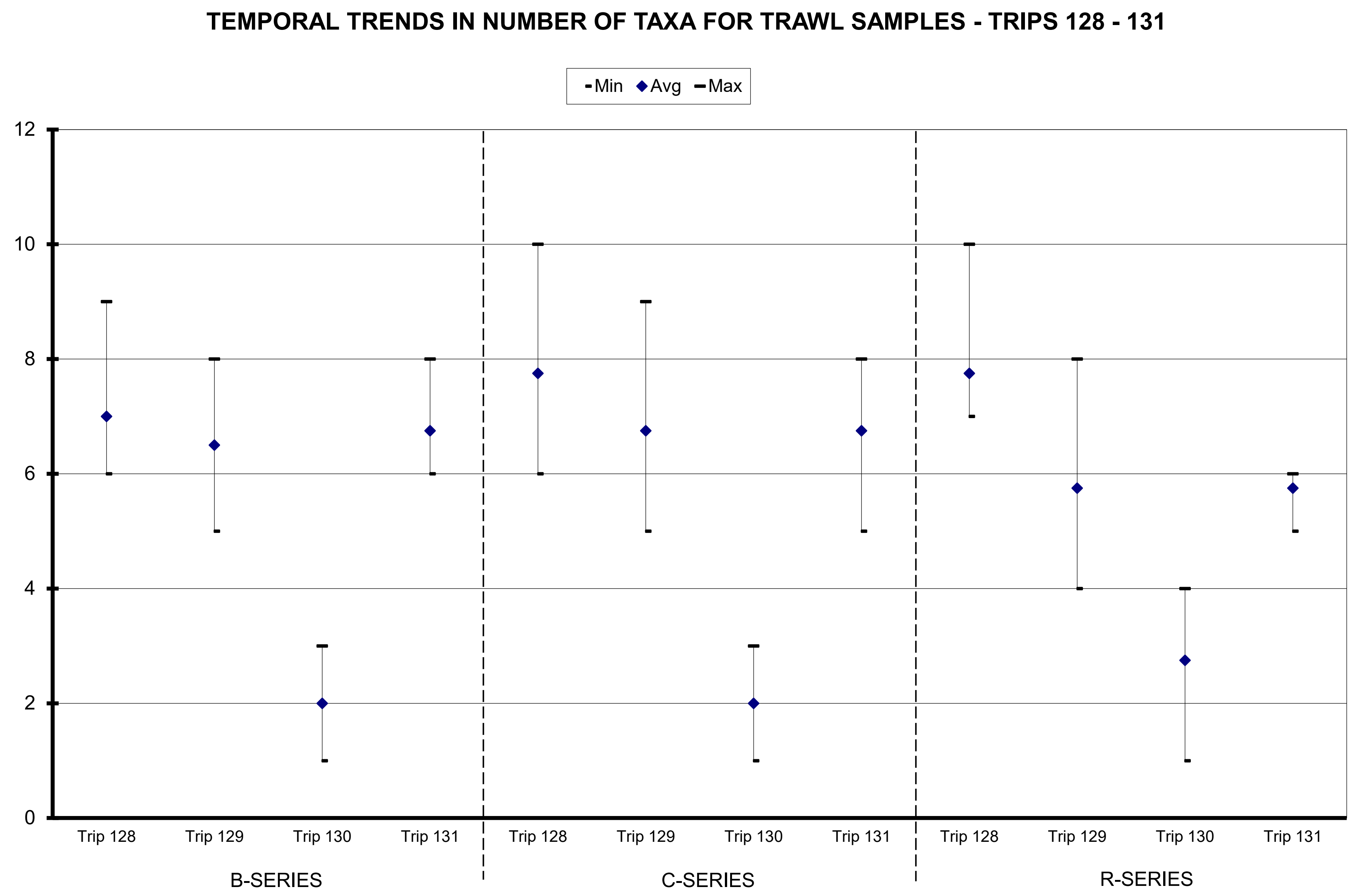
TRAWL RESULTS - TRIPS 128 - 131

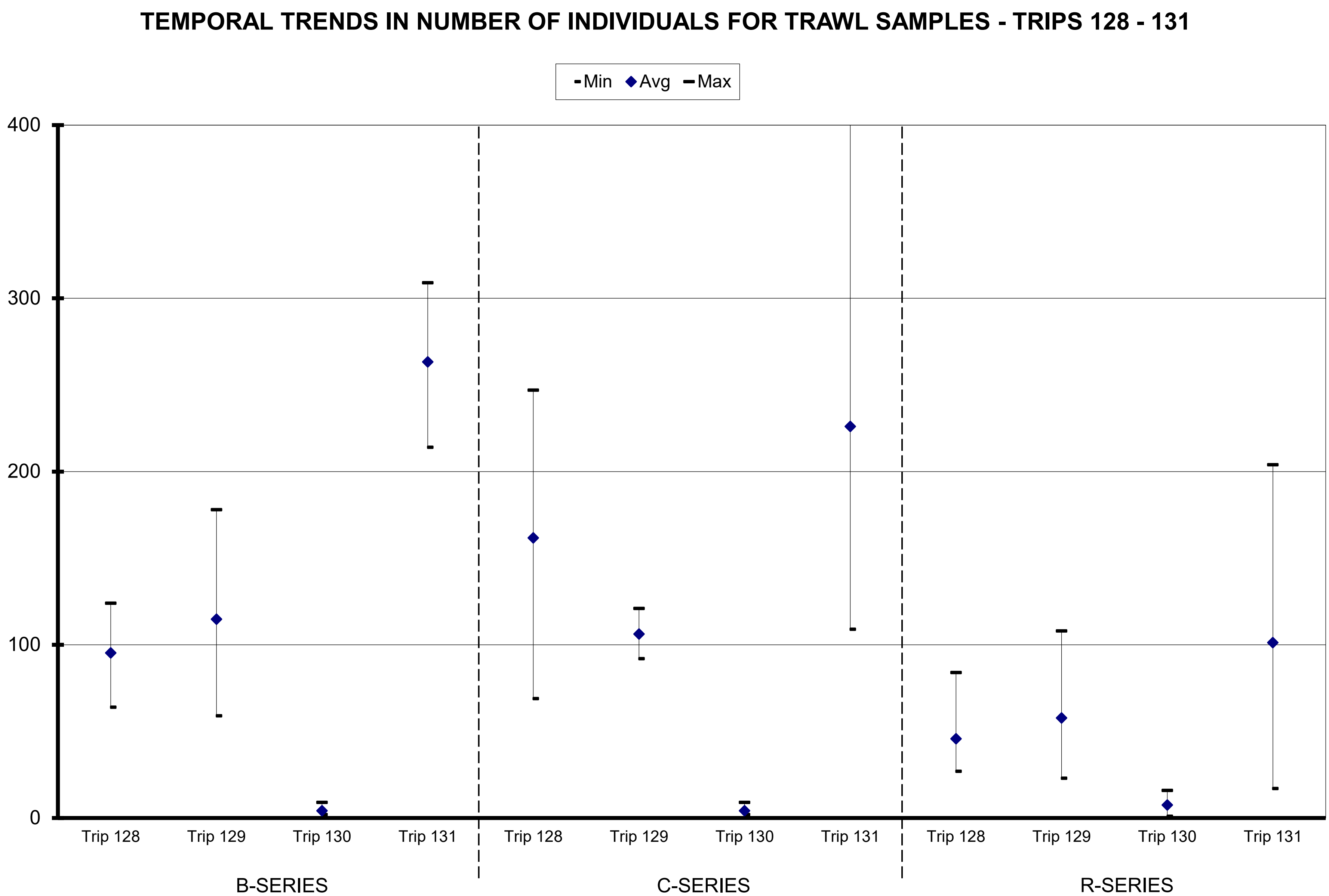
TRIP	SERIES	Species Diversity (H') Minimum	Species Diversity (H') Average	Species Diversity (H') Maximum	Species Evenness (J) Minimum	Species Evenness (J) Average	Species Evenness (J) Maximum	Number of Taxa Minimum	Number of Taxa Average	Number of Taxa Maximum	Number of Individuals Minimum	Number of Individuals Average	Number of Individuals Maximum
128	B	1.024	1.227	1.521	0.469	0.644	0.849	6.0	7.0	9.0	64.0	95.3	124.0
128	C	0.618	1.218	1.641	0.345	0.593	0.789	6.0	7.8	10.0	69.0	161.8	247.0
128	R	1.439	1.592	1.869	0.739	0.781	0.812	7.0	7.8	10.0	27.0	45.8	84.0
129	B	0.803	0.978	1.088	0.499	0.526	0.559	5.0	6.5	8.0	59.0	114.8	178.0
129	C	0.757	1.037	1.338	0.452	0.551	0.688	5.0	6.8	9.0	92.0	106.3	121.0
129	R	0.980	1.141	1.351	0.570	0.671	0.754	4.0	5.8	8.0	23.0	57.8	108.0
130	B	0.000	0.566	1.099	0.000	0.000	0.000	1.0	2.0	3.0	2.0	4.3	9.0
130	C	0.673	0.854	0.992	0.773	0.867	0.971	2.0	2.8	3.0	5.0	9.0	14.0
130	R	0.000	0.689	1.213	0.000	0.000	0.000	1.0	2.8	4.0	1.0	7.5	16.0
131	B	1.191	1.378	1.477	0.612	0.727	0.824	6.0	6.8	8.0	214.0	263.3	309.0
131	C	0.874	1.249	1.419	0.449	0.665	0.819	5.0	6.8	8.0	109.0	226.0	402.0
131	R	1.298	1.339	1.401	0.724	0.768	0.815	5.0	5.8	6.0	17.0	101.3	204.0



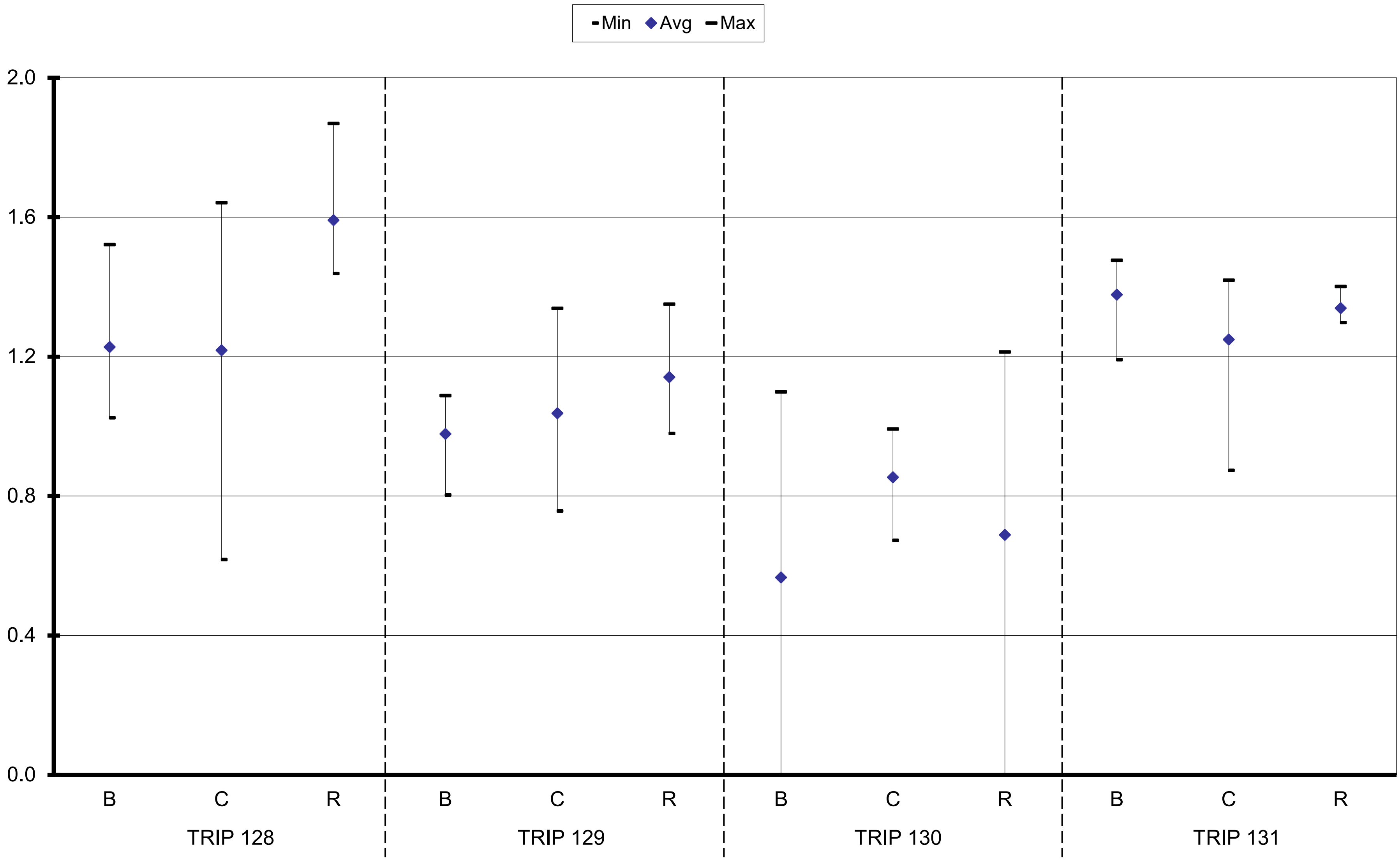
TEMPORAL TRENDS IN SPECIES DIVERSITY (H') FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
2.0
1.6
1.2
0.8
0.4
0.0
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
B-SERIES
C-SERIES
R-SERIES

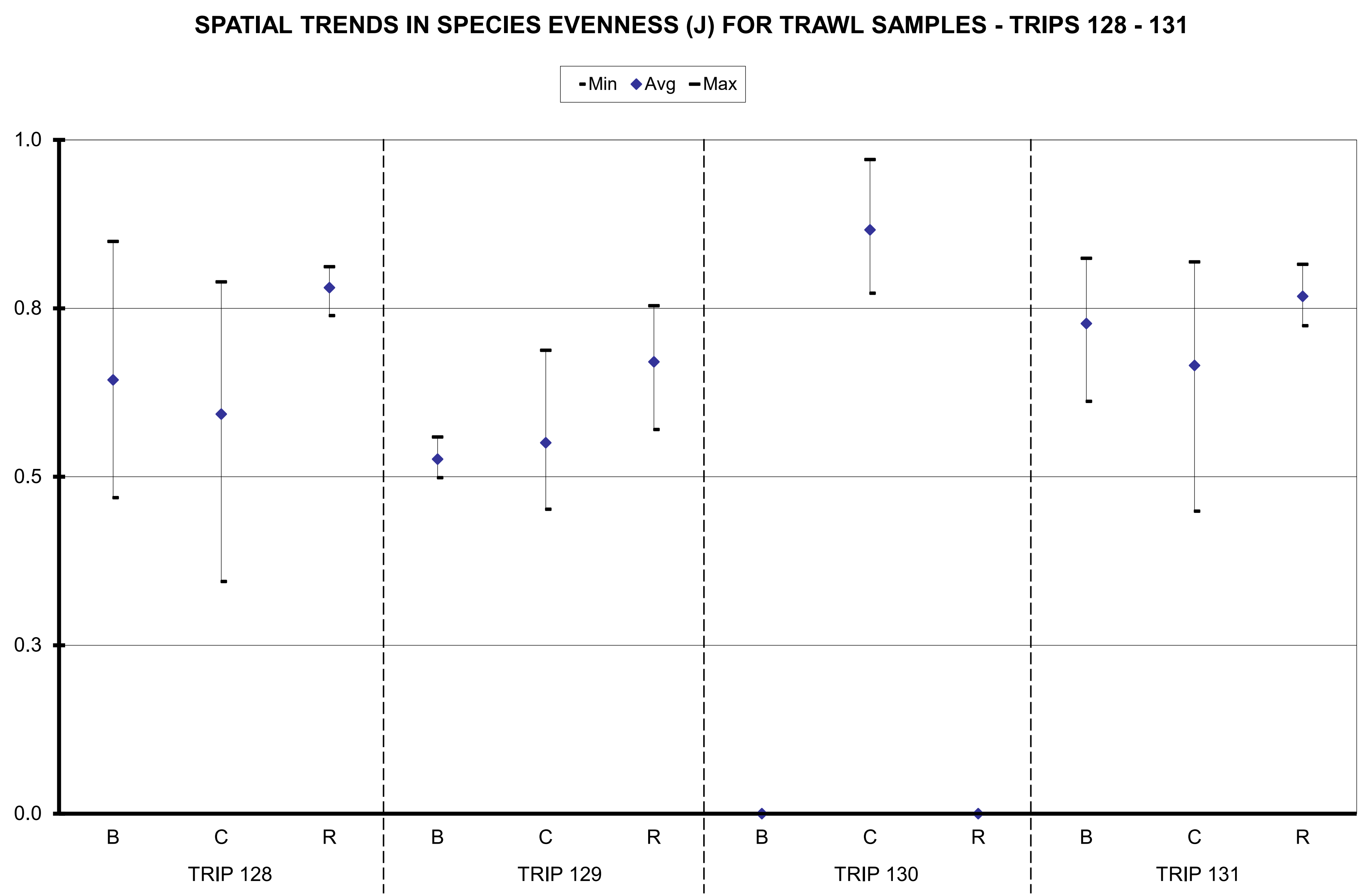

TEMPORAL TRENDS IN SPECIES EVENNESS (J) FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
1.0
0.8
0.6
0.4
0.2
0.0
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
B-SERIES
C-SERIES
R-SERIES


TEMPORAL TRENDS IN NUMBER OF TAXA FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
0
2
4
6
8
10
12
Trip 128
Trip 129
Trip 130
Trip 131
B-SERIES
C-SERIES
R-SERIES

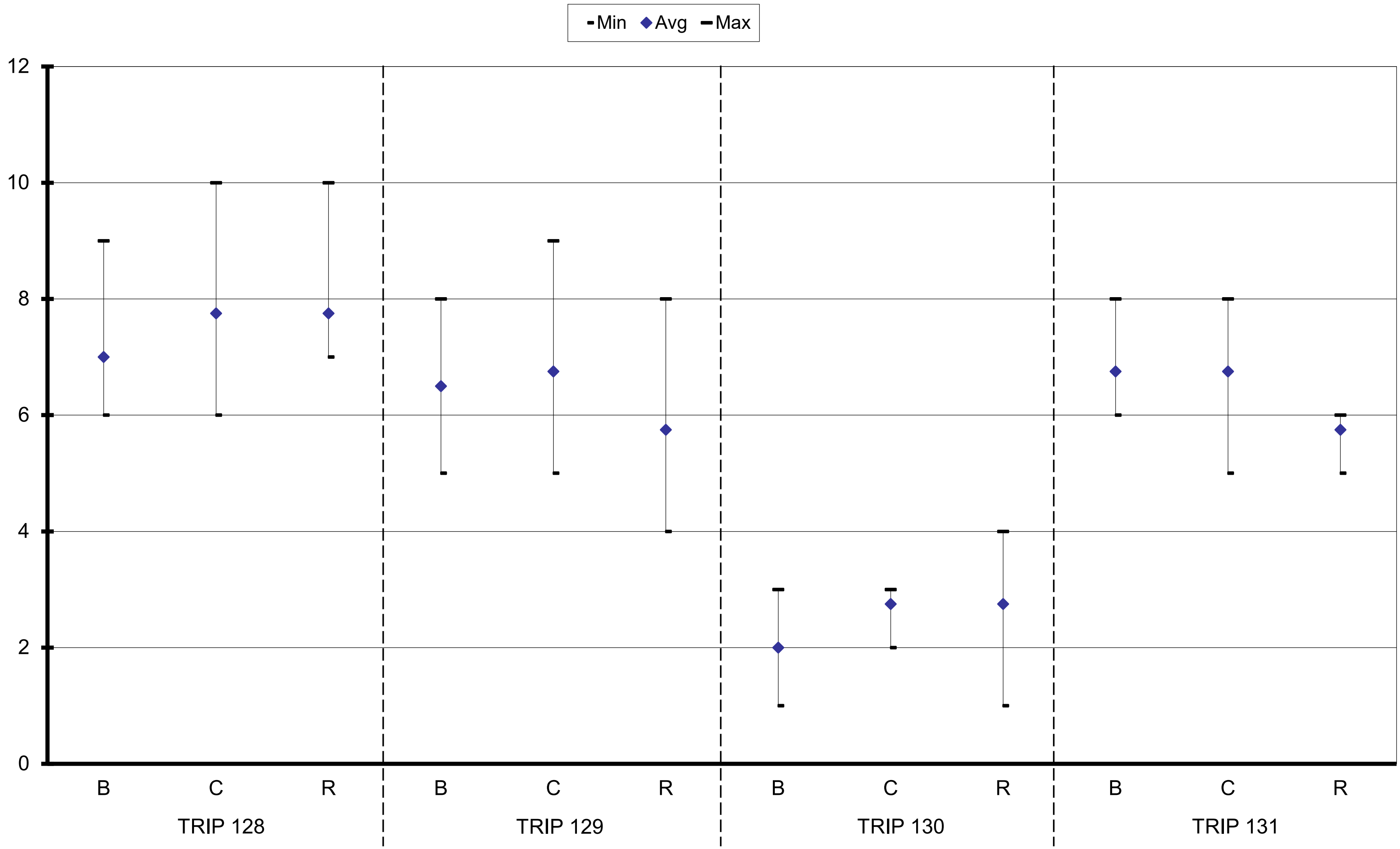

TEMPORAL TRENDS IN NUMBER OF INDIVIDUALS FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
400
300
200
100
0
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
Trip 128
Trip 129
Trip 130
Trip 131
B-SERIES
C-SERIES
R-SERIES

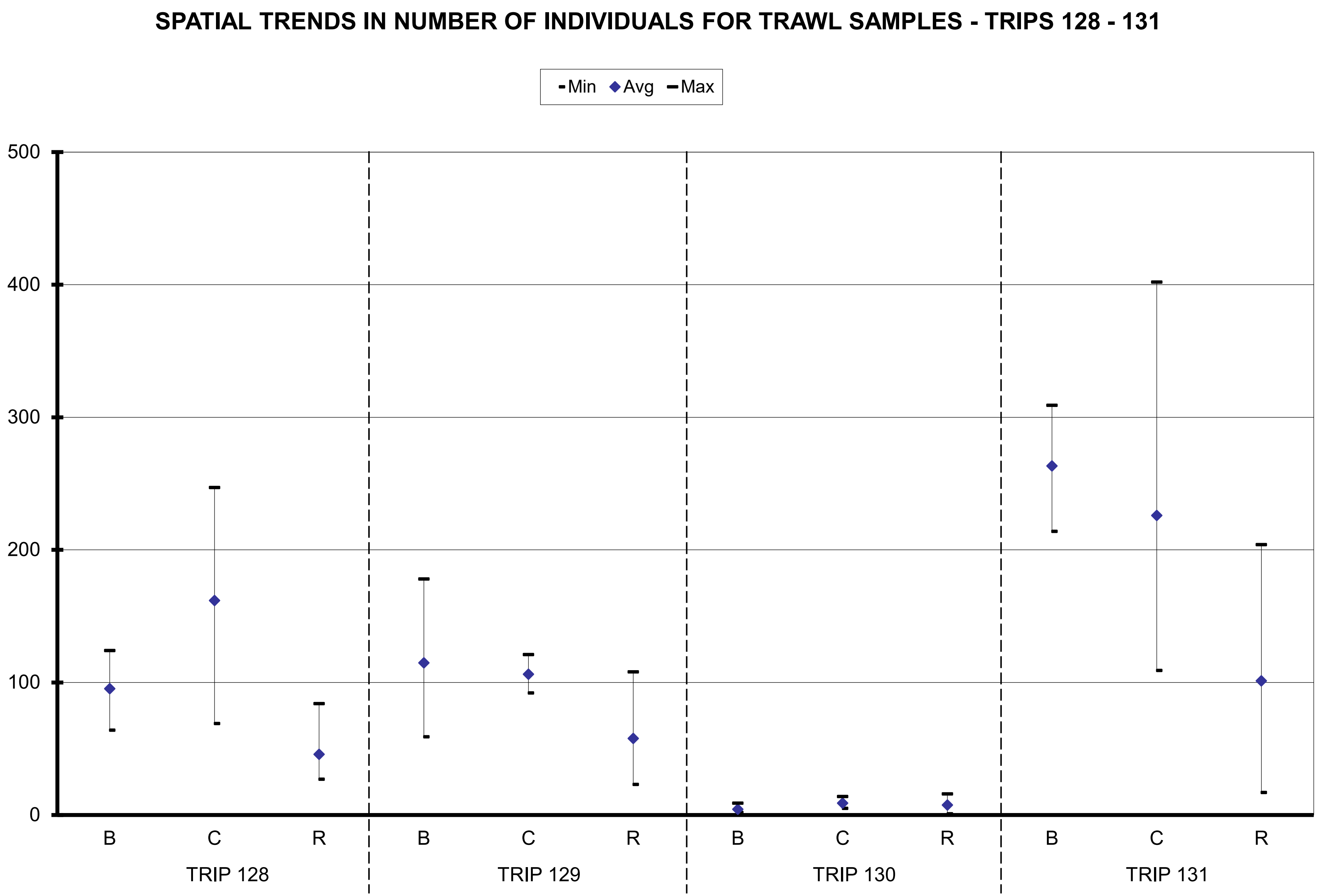
SPATIAL TRENDS IN SPECIES DIVERSITY (H') FOR TRAWL SAMPLES - TRIPS 128 - 131




SPATIAL TRENDS IN SPECIES EVENNESS (J) FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
1.0
0.8
0.5
0.3
0.0
B
C
R
B
C
R
B
C
R
B
C
R
TRIP 128
TRIP 129
TRIP 130
TRIP 131

SPATIAL TRENDS IN NUMBER OF TAXA FOR TRAWL SAMPLES - TRIPS 128 - 131




SPATIAL TRENDS IN NUMBER OF INDIVIDUALS FOR TRAWL SAMPLES - TRIPS 128 - 131
Min
Avg
Max
500
400
300
200
100
0
B
C
R
TRIP 128
B
C
R
TRIP 129
B
C
R
TRIP 130
B
C
R
TRIP 131

Attachment E

Phytoplankton (No./ml) and Zooplankton (No./m^3) Raw Density

PHYTOPLANKTON DENSITY (No./ml)
October 2024

STATION	B1	B2	B3	B4	R1	R1	R1	R1	R2	R2	R2	R2	R3	R3	R3	R3	R4	R4	R4	R4
REPLICATE	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
TAXA																				
Division Bacillariophyta																				
Actinoptychus senarius (cells) A			0.001		0.001						0.001		0.001		0.001					
Bacillaria paxillifera (colonies) A														0.001	0.001					
Campylodiscus (cells) A	0.001	0.001		0.001																
Chaetoceos minimus (cells) B	670			110	110			110	110											
Chaetoceros (cells) A		0.920	0.003						1.800	1.400		0.003								
Chaetoceros didymus (cells) A		0.002							0.910			0.001								
Coscinodiscus (cells) A	0.010	0.030	0.020	0.030	0.020	0.020	0.020	0.030	0.020	0.020	0.020	0.010	0.020	0.030	0.020	0.010	0.008	0.005	0.003	
Cylindrotheca closterium (cells) A	2.300	9.100	5.000	1.400	28.000	38.000	55.000	40.000	26.000	11.000	6.400	18.000	33.000	41.000	26.000	39.000	46.000	31.000	38.000	
Diploneis (cells) A										0.450										
Ditylum (cells) A		0.001	0.001	0.001																
Entomoneis (cells) A							0.450													
Gyrosigma (cells) A		0.450			0.001				0.001	0.001	0.001	0.001	0.450	0.001	0.001	0.450	0.001	0.450		
Gyrosigma (*eximium*?) (cells) A				0.001																
Lithodesmium undulatum (cells) A																				
Melosira (cells) A						0.001							0.002							
Nitzschia (*sigmoidea*?) cells B	0.001	0.001		0.001	0.002	0.001	0.002		0.005	0.007	0.008	0.005	0.020	0.030	0.020	0.020				
Rhizosolenia setigera (cells) A						0.450							0.001							
Skeletonema costatum (filaments) A	2.300	1.400	2.700			0.450		0.450					3.600	5.900	2.700	2.700	0.450			
Surirella (cells) A			0.001																	
Terpsinoe (cells) A				0.002		0.001		0.001		0.001			0.001	0.003	0.001					
Thalassionema (cells) A	4.100	1.400	4.500	0.910										3.600	6.400	4.100	0.450	0.910		
Trieres mobiliensis (cells) A												0.001			0.001					
Zygoceros rhombus (cells) A										0.450	0.001	0.001	0.001							
Unidentified centric diatom (cells)	110	110	220				0.450	0.450					0.450		110	0.450		110		
Unidentified large pennate diatom (cells)		0.001		0.001																
Unidentified small pennate diatoms (cells)	890	670	440	220	330	670	780	1200	1100	1400	780	670	560	220	890	670	220	1300	110	
Unidentified diatom (cell)													0.001	0.001						
Division Chlorophyta																				
Kirchneriella (cells) A	220				220	330	220		220	440	110	220					560	330	1,100	2,400
Monoraphidium contortum (cells) B																		110		
Pyramimonas (cells) B	110				110															
Unidentified small unicells B	60,000	34,000	64,000		11,000	53,000	87,000	38,000	38,000	72,000	64,000	49,000	7,600	38,000	45,000		210,000	280,000	160,000	140,000
Division Cryptophyta																				
Unidentified cryptomonads (cells) B		110	1,000		110				110								220			110
Division Cyanophyta																				
Aphanocapsa delicatissima (colonies) B										110			110	110						
Glaucospira (filaments) B																			110	110
Limnothrix (filaments) B	2,300	330	2,800	560	560	560	1,800	780	2,300	1,400	1,300	2,100	1,400	4,600	8,300	1,800	3,000	1,600	1,600	1,100
Merismopedia convoluta (colonies) A	0.001																			
Merismopedia elegans colonies				0.450																

PHYTOPLANKTON DENSITY (No./ml)
October 2024

STATION	B1	B2	B3	B4	R1	R1	R1	R1	R2	R2	R2	R2	R3	R3	R3	R3	R4	R4	R4	R4
REPLICATE	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**
TAXA																				
Microcrois (colonies) B	0.450																			
Oscillatoria (filaments) B	0.001	0.001	0.001																	
Pseudoanabaena (filaments) A	1,400	330	560	1,221		110	440	220	1,000	330	670	1,400	440	890	1,800	2,400	330	1,100	1,600	1,800
Romeria (filaments) B											110									
Synechococcus (cells) A	2,800	1,400	26,000		220	2,400	220	440	1,000	2,100	3,200	560			330		7,100	470,000	350,000	79,000
Synechocystis (cells) B	1,200,000	350,000	820,000		480,000	740,000	560,000	740,000	510,000	1,000,000	1,100,000	630,000	260,000	550,000	690,000		720,000	1,300,000	1,100,000	
Division Euglenophyta																				
Euglenophyte (*Eutreptia* and/or *Euglena*) (cells) A		110	1.400																	
Division Haptophyta																				
Unidentified coccolithophore (cells) B	1.400	3.200	1.900	0.450						22	13	26		2.300	0.450	2.300	1.400	0.450	0.450	1.400
Division Pyrrophyta																				
Gymnodinium (cells) A		0.450					0.450													
Gymnodinium sanguineum (cells) A			0.450	1.400		0.910		0.450									0.910	1.400	1.400	0.910
Gyrodinium estuariale (cells) A	220		110				220	110	220				220		440		220			
Gyrodinium spirale (cells) A	1.800	0.910	0.450		1.400			0.002	0.002				0.910		0.450		6.400	0.910	0.450	0.020
Oxyphysis oxytoxoides (cells) A	0.450									0.001	0.450				0.450	0.450				
Unidentified dinoflagellate, armored (cells) A	2.700	0.910	2.300	0.450			0.450	1.800	0.450	0.910		0.910					0.910			
Unidentied Algae																				
Unidentified algal cells, no flagella B	5,000	3,100	5,100	1,900	4,000	4,800	6,100	5,700	5,700	3,000	5,100	5,200	6,200	4,900	5,800	1,800	12,000	7,800	3,100	9,300
Unidentified algal cells, flagellated A	2,200	780	1,900	780	4,100	220	3,000	1,800	2,400	330		110	1,900	2,600	2,600	560	5,100	3,200	1,200	560
No. of Taxa	26	27	25	19	17	17	17	18	20	21	17	19	22	18	23	14	20	18	15	12
Total Number/ml	1,275,936	390,959	922,149	4,796	500,789	802,130	659,837	788,403	562,189	1,081,146	1,175,290	689,305	278,468	601,373	755,306	7,279	958,807	2,065,585	1,618,860	234,382

Concentrations are in numbers of counting units per milliliter. A counting unit represents the typical form an alga may be found in nature. Counting units include cells, filaments and colonies.

Concentrations for individual taxa are rounded to two significant figures

Organisms are identified to the lowest taxonomic category possible and assigned a letter representing confidence in the taxonomic identification.

A - The taxonomic identification is certain

B - The taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.

C - There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, or there is some aspect of the identification that does not completely match the identification. The specimens in this group may also be identified in the scientific literature as taxa of uncertain taxonomic position.

ZOOPLANKTON DENSITY (No./m^3)
October 2024

STATION REPLICATE TAXA	B1 1	B2 2	B3 3	B4 4	R1 1	R1 2	R1 3	R1 4	R2 1	R2 2	R2 3	R2 4	R3 1	R3 2	R3 3	R3 4	R4 1	R4 2	R4 3	R4 4
Kingdom Protista																				
Choanoflagellata		111,030,000					111,030,000							111,030,000	111,030,000					
Euplotes A	454,545	2,727,273	2,727,273	3,181,818			2,272,727	1,363,636		1,363,636	909,091	1,363,636		1,818,182	454,545	909,091	5,454,545	5,909,091	5,454,545	3,181,818
Eutintinnus tubulosus B			454,545										909,091		909,091		909,091			
Favella A		2,083		694																
Metacylis A															454,545		909,091			
Tintinnopsis tubulosa B									454,545									454,545		
Trichodina ctenophorii A	702			234				15,708		7,583	28,125				2,083		63,125	23,794	9,563	44,958
Unidentified ciliated protozoan A	909,091	5,000,000	2,272,727	909,091	6,818,182	1,818,182	1,363,636	7,272,727	4,545,455	1,363,636		2,727,273	8,181,818	6,363,636	909,091	909,091	21,818,182	5,000,000	6,818,182	454,545
Phylum Annelida	3,510	16,146	14,583	11,413	604	1,083	1,125				563	542	1,000	1,750	1,042	958			563	1,083
Polychaete larvae, late trochophore larva B		1,042	2,333	1,125	604	542	563		1,125		563	1,083	500	1,167		479		680		
Polychaete larvae, early segmented larva B					604		563	604					500	583		479				
Polychaete larvae, presettlement larva A																				
Class Crustacea																				
Nauplii A	8,424	2,083	13,417	7,975	16,313	13,000	9,563	4,229	3,375	5,250	4,500	9,750	5,000	5,250	5,729	1,917	12,500	9,518	16,875	5,958
Subclass Copepoda																				
Calanoid copepod A	702		3,500	1,401			563		563			542								
Calanoid copepodite A		521		174							563	542								
Cyclopoid copepod A					1,208	1,083	1,688													
Halicyclops copepodite A																				
Harpactacoid copepodite A															1,042					
Subclass Cirripedia			1,167	389																
Balanus nauplii A			1,750	583	604		563						1,000	583	2,604	958		2,039		542
Phylum Rotifera																				
Brachionus rubens A											563	542			521					1,625
Brachionus urceolaris A												1,625								
Synchaeta pectinata B	1,404	1,563	2,917	1,961	4,833	7,042	1,688	6,646	3,938	23,333	2,813	3,250		583	2,083		8,125	2,719	4,500	2,167
Trichocerca B							563													
Unidentified rotifer A		2,604		868	604										521				563	
Phylum Nematoda																				
(unidentified nematode A)	702		1,167	623						11,667					521					
Phylum Ctenophora																				
Pleurobrachia pileus A	702	4,688		1,797					563											
Planula B			583	194			563													
Unidentified organism	2,106	521	0	876	604							542	2,000	1,750	1,563	479			563	
No. of Taxa	10	12	13	17	10	6	13	6	7	6	8	11	8	10	15	8	7	8	8	8
Total Number/ml	1,381,888	118,788,523	5,495,962	4,121,215	6,844,161	1,840,932	114,683,801	8,663,551	5,009,563	2,775,106	946,778	4,109,326	9,100,909	119,223,485	113,774,981	1,823,453	29,174,659	11,402,386	12,305,352	3,692,697

Concentrations are in numbers per cubic meter.
Organisms are identified to the lowest taxonomic category possible and assigned a letter representing confidence in the taxonomic identification.

A - the taxonomic identification is certain

B - the taxonomic identification is almost certain. The specimen resembles descriptions, photos, and illustrations of the identified taxon. Uncertainty may be associated with taxa that are members of a large taxonomic group for which taxonomic keys, descriptions, and illustrations are not available for all members of the taxonomic group.

C - There is uncertainty regarding the identification. The specimen resembles descriptions and illustrations of the identified taxon, but there is elevated awareness that the taxonomic group is large, poorly understood, or there is some aspect of the identification that does not completely match the identification. The specimens in this group may also be identified in the scientific literature as taxa of uncertain taxonomic position.

Attachment F

Benthic Macroinvertebrate Density (No./m^2)

MACROINVERTEBRATE DENSITY (No./m^2)
July 2024

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
ANNELIDA																	
POLYCHAETA																	
EUNICIDA																	
Family Onuphidae																	
Diopatra cuprea										14					43		
Unid. Onuphidae		14															
PHYLLODOCIDA																	
Family Goniadidae																	
Glycinde multidens		14					29	14						14			
Family Hesionidae																	
Podarkeopsis levifuscina															14		
Family Nereididae																	
Alitta succinea			14														
Laeonereis culveri							29										
unid. Nereididae					14												
Family Pilargidae																	
Hermundura vivianneae	14			14	43	29	14	29	43	57			43		14		172
SPIONIDA																	
Family Spionidae																	
Polydora cornuta		14															
Family Capitellidae																	
Capitella capitata complex							14										
Heteromastus filiformis		14		14		43	14										
Mediomastus ambiseta	14	29		14	115	115	258	57				29		43			14
Family Cossuridae																	
Cossura delta			14														
ARTROPODA																	
MALACOSTRACA																	
AMPHIPODA																	
Family Haustoriidae																	
Unid. Haustoriidae								14									

MACROINVERTEBRATE DENSITY (No./m^2)
July 2024

STATION	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
TAXA																	
ISOPODA																	
Family Idoteidae																	
Edotia montosa										14							
MOLLUSCA																	
BIVALVIA																	
CARDIIDA																	
Family Solecurtidae																	
Tagelus plebeius									14								
Family Tellinidae																	
Ameritella mitchelli	14			14			43										14
MYTILIDA																	
Family Mytilidae																	
Ischadium recurvum		14															
VENERIDA																	
Family Mactridae																	
Mulinia lateralis		14	29	14	57	57	72		86	187		86	43				14
GASTROPODA																	
CEPHALASPIDEA																	
Family Tornatinidae																	
Acteocina canaliculata			14				29			14			29				
LITTORINIMORPHA																	
Family Hydrobiidae																	
Unid. Hydrobiidae		14										14		14		14	
Family Vitrinellidae																	
Unid. Vitrinellidae				14													

MACROINVERTEBRATE DENSITY (No./m^2)
July 2024

STATION	**A1**	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D2**	**R1**	**R2**	**R3**	**R4**
TAXA																	
MISC TAXA																	
BRYOZOA																	
Biflustra arborescens																14	
CHORDATA																	
Molgula sp.															14	29	
ECHINODERMATA																	
Unid. Ophiuroidea															14		
NEMERTEA																	
Unid. Palaeonemertea		29			14		29										
PORIFERA																	
Cliona celata																14	
Total No./m^2	43	158	72	86	244	244	531	115	144	287	0	129	115	72	100	72	215
Number of Taxa	3	9	4	6	5	4	10	4	3	5	0	3	3	3	5	4	4

MACROINVERTEBRATE DENSITY (No./m^2)
October 2024

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
ANNELIDA																	
POLYCHAETA																	
PHYLLODOCIDA																	
Family Goniadidae																	
Glycinde multidens					14												
Family Hesionidae																	
Podarkeopsis levifuscina																14	
Family Nereididae																	
Alitta succinea																14	
Unid. Nereididae				14													
Family Pilargidae																	
Hermundura vivianneae							14	14				43					
SPIONIDA																	
Family Spionidae																	
Streblospio gynobranchiata					14												
Family Capitellidae																	
Heteromastus filiformis				14			14										
Mediomastus ambiseta	14						43	29								14	14
ARTHROPODA																	
MALACOSTRACA																	
ISOPODA																	
Family Idoteidae																	
Edotia montosa				14													
MOLLUSCA																	
BIVALVIA																	
MYTILIDA																	
Family Mytilidae																	
Ischadium recurvum																14	

MACROINVERTEBRATE DENSITY (No./m^2)
October 2024

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
VENERIDA																	
Family Mactridae																	
Mulinia lateralis	14														14		14
GASTROPODA																	
LITTORINIMORPHA																	
Family Calyptreidae																	
Crepipatella dilatata																14	
NEOGASTROPODA																	
Family Mangeliidae																	
Pyrgocythara plicosa																14	
MISC TAXA																	
NEMERTEA																	
Unid. Palaeonemertea						14											
Total No./m^2	29	0	0	43	29	14	72	43	0	0	0	43	0	0	14	85	29
Number of Taxa	2	0	0	3	2	1	3	2	0	0	0	1	0	0	1	6	2

MACROINVERTEBRATE DENSITY (No./m^2)
February 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
ANNELIDA																	
POLYCHAETA																	
Family Chaetopteridae																	
Spiochaetopterus costarum	29			29						14	14		14				
EUNCIDIA																	
Family Onuphidae																	
Diopatra cuprea				14													
PHYLLODOCIDA																	
Family Goniadidae																	
Glycinde multidens	43			43	144	14	57	100	14	158	29	158	14	29			
Family Hesionidae																	
Podarkeopsis levifuscina						14											
Family Nereididae																	
Alitta succinea									14								
Laeonereis culveri	14					14									14		
Unid. Nereididae			14														
Family Pilargidae																	
Hermundura vivianneae		14		115	29	29	14	43	29	14	29	57		29			
SPIONIDA																	
Family Spionidae																	
Paraprionospio yokoyamai	14																
Streblospio gynobranchiata	43				43		14	57	14	72		57					
TEREBELLIDA																	
Family Cirratulidae																	
Aphelochaeta sp.					29												
Family Pectinariidae																	
Pectinaria gouldii				14	14					14	14	14					

MACROINVERTEBRATE DENSITY (No./m^2)
February 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
Family Capitellidae																	
Capitella capitata	14						14	14									
Heteromastus filiformis		14		29		43				29							
Mediomastus ambiseta	129	14	29	86	474	43	86	402		474	57	775	14		29	29	
Family Cossuridae																	
Cossura delta								14	14								
Family Orbiniidae																	
Leitoscoloplos sp.	43			14	43		29	57	57	29	14	29	43	29	29		29
ARTHROPODA																	
MALACOSTRACA																	
AMPHIPODA																	
Family Ampeliscidae																	
Ampelisca abdita										14							
Ampelisca sp.	14				43												
Ampelisca vadorum						14											
AORIDAE																	
Grandidierella bonnieroides													14				
CUMACEA																	
Family Bodotriidae																	
Cyclaspis varians									14								
Family Diastylidae																	
Oxyurostylis smithi									29			29					
Oxyurostylis sp.								14									
DECAPODA																	
Family Panopeidae																	
Dyspanopeus texanus	14																
ISOPODA																	
HYSSURIDAE																	
Xenanthura brevitelson															115		

MACROINVERTEBRATE DENSITY (No./m^2)
February 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
MOLLUSCA																	
BIVALVIA																	
Unid. Bivalvia	57		14	14	29				14						57		
Family Lyonsiidae																	
Lyonsia floridana	43			43	43	29	14	14	86	14	14	29					
ADAPEDONTA																	
Family Pharidae																	
Ensis megistus								14									
Family Solenidae																	
Solen viridis	14																
CARDIIDA																	
Family Semelidae																	
Ervilia concentrica						29	14	14									
Family Solecurtidae																	
Tagelus plebeius										14							
Family Tellinidae																	
Ameritella mitchelli												43	14	14			
GALEOMMATIDA																	
Family Lasaeidae																	
Kelliopsis texasiana								14									
Kurtiella planulata			29														
VENEROIDA																	
Family Mactridae																	
Mulinia lateralis	14				273	144	14	100	72	72	57	29	43	43	29		
GASTROPODA																	
CEPHALASPIDEA																	
Family Tornatinidae																	
Acteocina canaliculata	43		14	14	86	29	14	29	57	72	14	86					

MACROINVERTEBRATE DENSITY (No./m^2)
February 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
LITTORINIMORPHA																	
Family Calyptreidae																	
Crepipatella dilatata			14														
Family Hydrobiidae																	
Unid. Hydrobiidae															14		
Family Vitrinellidae																	
Unid. Vitrinellidae					14												
MISC TAXA																	
BRYOZOA																	
Amathia gracilis								14			14						
Biflustra arborescens			14														
CHORDATA																	
Molgula sp.		14	14	43	29	14	43	100	29	72	72	244	14				
CNIDARIA																	
Unid. Actiniaria												14					
Unid. Hydroidolina						14											
ECHINODERMATA																	
Microphiopholis atra								14									
NEMERTEA																	
Cerebratulus lacteus				14			14	14									
Tubulanus pellucidus		14	14	43	29	43		57	57	14		43					
Unid. Nemertea	43	14															
Unid. Palaeonemertea				29					29			43			43		
Total No./m^2	574	86	158	545	1,320	474	330	1,091	531	1,076	330	1,650	172	144	330	29	29
Number of Taxa	16	6	9	15	15	14	12	19	15	15	11	15	8	5	8	1	1

MACROINVERTEBRATE DENSITY (No./m^2)
March/April 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
ANNELIDA																	
POLYCHAETA																	
Family Chaetopteridae																	
Spiochaetopterus costarum								14	14	29		14					
EUNICIDA																	
Family Onuphidae																	
Diopatra cuprea								14									
PHYLLODOCIDA																	
Family Glyceridae																	
Unid. Glyceridae										14							
Family Goniadidae																	
Glycinde multidens	14	14		14	14		14		14								14
Family Hesionidae																	
Podarkeopsis levifuscina					14												
Family Nereididae																	
Alitta succinea																	14
Laeonereis culveri					14												
Unid. Nereididae				14													
Family Pilargidae																	
Hermundura vivianneae				14	14		29			14		14	144				14
Family Phyllodocidae																	
Unid. Phyllodocidae									14								
SPIONIDA																	
Family Spionidae																	
Paraprionospio yokoyamai																14	
Polydora sp.							14										
TEREBELLIDA																	
Family Cirratulidae																	
Aphelochaeta sp.							14						14				

MACROINVERTEBRATE DENSITY (No./m^2)
March/April 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
Family Pectinariidae																	
Pectinaria gouldii							29	14									
Family Capitellidae																	
Capitella capitata								29									
Heteromastus filiformis							14										
Mediomastus ambiseta	14	72	14	86	86	43	14	29	29			43	14		14	14	14
Unid. Capitellidae												14					
Family Cossuridae																	
Cossura delta	14																
Family Maldanidae																	
Maldane sarsi									14	14			14				
Family Orbiniidae																	
Leitoscoloplos fragilis	29		14	43			14		14		43	29		14			
Leitoscoloplos sp.		14				14											14
ARTHROPODA																	
MALACOSTRACA																	
Family Ampeliscidae																	
Ampelisca sp.	29			14				14	14	14			43				14
Family Gammaridae																	
Gammarus mucronatus													14				
DECAPODA																	
Family Portunidae																	
Unid. Portunidae														14			
ISOPODA																	
Family Idoteidae																	
Edotia montosa										14							
MOLLUSCA																	
BIVALVIA																	
Family Lyonsiidae																	
Lyonsia floridana						14	14		14	14							

MACROINVERTEBRATE DENSITY (No./m^2)
March/April 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
ADAPEDONTA																	
Family Pharidae																	
Ensis megistus coseli		29															
CARDIIDA																	
Family Solecurtidae																	
Tagelus plebeius		29			29												
Family Tellinidae																	
Ameritella mitchelli	29			29	14					29		14		29			29
MYTILIDA																	
Family Mytilidae																	
Arcuatula papyria											14						
NUCULANIDA																	
Family Nuculanidae																	
Saccella acuta												14					
VENEROIDA																	
Family Mactridae																	
Mulinia lateralis	29	57	29	72	29	57	72	14	57	29	43	115	57	373	201	14	273
GASTROPODA																	
CEPHALASPIDEA																	
Family Tornatinidae																	
Acteocina canaliculata	100	43		29	14	72	57	57	144	29	29	43	57	14	14		57
LITTORINIMORPHA																	
Family Calyptreidae																	
Crepipatella dilatata				14													
Family Hydrobiidae																	
Unid. Hydrobiidae										14				72			14
Family Naticidae																	
Neverita duplicata																14	

MACROINVERTEBRATE DENSITY (No./m^2)
March/April 2025

STATION TAXA	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	R1	R2	R3	R4
MISC TAXA																	
BRYOZOA																	
Biflustra arborescens																14	
CHORDATA																	
Molgula sp.						57					43	144	86				
NEMERTEA																	
Cerebratulus lacteus									14			14					
Tubulanus pellucidus	29				14		14					29	14	14			
Unid. Palaeonemertea				14			14						29			14	
Total No./m^2	287	258	57	344	244	258	316	187	344	215	172	488	488	531	230	86	459
Number of Taxa	9	7	3	11	10	6	13	8	11	11	5	12	11	7	3	6	10