CHARLOTTE HARBOR
Numeric Nutrient Criteria:
Task 8 - TN and TP
Loading and Concentration Based Criteria

Letter Memorandum

Prepared for:

Charlotte Harbor National Estuary Program

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FOREWORD

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CHNEP Citizens Advisory Committee
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City of North Port
City of Punta Gorda
City of Sanibel
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FDEP Charlotte Harbor Aquatic Preserve (CHAP)
FDEP Estero Bay Aquatic Preserve (EBAP)
FDEP Southwest District
Florida Gulf Coast University
Johnson Engineering
Lee County
Lee County Environmental Laboratory
Lee County Hyacinth Control District
Lemon Bay League
Manatee County
Mosaic Company
Mote Marine Laboratory
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EXECUTIVE SUMMARY

Estuarine numeric nutrient criteria have been proposed for the Charlotte Harbor National Estuary Program (CHNEP) as segment-specific mean annual total nitrogen concentrations (Janicki Environmental, 2010a). EPA has noted its intention to develop numeric criteria for estuarine TP and TN concentrations. Furthermore, CHNEP stakeholders have requested that loading-based TN and TP criteria be developed. This document provides segment-specific TP concentration criteria as well as TN and TP criteria expressed as loads.

Establishment of numeric nutrient criteria is dependent on an understanding of the limiting nutrient within the water body of concern. For the CHNEP system, extensive data exist for evaluation of which nutrient, nitrogen or phosphorus, is limiting. Ambient water quality data indicate that most of the segments are co-limited by both nitrogen and phosphorus. Nitrogen limitation is suggested for Dona and Roberts Bay, Upper Lemon Bay, and the Tidal Peace and Myakka rivers.

Previous efforts in the CHNEP area have identified seagrass targets and chlorophyll *a* targets and thresholds that are supportive of the seagrass targets. In addition, TN concentration criteria have been estimated in a previous report (Janicki Environmental, 2010a). As mentioned previously, EPA has noted its intention to develop criteria for TN and TP concentrations and loads. Therefore, this document details the efforts to extend the TN concentration criteria (Janicki Environmental, 2010a) to TP concentrations and to TN and TP loads.

The following conclusions can be drawn from the analyses and results presented below, which include those criteria already proposed (Janicki Environmental, 2010a):

- The relationships between segment TN concentrations and segment TP concentrations are not transparent, and thus cannot be used to translate previously proposed TN concentration criteria (Janicki Environmental, 2010a) to TP concentration criteria.
- Stressor-Response relationships between chlorophyll *a* and TP concentrations are not sufficient to derive TP concentration criteria based on established chlorophyll *a* thresholds.
- The Reference Period Approach (2003-2007) provides the most suitable and internally consistent method for establishing TN and TP concentration criteria for the CHNEP segments, with the exception of the Tidal Caloosahatchee. The Tidal Caloosahatchee has been determined to be impaired for nutrients and a draft TMDL has been developed. However, the TMDL is being revised due to concerns raised by stakeholders. Therefore, the criteria for Tidal Caloosahatchee are "to be determined" until the TMDL revision is completed (Janicki Environmental, 2010a). Issues pertaining to the implementation of the proposed nutrient criteria are discussed in a separate technical memo (Janicki Environmental, 2011). The following are the proposed concentration numeric nutrient criteria for CHNEP segments:

	Segment	TN concentration criteria (mg/L)	TP concentration criteria (mg/L)
–	Dona and Roberts Bay	0.42	0.18
–	Upper Lemon Bay	0.56	0.26
–	Lower Lemon Bay	0.62	0.17
–	Charlotte Harbor Proper	0.67	0.19
–	Pine Island Sound	0.57	0.06
–	San Carlos Bay	0.56	0.07

– Tidal Myakka River	1.02	0.31
– Tidal Peace River	1.08	0.50
– Matlacha Pass	0.58	0.08
– Tidal Caloosahatchee River	TBD	TBD
– Estero Bay	0.63	0.07

- On a monthly time scale, the relationships between TN or TP loads and chlorophyll *a* concentrations in most segments do not explain a significant proportion of the variability in the chlorophyll *a* concentrations to support development of loading-based numeric nutrient criteria based on these relationships.

- The relationships between TN and TP loadings and TN and TP concentrations do not provide a defensible Stressor-Response Approach for establishing loading-based numeric nutrient criteria in any segments based on proposed segment concentration criteria.

- The Reference Period Approach (2003-2007) provides the most defensible method to define loading-based numeric nutrient criteria for the CHNEP segments with the exception of Tidal Caloosahatchee and San Carlos Bay. The Tidal Caloosahatchee has been determined to be impaired for nutrients and a draft TMDL has been developed. However, the TMDL is being revised due to concerns raised by stakeholders. Therefore, the criteria for Tidal Caloosahatchee are "to be determined" until the TMDL revision is completed. Because the San Carlos Bay loadings are dominated by the Tidal Caloosahatchee loadings, San Carlos Bay loading criteria are also "to be determined" until the TMDL for Tidal Caloosahatchee is completed. Issues pertaining to the implementation of the proposed nutrient criteria are discussed in a separate technical memo (Janicki Environmental, 2011). The following are the proposed TN and TP loading criteria for CHNEP segments:

Segment	**TN Criteria (tons/yr)**	**TP Criteria (tons/yr)**
- Dona and Roberts Bay	250	48
- Upper Lemon Bay	102	18
- Lower Lemon Bay	136	21
- Charlotte Harbor Proper	5,987	2,281
- Pine Island Sound	190	8
- San Carlos Bay	TBD	TBD
- Tidal Myakka River	1,407	351
- Tidal Peace River	4,343	1,960
- Matlacha Pass	216	24
- Tidal Caloosahatchee River	TBD	TBD
- Estero Bay	587	61

1.0 Introduction and Objective

The Charlotte Harbor National Estuary Program (CHNEP) has completed its initial efforts to develop recommended numeric nutrient criteria for Charlotte Harbor from Venice to Estero Bay (Janicki Environmental, 2010a). The criteria are segment-specific (Figure 1) and are expressed as mean annual total nitrogen (TN) concentrations. Considerable effort was expended in order to develop statistically defensible stressor-response relationships between TN and chlorophyll in the segments of the CHNEP area (2010a). The chlorophyll *a* thresholds were developed using data from the reference period (2003-2007). For segments that are classified as protection (seagrass is at or above the target), the chlorophyll threshold was calculated by summing the annual mean plus one standard deviation to account for variability. For segments that are classified as restoration (seagrass is less than the target), the threshold was calculated by summing the annual mean plus one half standard deviation. This produces a chlorophyll threshold that is more stringent for the segments that are classified as restoration. The relationships that were developed between chlorophyll and TN were deemed to be too weak to be used in the development of numeric nutrient criteria. Therefore, the Policy Committee decided to use the reference period approach to estimate TN concentration criteria. A draft TMDL exists for Tidal Caloosahatchee River. However, the TMDL is being revised due to concerns about the draft TMDL. Therefore, the TN concentration criteria for Tidal Caloosahatchee is “to be determined” (TBD) until the revision is completed (Janicki Environmental, 2010a).

The proposed TN concentration criteria previously developed (Janicki Environmental, 2010a) are as follows:

- Dona and Roberts Bays 0.42 mg/l
- Upper Lemon Bay 0.56 mg/l
- Lower Lemon Bay 0.62 mg/l
- Charlotte Harbor Proper 0.67 mg/l
- Pine Island Sound 0.57 mg/l
- San Carlos Bay 0.56 mg/l
- Tidal Myakka 1.02 mg/l
- Tidal Peace 1.08 mg/l
- Matlacha Pass 0.58 mg/l
- Tidal Caloosahatchee TBD
- Estero Bay 0.63 mg/l

Building on these proposed nutrient criteria, the objective of this task is to develop segment-specific TP concentration criteria for all segments and segment-specific TN and TP loading criteria for all segments. These criteria will be recommended as numeric nutrient criteria by the CHNEP. This will provide the U.S. Environmental Protection Agency (EPA) both concentration and loading criteria for TN and TP, as are currently also being developed for Tampa Bay and Sarasota Bay. This is in keeping with recognition of the importance of maintaining consistency with existing management goals, and specifically with the chlorophyll *a* thresholds recently developed for the CHNEP.

Throughout the remainder of the report, we first provide a discussion of nutrient limitation, followed by a description of the analyses performed and the results of each analysis by segment. Finally, we present the recommended TP and TN concentration criteria, and TN and TP loading criteria, for each of the segments.

Figure 1. Charlotte Harbor segments.

2.0 Nutrient Limitation

The establishment of numeric nutrient criteria depends upon knowledge of the nutrient most likely limiting in the waterbodies of concern. Three major factors control whether nitrogen or phosphorus is more likely to be limiting (NRC, 2000):

- the N:P ratio in external nutrient inputs;
- the preferential loss from the photic zone of nitrogen or phosphorus due to biogeochemical processes such as denitrification, sedimentation, or absorption of phosphorus; and
- the amount of nitrogen fixation.

Marine systems, including estuaries, are generally considered nitrogen limited (Thomas, 1970a,b; Ryther and Dunstan, 1971; Boynton et al., 1982; Smith, 1984; Howarth, 1988, 2008; Howarth et al., 1988a,b; Nixon et al., 1996; Howarth and Marino, 2006; Chapra, 1997; National Research Council, 2000;), although there may be times and locations when phosphorus limitation may occur (Conley, 2000; Conley et al., 2009; Malone et al., 1996).

Since nitrogen is considered the most likely limiting nutrient in estuarine systems, it has been identified as the primary nutrient of concern in estuarine ecosystems nationwide (Smith, 1984; NRC, 1993). As noted in Correll (1999), however, since estuaries are part of the transition zone between the open ocean and the phosphorus supplied from the land, it is possible that both phosphorus and nitrogen may be limiting in estuaries, dependent upon the time of year, location in the estuary, and nutrient supplies. Ryther and Dunstan (1971) noted the change from phosphorus limitation in freshwaters to nitrogen limitation in near-shore marine waters, although Hecky and Kilham (1988) indicated that the extent and severity of marine nitrogen limitation has not been conclusively determined, with other studies reporting estuarine phosphorus limitation in the spring and nitrogen limitation in the summer and fall (Fisher et al., 1992; Lee et al., 1996). Depending upon the relative rates of nitrogen and phosphorus supply, the limitation has been found to shift between nitrogen and phosphorus in coastal lagoons in the northeastern US (Taylor et al., 1995). It has also been documented that residence times play a significant role in determining the estuarine responses to nutrient loads (Monsen et al., 2002; Hagy et al., 2000; Borsuck et al., 2004; Boynton and Kemp, 2008).

2.1 Methods to Determine Limitation

There are two general methods that have been used to define which nutrient is limiting in a water body. They include:

- a method that depends upon ambient water quality data collected over a wide range of environmental conditions, and
- a method that involves experimental manipulation of nutrient conditions, either in the laboratory or *in situ*.

2.1.1 Ambient Water Quality Data Methods

This method depends upon a metric typically used to evaluate nutrient limitation: the nitrogen to phosphorus ratio (N:P ratio). The N:P ratio indicative of balanced conditions is typically taken to be 16:1 (molar), based on the work of Redfield (1934, 1958). This N:P ratio was based on the elemental composition of algae, under both laboratory and natural conditions. When N:P ratios are greater than 16:1 in a system, this is indicative of phosphorus limitation. However, there may be considerable variation in this ratio within an algal culture, dependent upon cell division status, light conditions, and precedent conditions (Correll, 1999; Correll and Tolbert, 1962; Terry et al., 1985).

Molar ratios of N:P are easily determined from water quality monitoring data. In freshwater systems, the N:P ratio is usually higher than 16:1, indicating that phosphorus is usually most limiting to primary production in these ecosystems (Schindler, 1977; Elser et al., 2007). This becomes evident by examining the concentrations of the forms of nitrogen and phosphorus that are available for algal uptake. Little if any dissolved inorganic phosphorus (DIP) is generally found in relatively productive freshwaters while measurable concentrations of dissolved inorganic nitrogen (DIN) remain.

Most marine systems are nitrogen limited because there are relatively low concentrations of dissolved inorganic nitrogen compared to dissolved phosphorus. Since Redfield's observations were published, research has shown that ratios from 10:1 to 20:1 for N:P are typically found in estuaries (Parsons et al., 1984). Howarth (1988) observed that the correlation between nitrogen and the primary production was better for estuaries that received nutrient concentrations with smaller N:P ratios than the one studied by Redfield. Several studies have led to the conclusion that estuaries receiving nutrient concentrations with high N:P ratios were limited by phosphorus and only those with low ratios are limited by nitrogen (Boynton et al., 1982). Boynton et al. (1982) and Howarth (1988) compiled data on the ratio of inorganic nitrogen to phosphorus in a variety of estuaries. Of the 27 studied by Howarth, 22 had N:P ratios below the Redfield ratio and may have been nitrogen limited. Because phytoplankton can assimilate some organic nutrient forms and all forms are relatively labile, it is useful to examine the ratio of total nutrient concentrations (TN:TP).

Reductions of nutrient levels in a water body will usually result in reduction in algal growth. Reducing phosphorus, however, will have no effect unless the reduction results in an N:P ratio greater than 16:1. Phosphorus would then become the limiting nutrient. In contrast, a reduction of nitrogen concentrations will result in a reduction of primary productivity when the ratio is less than 16:1. There are exceptions to this general rule. Some coastal areas are phosphorus limited due to strict phosphorus control measures or natural conditions and some freshwaters are nitrogen limited due to natural sources of phosphorus.

2.1.2 Experimental Methods

Experimental manipulation of nutrient conditions, either in the lab or *in situ,* typically involves nitrogen and phosphorus additions to either a test alga or a phytoplankton assemblage singularly and in combination. The responses to the additions determine the limiting nutrient. If growth is found only during nitrogen addition, nitrogen-limitation is indicated. Conversely, if growth is found only during phosphorus addition, phosphorus-limitation is indicated.

In situ methods have included:

- limnocorrals or bags in which nutrient additions are made and resultant growth responses are measured (Shapiro, 1980; Lynch and Shapiro, 1981; Havens and DeCosta, 1986; Perez et al., 1994);
- mesocosm studies in which water is collected and placed in separate containers or enclosures for application of separate treatments over multiple day time scales (Oviatt et al., 1986; Taylor et al., 1995); and
- whole-lake studies performed on entire lakes or portions of lakes separated by curtains (Schindler, 1974, 1975).

In Florida, as part of its TMDL process, the Florida Department of Environmental Protection (FDEP) attempts to identify the limiting nutrient(s) in impaired waterbodies. The TMDL for a specific waterbody specifies the maximum amount of the limiting nutrient that may enter the waterbody, with this limitation being defined with the aim of improving water quality. If the N:P ratio does not clearly suggest the limiting nutrient, TMDLs for both nitrogen and phosphorus are typically defined. The primary method for determining the limiting nutrient employed by the FDEP is use of existing water quality data to derive ambient N:P ratios, but more complicated methods, including field tests and laboratory algal growth potential bioassays, have been employed. Per FDEP guidelines, receiving waters with ratios less than 10:1 (molar) are considered nitrogen limited, ratios of greater than 30:1 (molar) indicate phosphorus limitation, and ratios of 10-30:1 (molar) indicate co-limitation (FDEP, 2002).

2.2 Confounding Factors

Determination of the limiting nutrient based solely on N:P ratios estimated from water quality data or from experimental uptake rates should be performed with consideration of potentially confounding effects. Algal cell interior N:P ratios and uptake rates may vary due to:

- cell division status (Correll and Tolbert, 1962),
- light intensity or light quality (Wynne and Rhee, 1986),
- light and temperature (Jahnke et al., 1986), and
- P deprivation and then subsequent availability (Sicko-Goad and Jensen, 1976).

Nutrient limitation in freshwaters, which are typically considered to be phosphorus limited, can vary seasonally. Summer nitrogen limitation in lakes can occur when photic zone inorganic nutrients are low (Elser et al., 1990). It has also been demonstrated that some estuaries show seasonal shifts in limitation (D'Elia et al., 1986; McComb et al., 1981; Conley, 2000). The best available information should be used to determine the limiting nutrient of a system before management decisions are made with the objective of improved water quality via nutrient load control.

2.3 Nutrient Limitation in the Charlotte Harbor System

Nutrient limitation in the CHNEP estuarine system has been examined using the N:P ratio method, with the results reported below. The average TN:TP ratios for the CHNEP segments, both by weight and molar, were determined based on ambient water quality data, and are presented in Table 1, with the years of data used for each segment provided in the table. The ratios were calculated by first calculating the monthly ratio for each segment based on data collected by Sarasota and Lee County, City of Cape Coral, Coastal Charlotte Harbor Monitoring Network, Peace River/Manasota Regional Water Supply Authority, South Florida Water

Management District, and Florida International University. The mean value of these monthly values within a year was calculated and the mean of these annual values was calculated. Annual mean TN values were lowest in Pine Island Sound (0.37 mg/L) and Dona and Roberts Bay (0.39 mg/L) and highest in Tidal Peace (1.06 mg/L) and Tidal Myakka (0.95 mg/L) rivers. Annual mean TP values were lowest in Pine Island Sound (0.06 mg/L), Estero Bay (0.06 mg/L), and San Carlos Bay (0.07 mg/L), and highest in the Tidal Peace River (0.43 mg/L) and Tidal Myakka River (0.27 mg/L).

Table 1. Annual mean TN and TP concentrations and TN:TP in CHNEP segments.

Segment	TN (mg/L)	TP (mg/L)	TN:TP (Weight)	TN:TP (Molar)
Dona and Roberts Bay (2003-2009)	0.39	0.15	2.6	5.8
Upper Lemon Bay (1998-2009)	0.53	0.22	2.5	5.5
Lower Lemon Bay (2001-2008)	0.61	0.10	10.6	23.5
Charlotte Harbor Proper (2001-2008)	0.65	0.15	5.5	12.1
Pine Island Sound (1996-2009)	0.37	0.06	9.6	21.3
San Carlos Bay (1996-2010)	0.44	0.07	10.9	24.2
Tidal Myakka River (1998-2008)	0.95	0.27	3.8	8.4
Tidal Peace River (1996-2009)	1.06	0.43	2.6	5.8
Matlacha Pass (1996-2010)	0.52	0.08	8.4	18.5
Tidal Caloosahatchee River (1999-2010)	0.53	0.08	7.2	15.9
Estero Bay (1991-2009)	0.55	0.06	10.7	23.6

All segments except Dona and Roberts Bay, Upper Lemon Bay, and the Tidal Peace and Tidal Myakka rivers have molar N:P ratios greater than 10:1. According to the FDEP guidelines (FDEP, 2002), these four segments would be considered nitrogen-limited. The remaining segments, with N:P ratio between 12:1 and 24:1, would be considered co-limited, as this ratio is between the 10:1 ratio indicating nitrogen limitation and the 30:1 ratio indicating phosphorus limitation. It is important to recall that the nutrient that is most limiting can vary seasonally (Malone et al., 1996; Conley et al., 2009), so that areas that are generally nitrogen-limited may by phosphorus-limited at times. In addition to nutrient limitation, phytoplankton growth may also be light-limited during certain parts of the year (Pennock and Sharp, 1994).

Seasonal variation in nutrient limitation has been observed in other waterbodies (Fisher et al., 1992; Lee et al., 1996; Malone et al, 1996; Conley et al., 2009). Season-specific TN:TP ratios were also estimated based on the available data (Table 2). Seasonality in nutrient limitation was not observed for any of the segments, although TN:TP ratios in San Carlos Bay and Estero Bay exhibited greater seasonal variation than the other CHNEP segments.

Both annual and seasonal estimates of nutrient limitation support the conclusion that the CHNEP system is co-limited by nitrogen and phosphorus, with the exception of the four nitrogen-limited segments: Dona and Roberts Bay, Upper Lemon Bay, and the Tidal Peace and Tidal Myakka.

Table 2. Seasonal mean TN:TP ratios in CHNEP segments.				
Segment	**Dry Season**		**Wet Season**	
	TN:TP (Weight)	**TN:TP (Molar)**	**TN:TP (Weight)**	**TN:TP (Molar)**
Dona and Roberts Bay (2003-2009)	2.4	5.4	3.0	6.7
Upper Lemon Bay (1998-2009)	2.3	5.0	3.0	6.5
Lower Lemon Bay (2001-2008)	10.8	23.8	10.3	22.7
Charlotte Harbor Proper (2001-2008)	5.7	12.7	5.1	11.3
Pine Island Sound (1996-2009)	9.7	21.5	9.3	20.5
San Carlos Bay (1996-2010)	10.9	24.2	8.1	17.9
Tidal Myakka River (1998-2008)	3.9	8.5	3.6	7.9
Tidal Peace River (1996-2009)	2.6	5.8	2.6	5.8
Matlacha Pass (1996-2010)	8.6	19.0	7.1	15.8
Tidal Caloosahatchee River (1999-2010)	7.2	16.0	7.1	15.8
Estero Bay (1991-2009)	9.7	21.4	12.1	26.8

3.0 Charlotte Harbor TN and TP Criteria: Analyses and Results

The development of segment-specific numeric nutrient criteria for the CHNEP estuarine segments was a step-wise procedure using, as a starting point, TN criteria previously proposed by Janicki Environmental (2010a). Two primary approaches were employed throughout the analyses: 1) Stressor-Response Approach and 2) Reference Period Approach. Although statistically significant relationships were developed for the previous document, the strength of these relationships was not sufficient to use these relationships to develop nutrient criteria, therefore the reference period approach was used to develop segment-specific TN concentration criteria (Janicki Environmental, 2010a). As discussed above, the reference period method accounts for variability by producing a threshold value. The threshold is calculated as the mean plus one standard deviation for segments that are classified as protection (i.e., seagrass population are meeting targets), while the threshold for segments classified as restoration (i.e., seagrass populations are not yet meeting targets) is calculated by summing the mean and one half standard deviation. Both of these approaches have been presented by Janicki Environmental (2010b) as a means to assist the EPA in identifying scientifically sound and robust methods for the derivation of technically defensible numeric nutrient criteria for Southwest Florida estuaries and tidal creeks.

The Stressor-Response Approach to establish numeric nutrient criteria is based on the development of quantitative relationships between known indicators of system health (e.g. chlorophyll *a* concentrations) and anthropogenic stressor variables (e.g., nutrient concentrations or loads). Using these relationships, the goal is to first identify the threshold response beyond which adverse conditions are observed. Once this threshold value is determined, the relationship between stressors and response can be used to set limits on the magnitude of the stressor variable that is expected to maintain adequate water quality and avoid adverse conditions. In the event that predictive relationships between stressor and response variables are weak, the Reference Period Approach can be used. The Reference Period Approach uses available data for the system of interest to establish numeric nutrient criteria using data collected during a period of time when ambient water-quality conditions maintained full aquatic-life support function (e.g., seagrass acreage were stable or increasing).

The end result of this series of analyses is a complete set of proposed TN and TP concentration and loading criteria for each of the segments in the CHNEP system.

Below, we outline these analyses from starting point to final proposed numeric nutrient criteria. Best-fit regression equations for each step and summary plots comparing proposed criteria and historical water-quality conditions are presented in the text, while the plots from the full analyses are provided as a series of Attachments.

The first set of analyses was performed to evaluate potential methods of deriving TP concentration criteria commensurate with previously proposed TN concentration criteria and/or chlorophyll *a* thresholds (Stressor-Response Approach). Since the current proposed TN criteria are expressed as concentrations, and since chlorophyll *a* thresholds have been developed for all segments (Janicki Environmental, 2010a), this would be the simplest method to derive TP concentration criteria for most of the segments. If significant relationships are found between the TN concentrations and the TP concentrations or between chlorophyll *a* and TP concentrations, then the TP concentration criteria can be derived based on the previously proposed TN concentration criteria or existing chlorophyll *a* thresholds.

Analyses conducted to examine the feasibility of this approach to **develop TP concentration criteria** based on TN concentrations and chlorophyll *a* thresholds included:

- examination of the relationships between **TN and TP concentrations** within each segment, following the rationale that the TN concentration criteria have already been developed (Janicki Environmental, 2010a) and relationships between TN and TP concentrations could provide TP concentration criteria (Attachment 1);

- examination of relationships between monthly **TP concentrations and chlorophyll *a* concentrations** (Attachment 2), with the potential to derive TP concentration criteria based on chlorophyll *a* thresholds (Janicki Environmental, 2010a); and

- application of the **Reference Period Approach** to establish TP concentration criteria.

Once the most appropriate method for developing TP concentration criteria had been determined, additional analyses were completed to **develop TN and TP loading criteria** as requested by the CHNEP. These included:

- examination of the relationships between monthly **TN concentrations and TN loadings** (Attachment 3) with the potential to derive TN loading criteria from proposed TN concentration criteria;

- examination of the relationships between monthly **TP concentrations and TP loadings** (Attachment 4) with the potential to derive TP loading criteria from proposed TP concentration criteria derived above;

- examination of the relationships between **chlorophyll *a* concentrations and TN and TP loadings** to the segments (Attachments 5 and 6), following the rationale that the chlorophyll *a* thresholds have already been developed (Janicki Environmental, 2010a) and relationships between chlorophyll *a* and nutrient loadings could provide TN and TP loading criteria;

- application of the **Reference Period Approach** to establish TN and TP loading criteria.

Graphical displays of the full set of analyses are provided in Attachments 1-6. The results are described by segment below.

3.1 Dona and Roberts Bay

Using previously proposed TN concentration criterion for Dona and Roberts Bay, the relationship between TN and TP concentrations was examined following the Stressor-Response Approach, including various lag effects, as a possible method to derive TP concentration criteria (Attachment 1). Similarly, the previously proposed chlorophyll *a* threshold for this segment was related to TP concentration in an attempt to derive commensurate TP concentration criteria (Attachment 2).

TN concentrations explained as much as 39% of the variation in the TP concentrations, while the TP concentrations explained only 20% of the variation in chlorophyll *a* concentrations (Table 3). The poor relationship between TP and TN concentrations in Dona and Roberts Bays does not allow the TP concentration criterion to be derived based on the proposed TN concentration criterion using the Stressor-Response Approach. Additionally, the poor relationship between TP concentration and chlorophyll *a* does not allow the TP concentration criterion to be derived based on the existing chlorophyll *a* threshold. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). This proposed criterion is compared to the observed arithmetic mean annual TP concentrations in Dona and Roberts Bay (Figure 2).

Previously proposed TN concentration criteria and newly derived TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. In Dona and Roberts Bay, the best-fit relationship between TN concentration and the 2-month TN load explained 60% of the variation in TN concentrations, while 55% of the variation in TP concentrations Dona and Roberts Bay was explained by the log-transformed 2-month TP load (Table 3) (see scatter plots in Attachments 3 and 4). These relationships between nutrient concentrations and loads were the best observed for any of the segments in Charlotte Harbor. In Dona and Roberts Bay, the two-month TN and TP loads explained 38% and 36%, respectively, of the variation in chlorophyll *a* concentrations (Table 3; Attachments 5 and 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Dona and Roberts Bay (Figure 3).

The proposed nutrient criteria for Dona and Roberts Bay are as follows:

- TN concentration = 0.42 mg/L
- TP concentration = 0.18 mg/L
- TN loading = 250 tons/yr
- TP loading = 48 tons/yr

Table 3. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Dona and Roberts Bay.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	[TP] = 0.08 + 0.18*[TN]	<0.0001	0.39
[TP]	[chl a] = -0.15 + 29.24*Mean TP Conc	0.0001	0.20
TN Load	[TN] = 0.27 + 0.004 * Cumulative 2-month TN Load	<0.0001	0.60
TP Load	[TP] = 0.14 + 0.02 * ln Cumulative 2-month TP Load	<0.0001	0.55
TN Load	[chl a] = 2.33 + 0.04 * Cumulative 2-month TN Load	<0.0001	0.38
TP Load	[chl a] = 2.42 + 0.22 * Cumulative 2-month TP Load	<0.0001	0.36

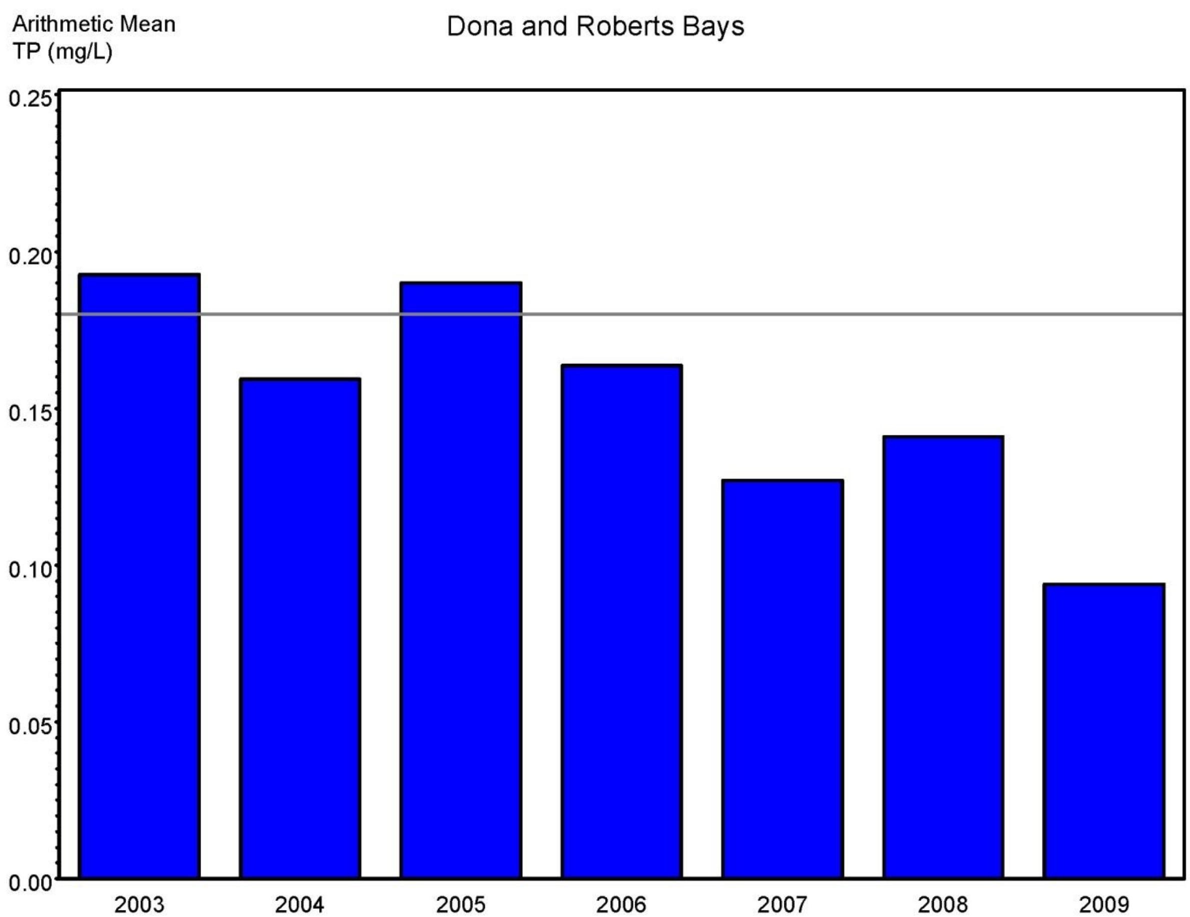
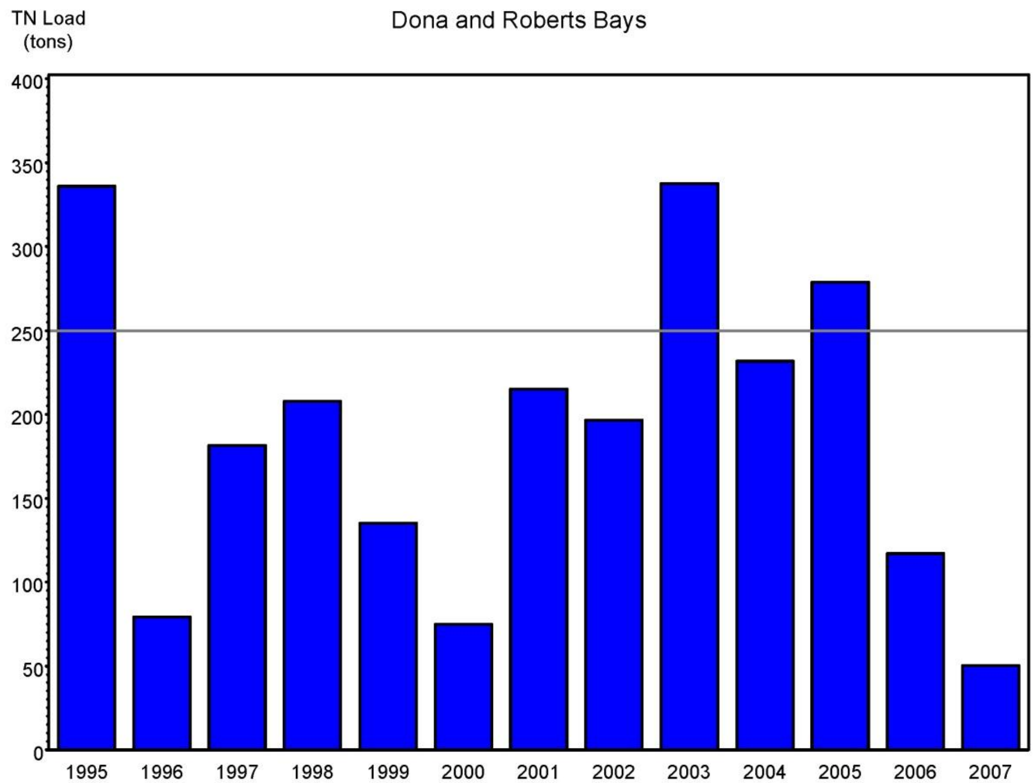


Figure 2. Comparison of proposed TP concentration criterion for Dona and Roberts Bay to the annual arithmetic mean TP concentrations.



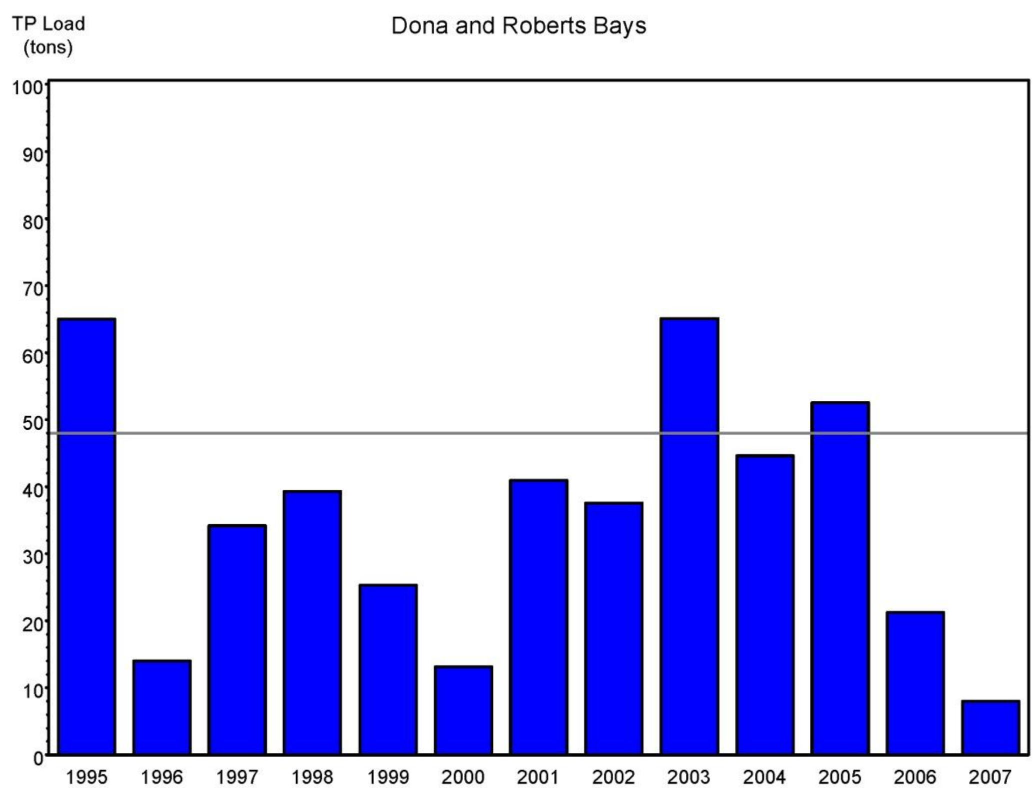


Figure 3. Comparison of proposed TN and TP load criteria for Dona and Roberts Bay to annual loads.

3.2 Upper Lemon Bay

Previously proposed TN concentration criterion for Upper Lemon Bay were used to examine the relationship between TN and TP concentrations following the Stressor-Response Approach, including various lag effects, as a possible method to derive TP concentration criteria (Attachment 1). Similarly, the previously proposed chlorophyll *a* threshold for this segment was related to TP concentration in an attempt to derive commensurate TP concentration criteria (Attachment 2).

TN concentrations explained up to 16% of the variation in TP concentrations, while the log-transformed mean TP concentrations explained only 11% of the variation in log-transformed chlorophyll *a* concentrations (Table 4). The weak relationship between TN and TP concentrations in Upper Lemon Bay does not allow the TP concentration criterion to be derived based on the proposed TN concentration criterion using the Stressor-Response Approach. Additionally, the poor relationship between TP concentration and chlorophyll *a* does not allow the TP concentration criterion to be derived based on the existing chlorophyll *a* threshold. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding 1 standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). This proposed criterion is compared to the observed arithmetic mean annual TP concentrations in Upper Lemon Bay in Figure 4.

Previously proposed TN concentration criteria and newly derived TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. In Upper Lemon Bay, the best-fit relationship between TN concentration and log-transformed 2-month TN load explained 38% of the variation in TN concentrations; however, only 4% of the variation in log-transformed TP concentrations in this segment was explained by the 2-month TP load (Table 4; Attachments 3 and 4). The two-month TN and TP loads explained only 36% and 34%, respectively, of the variation in chlorophyll *a* concentrations in Upper Lemon Bay (Table 4; Attachments 5 and 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Upper Lemon Bay (Figure 5). The horizontal line represents the proposed criteria.

The proposed nutrient criteria for Upper Lemon Bay are as follows:

- TN concentration = 0.56 mg/L
- TP concentration = 0.26 mg/L
- TN loading = 102 tons/yr
- TP loading = 18 tons/yr

Table 4. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Upper Lemon Bay.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	[TP] = 0.14 + 0.16*[TN]	<0.0001	0.16
[TP]	ln[chl a] = 3.16 + 0.85*ln Mean TP Conc	<0.0001	0.11
TN Load	[TN] = 0.43 + 0.01 * ln Cumulative 2-month TN Load	<0.0001	0.38
TP Load	ln[TP] = -1.53+ 0.03 * Cumulative 2-month TP Load	0.0232	0.04
TN Load	[chl a] = 4.27 + 0.42 * Cumulative 2-month TN Load	<0.0001	0.36
TP Load	[chl a] =4.71+2.17 * Cumulative 2-month TP Load	<0.0001	0.34

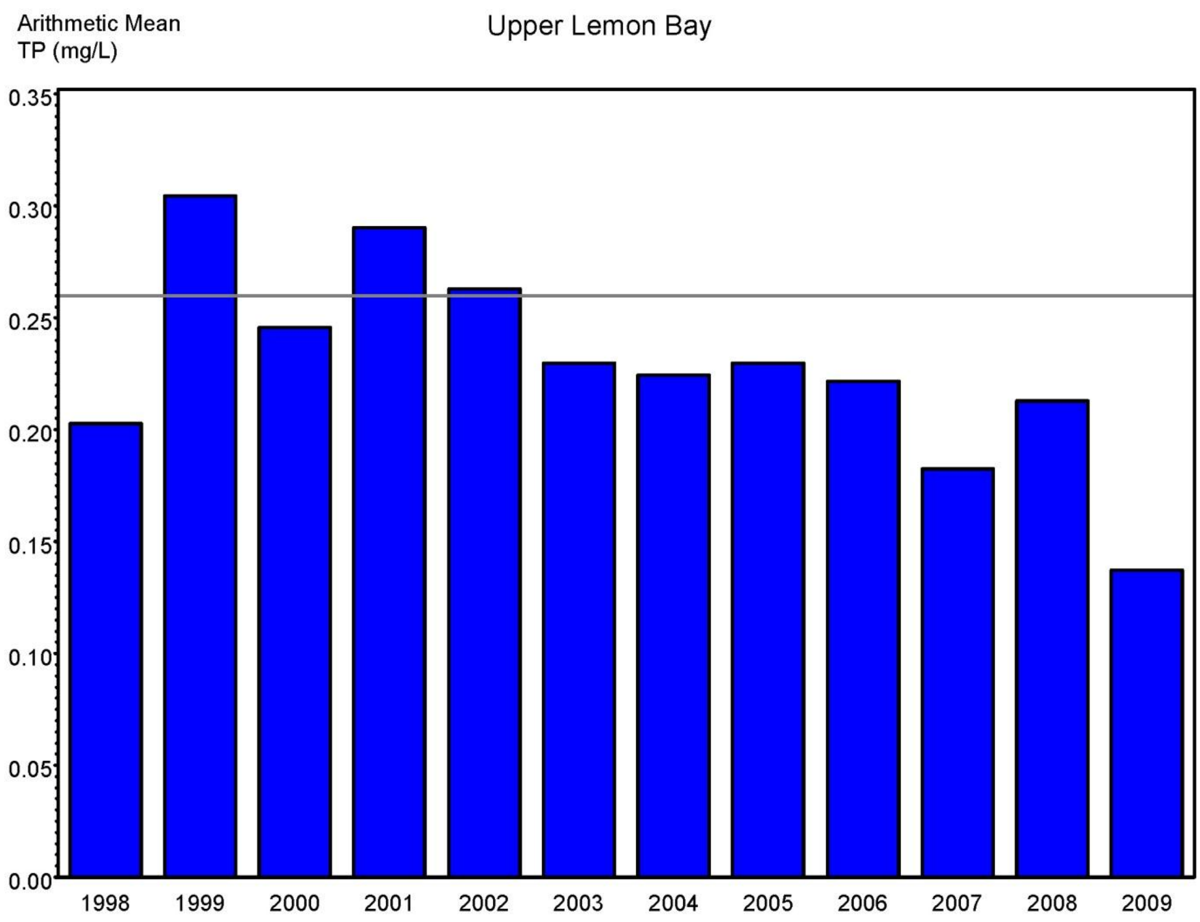
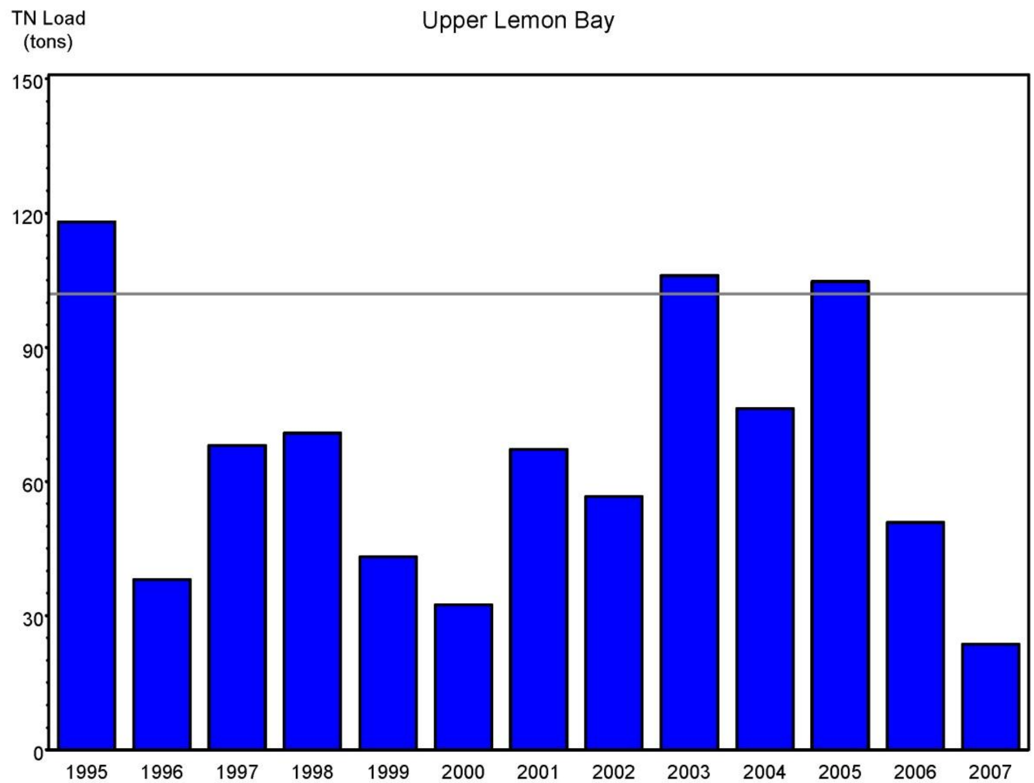


Figure 4. Comparison of proposed TP concentration criterion for Upper Lemon Bay to the annual arithmetic mean TP concentrations.



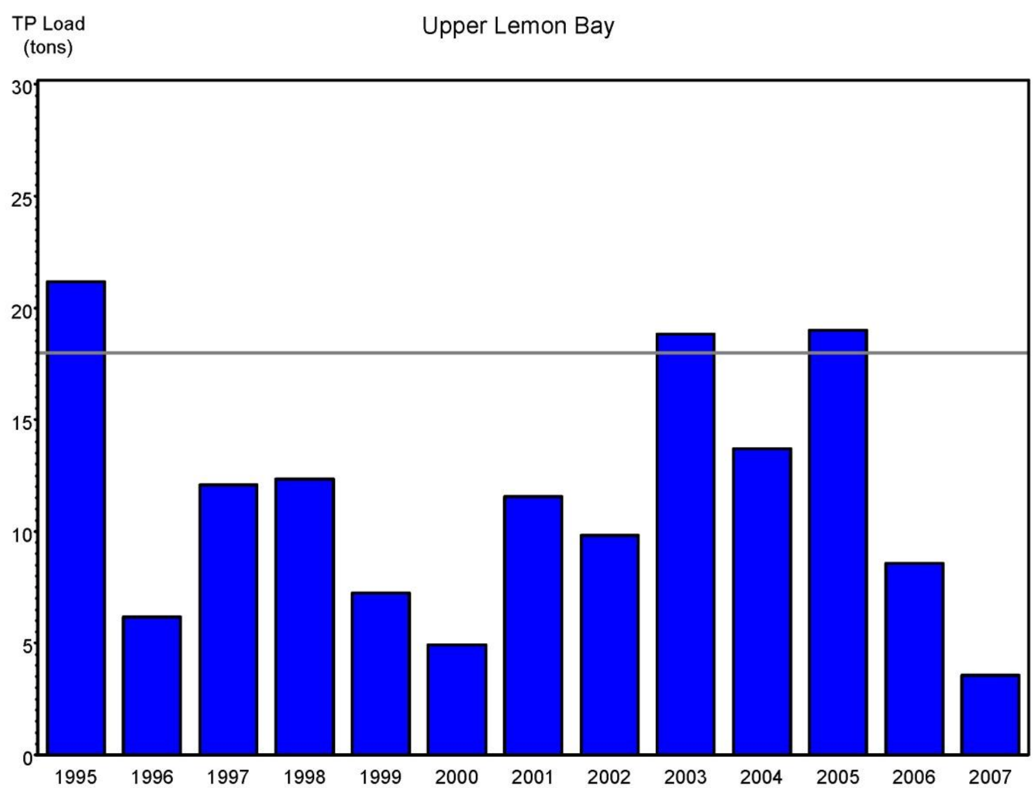


Figure 5. Comparison of proposed TN and TP load criteria for Upper Lemon Bay to annual loads.

3.3 Lower Lemon Bay

Previously proposed TN concentration criterion for Lower Lemon Bay were used to examine the relationship between TN and TP concentrations following the Stressor-Response Approach, including various lag effects, as a possible method to derive TP concentration criteria (Attachment 1). Similarly, the previously proposed chlorophyll *a* threshold for this segment was related to TP concentration in an attempt to derive commensurate TP concentration criteria (Attachment 2).

Total nitrogen concentrations explained only 4% of the variation in log-transformed TP concentration in Lower Lemon Bay. Similarly low predictive power was observed for the 3-month TP concentration which explained only 6% of the variation in log-transformed chlorophyll *a* concentrations (Table 5). The weak relationship between TN and TP concentrations in Lower Lemon Bay does not allow the TP concentration criterion to be derived based on the proposed TN concentration criterion using the Stressor-Response Approach. Additionally, the poor relationship between TP concentration and chlorophyll *a* prevented the use of the chlorophyll *a* threshold as a means to develop the TP concentration criterion. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for the segment. Natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). This proposed criterion is compared to the observed arithmetic mean annual TP concentrations in Lower Lemon Bay (Figure 6) with the horizontal line as the proposed criterion.

Previously proposed TN concentration criteria and newly derived TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, to derive nutrient loading criteria as a function of nutrient concentration. Very little of the variation in TN and TP concentrations in Lower Lemon Bay were accounted for by TN load (2%) and 3-month TP load (3%). The best-fit regression equations are presented in Table 5, while all evaluated model plots are included in Attachments 3 and 4. In a further effort to formulate TN and TP loading criteria, existing chlorophyll *a* threshold for Lower Lemon Bay was regressed on TN and TP loads. Nutrient loads to Lower Lemon Bay explained very little of the observed variation in chlorophyll *a* concentrations. Log-transformed TN load explained 16%, while the TP load explained only 13% of the total variation in chlorophyll *a* (Table 5; Attachments 5 and 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. Proposed TN and TP loading criteria are compared to annual loadings for Lower Lemon Bay in Figure 7.

The proposed nutrient criteria for Lower Lemon Bay are as follows:

- TN concentration = 0.62 mg/L
- TP concentration = 0.17 mg/L
- TN loading = 136 tons/yr
- TP loading = 21 tons/yr

Table 5. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Lower Lemon Bay.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[TP] = -2.25 - 0.52*[TN]	0.0594	0.04
[TP]	ln[chl a] = 1.83 - 2.00*Mean 3-month TP Conc	0.0207	0.06
TN Load	[TN] = 0.58 - 0.003 * TN Load	0.2252	0.02
TP Load	[TP] = 0.09+ 0.004 * Cumulative 3-month TP Load	0.1111	0.03
TN Load	[chl a] =3.48+ 1.52 * ln TN Load	0.0002	0.16
TP Load	[chl a] =4.97 + 0.80 * TP Load	0.0008	0.13

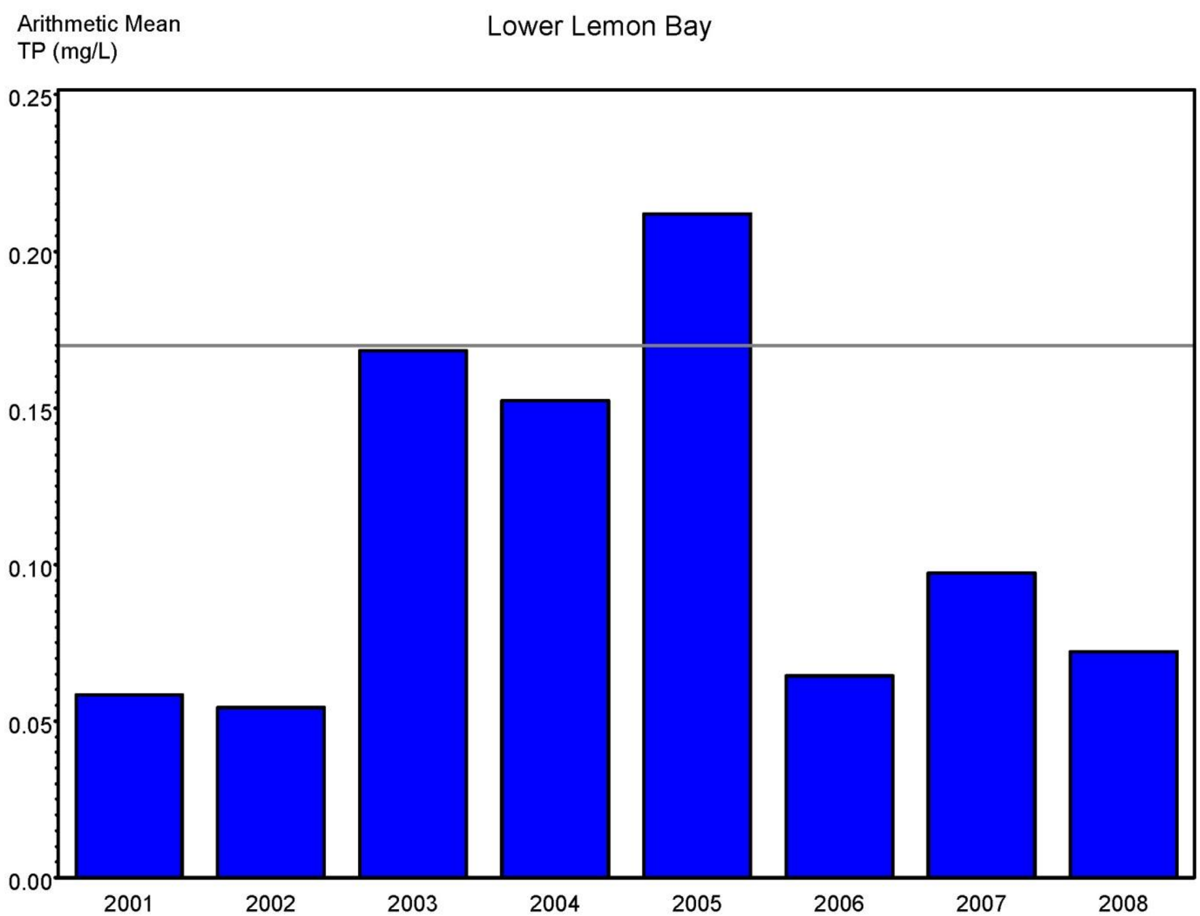


Figure 6. Comparison of proposed TP concentration criterion for Lower Lemon Bay to the annual arithmetic mean TP concentrations.

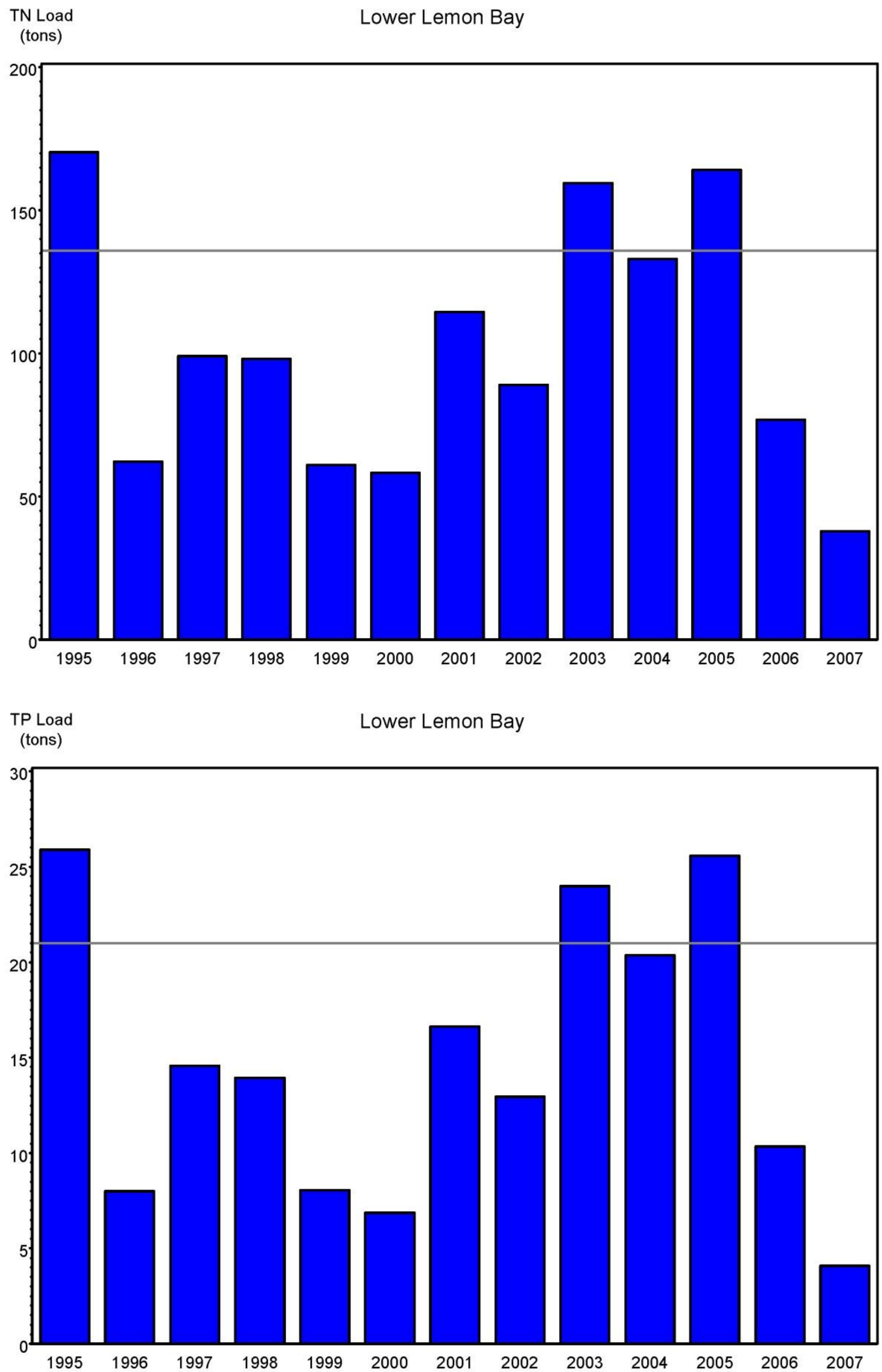


Figure 7. Comparison of proposed TN and TP load criteria for Lower Lemon Bay to annual loads.

3.4 Charlotte Harbor Proper

Charlotte Harbor Proper combines the segments Bokeelia, Cape Haze, East Wall, and West Wall (shown in Figure 1), as done previously for numeric nutrient criteria development (Janicki Environmental, 2010a). Using the previously proposed TN concentration criterion, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria. Total nitrogen concentrations explained only 10% of the variation in TP concentration in Charlotte Harbor Proper (Attachment 1). Similarly low predictive power was observed for the log-transformed 2-month TP concentration which explained only 16% of the variation in log-transformed chlorophyll *a* concentrations (Table 6) when the existing chlorophyll *a* threshold was used to derive TP concentration criteria (Attachment 2).

The weak relationship between TN and TP concentrations in Charlotte Harbor Proper does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Furthermore, the limited strength of the relationship between TP concentration and chlorophyll *a* prevented the use of the chlorophyll *a* threshold as a means to develop the TP concentration criterion. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). This proposed criterion is compared to the observed arithmetic mean annual TP concentrations in Charlotte Harbor Proper in Figure 8. The horizontal line represents the proposed criterion.

Previously proposed TN concentration criteria and newly derived TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. Charlotte Harbor Proper loads include loads from four segments discussed above as well as Tidal Myakka and Tidal Peace. The two-month TN and TP loads explained 21% and 48% of the TN and TP concentrations, respectively, in Charlotte Harbor Proper (Table 6; Attachments 3 and 4). In a further effort to formulate nutrient loading criteria for TN and TP, the existing chlorophyll *a* threshold for Charlotte Harbor Proper was regressed on TN and TP loads. The two-month TN and TP loads explained only 39% and 31%, respectively, of the variation in log-transformed chlorophyll *a* concentrations in Charlotte Harbor Proper (Table 6; Attachments 5 and 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. Proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Charlotte Harbor Proper (Figure 9).

The proposed nutrient criteria for Charlotte Harbor Proper are as follows:

- TN concentration = 0.67 mg/L
- TP concentration = 0.19 mg/L
- TN loading = 5,987 tons/yr
- TP loading = 2,281 tons/yr

Table 6. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Charlotte Harbor Proper.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[TP] = -2.50 + 0.73*[TN]	0.0025	0.10
[TP]	ln[chl a] = 2.62 + 0.49*ln Mean 2-month TP Conc	0.0001	0.16
TN Load	[TN] = 0.52 + 0.0001 * Cumulative 2-month TN Load	<0.0001	0.21
TP Load	[TP] = 0.10 + 0.0002* Cumulative 2-month TP Load	<0.0001	0.48
TN Load	ln [chl a] = -0.44 + 0.34 * ln Cumulative 2-month TN Load	<0.0001	0.39
TP Load	ln [chl a] = 0.19 + 0.29 * ln Cumulative 2-month TP Load	<0.0001	0.31

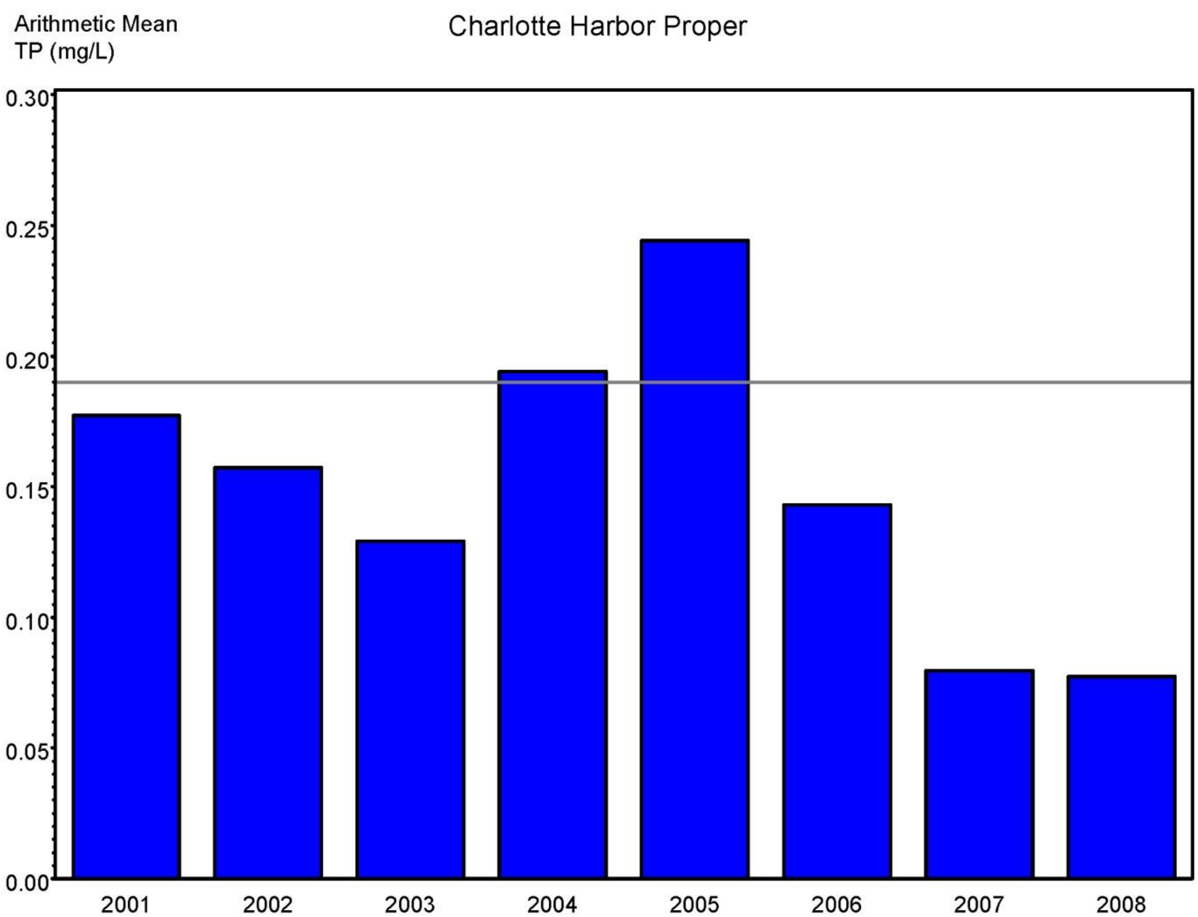


Figure 8. Comparison of proposed TP concentration criterion for Charlotte Harbor Proper to the annual arithmetic mean TP concentrations.

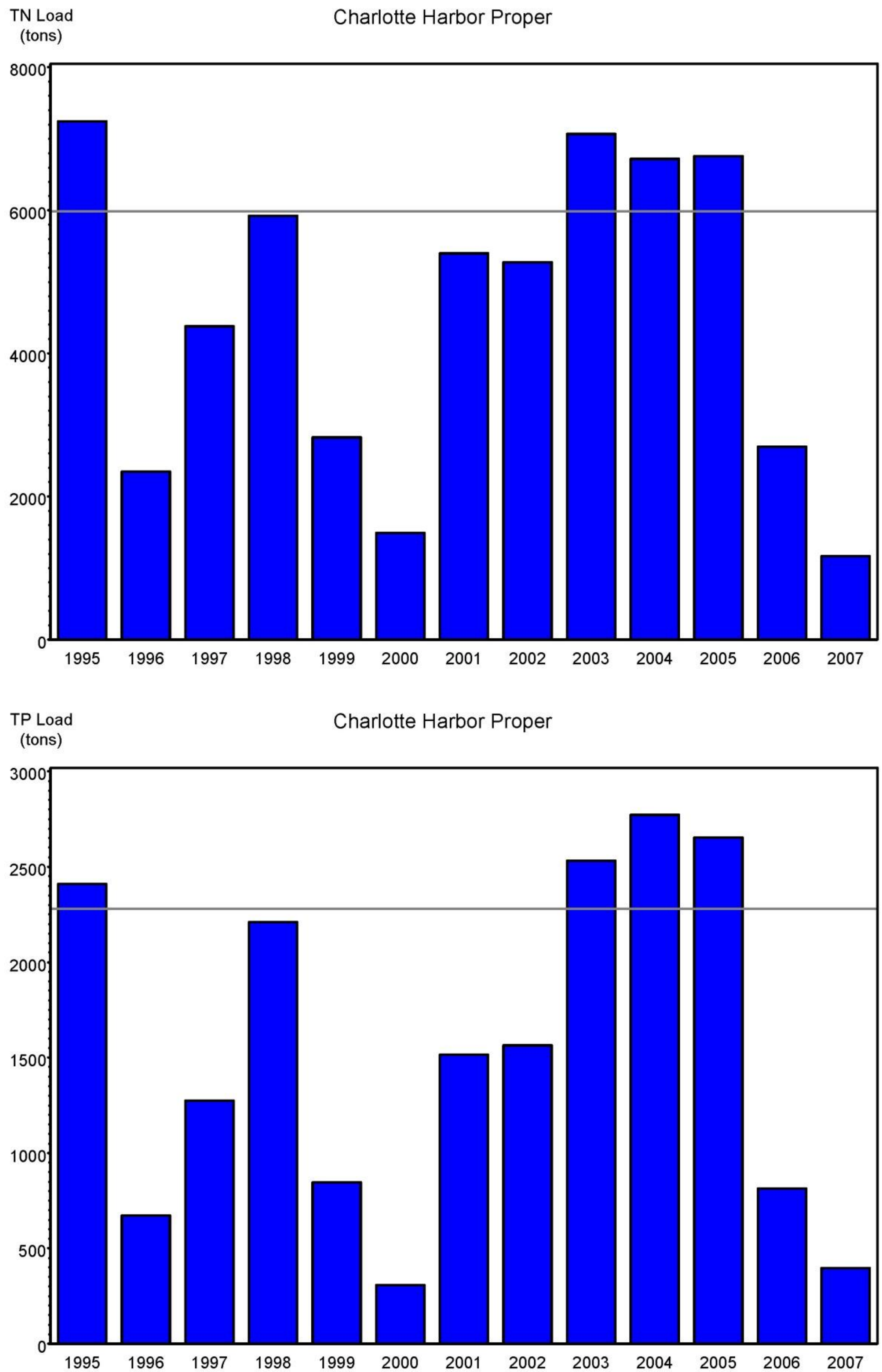


Figure 9. Comparison of proposed TN and TP load criteria for Charlotte Harbor Proper to annual loads.

3.5 Pine Island Sound

Using the previously proposed TN concentration criterion, TP concentrations were related to TN concentrations following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). Total nitrogen concentrations explained only 12% of the variation in log-transformed TP concentrations in Pine Island Sound (Table 7). Similarly low predictive power was observed for the log-transformed TP concentrations which explained only 17% of the variation in log-transformed chlorophyll *a* concentrations (Table 7; Attachment 2).

The weak relationship between TN and TP concentrations in Pine Island Sound does not allow the TP concentration criterion to be derived based on the proposed TN concentration criterion using the Stressor-Response Approach. Furthermore, the limited strength of the relationship between TP concentration and chlorophyll *a* prevented the use of the chlorophyll *a* threshold as a means to develop the TP concentration criterion. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding 1 standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). This proposed criterion is compared to the observed arithmetic mean annual TP concentrations in Pine Island Sound in Figure 10. The horizontal line represents the proposed criterion.

Previously proposed TN concentration criteria and newly derived TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. Very little of the variation in TN and log-transformed TP concentrations in Pine Island Sound were accounted for by the log-transformed 3-month TN load (7%) and the log-transformed 3-month TP load (8%; Attachments 3 and 4). In a further effort to formulate nutrient loading criteria for TN and TP, the existing chlorophyll *a* threshold for Pine Island Sound was regressed on TN and TP loads. The three-month TN and TP loads explained 38% and 44%, respectively, of the variation in the log-transformed chlorophyll *a* concentrations in Pine Island Sound (Table 7; Attachments 5 and 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Pine Island Sound (Figure 11).

The proposed nutrient criteria for Pine Island Sound are as follows:

- TN concentration = 0.57 mg/L
- TP concentration = 0.06 mg/L
- TN loading = 190 tons/yr
- TP loading = 8 tons/yr

Table 7. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Pine Island Sound.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[TP] = -3.53 + 0.90*[TN]	<0.0001	0.12
[TP]	ln[chl a] = 2.95 + 0.51*ln Mean TP Conc	<0.0001	0.17
TN Load	[TN] = 0.34 + 0.001 * ln Cumulative 3-month TN Load	0.0066	0.07
TP Load	ln[TP] = -3.08 + 0.17 * ln Cumulative 3-month TP Load	0.0018	0.08
TN Load	ln [chl a] = -0.09 + 0.43 * ln Cumulative 3-month TN Load	<0.0001	0.38
TP Load	ln [chl a] = 0.83 + 0.36 * Cumulative 3-month TP Load	<0.0001	0.44

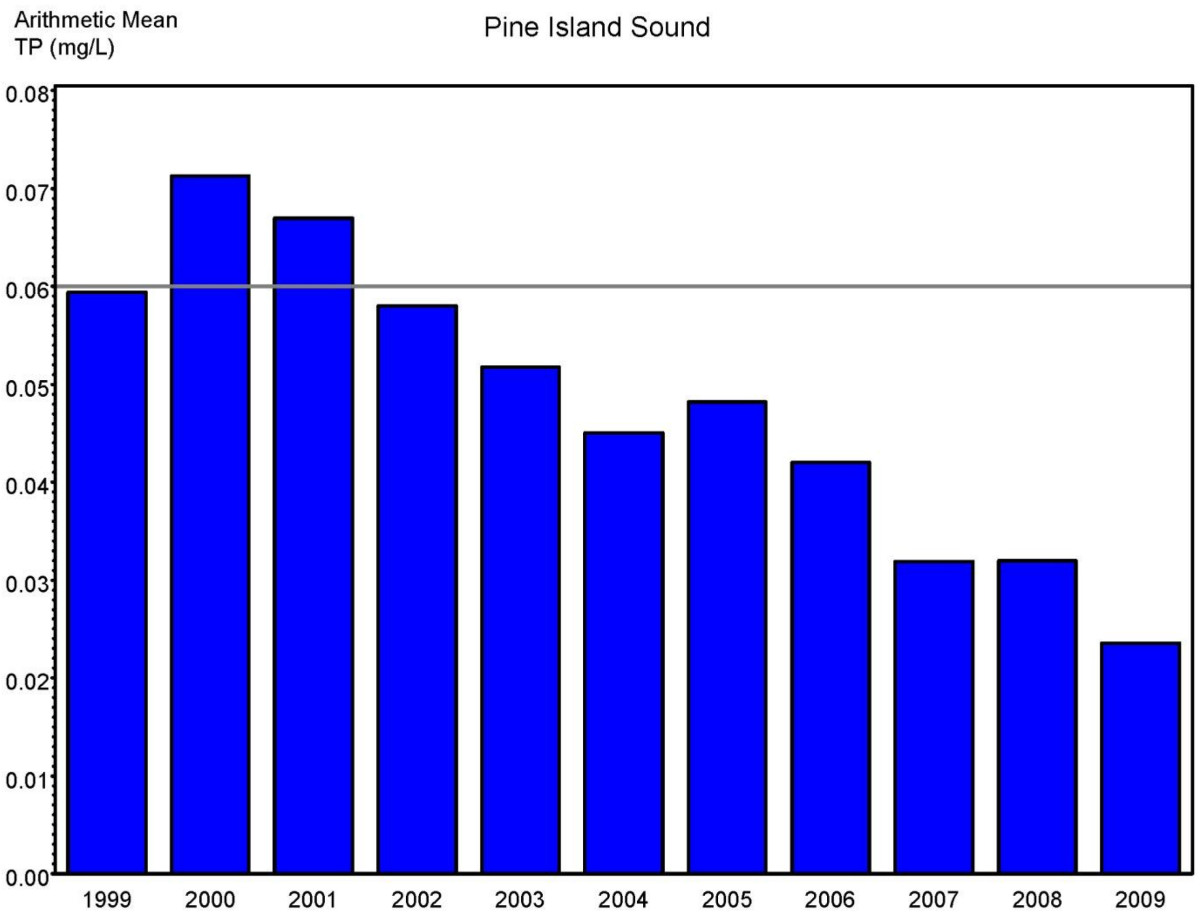
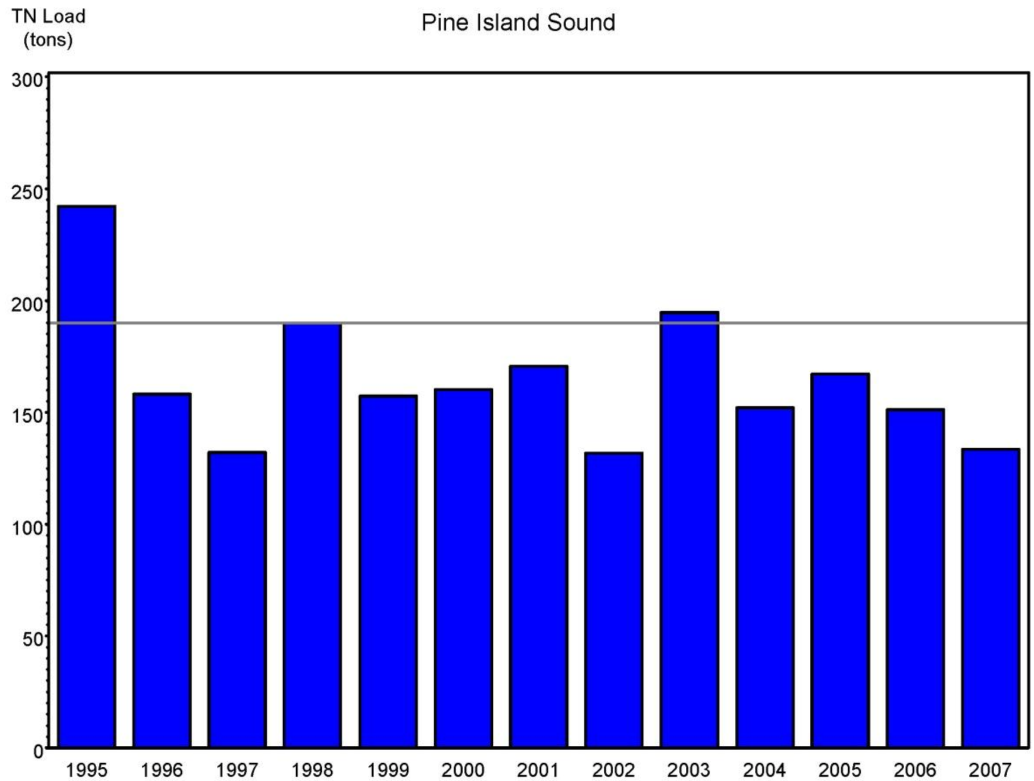


Figure 10. Comparison of proposed TP concentration criterion for Pine Island Sound to the annual arithmetic mean TP concentrations.



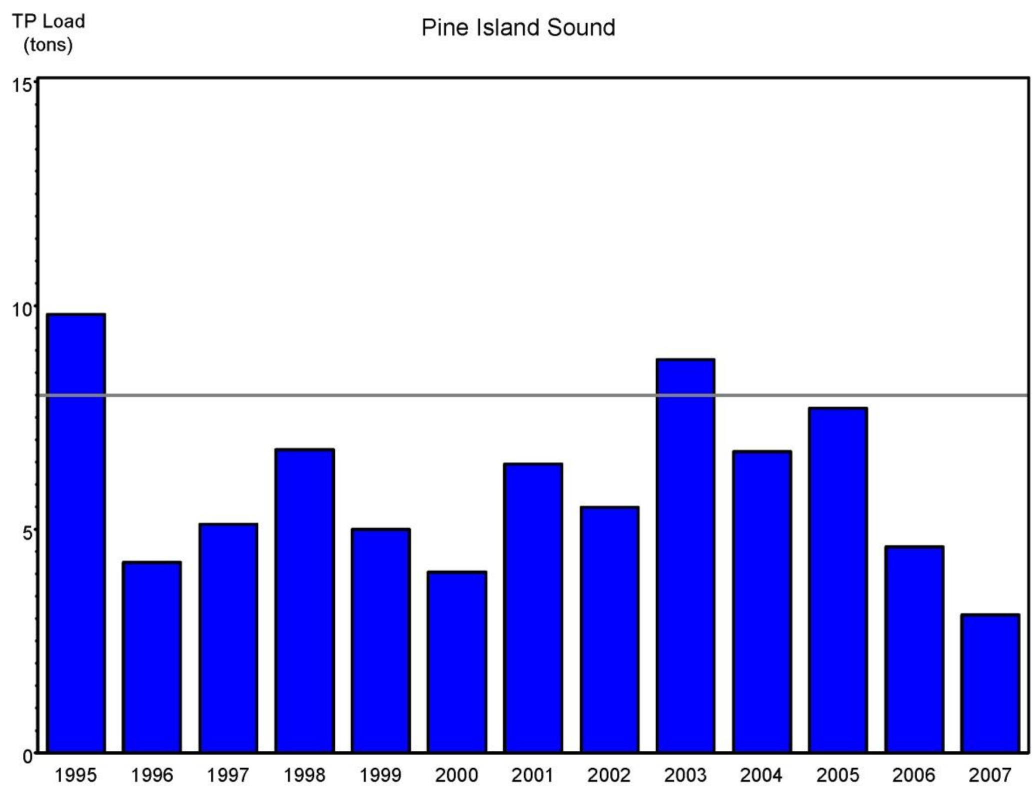


Figure11. Comparison of proposed TN and TP load criteria for Pine Island Sound to annual loads.

3.6 San Carlos Bay

Using the previously proposed TN concentration criterion as a starting point, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). Log-transformed TN concentrations explained only 17% of the variation in log-transformed TP concentrations in San Carlos Bay. Similarly low predictive power was observed for the log-transformed 2-month TP concentrations which explained only 16% of the variation in log-transformed chlorophyll *a* concentrations (Table 8; Attachment 2).

The weak relationship between TN and TP concentrations in San Carlos Bay does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Furthermore, the limited strength of the relationship between TP concentrations and chlorophyll *a* prevented the use of the chlorophyll *a* threshold as a means to develop the TP concentration criterion. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding 1 standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). The proposed TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in San Carlos Bay (Figure 12). The horizontal line represents the proposed criterion.

The previously proposed TN concentration criterion and the newly derived TP concentration criterion were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. San Carlos Bay loads consist of loads from San Carlos Bay and Tidal Caloosahatchee. A small amount of the variation in TN and log-transformed TP concentrations in San Carlos Bay were accounted for by TN load (26%) and log-transformed TP load (20%), respectively. The best-fit relationships are presented in Table 8 and the full set of regression model plots are presented in Attachments 3 and 4). In a further effort to formulate nutrient loading criteria for TN and TP, the existing chlorophyll *a* threshold for San Carlos Bay was regressed on TN and TP loads. The 3-month TN and TP loads explained 46% and 43%, respectively, of the variation in chlorophyll *a* concentrations in San Carlos Bay (Table 8; Attachments 5 and 6). Because San Carlos Bay loads are dominated by Tidal Caloosahatchee loads and the TMDL for Tidal Caloosahatchee is being revised (Janicki Environmental, 2010a), the San Carlos Bay loading criteria are “to be determined” (Table 15). Loading criteria were calculated using the Reference Period Approach for informational purposes only and are compared to the observed annual TN and TP loadings for San Carlos Bay (Figure 13).

The nutrient criteria for San Carlos Bay based on the reference period approach are as follows:

- TN concentration = 0.56 mg/L
- TP concentration = 0.07 mg/L
- TN loading = 7,298 tons/yr
- TP loading = 682 tons/yr

Table 8. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for San Carlos Bay.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[TP] = -2.54 + 0.45*ln[TN]	<0.0001	0.17
[TP]	ln[chl a] = 3.19 + 0.67*ln Mean 2-month TP Conc	<0.0001	0.16
TN Load	[TN] = 0.35 + 0.0002 * TN Load	<0.0001	0.26
TP Load	ln[TP] = -3.41 + 0.18 * ln TP Load	<0.0001	0.20
TN Load	[chl a] = 1.44 + 0.004 * Cumulative 3-month TN Load	<0.0001	0.46
TP Load	[chl a] = 1.68 + 0.03 * Cumulative 3-month TP Load	<0.0001	0.43

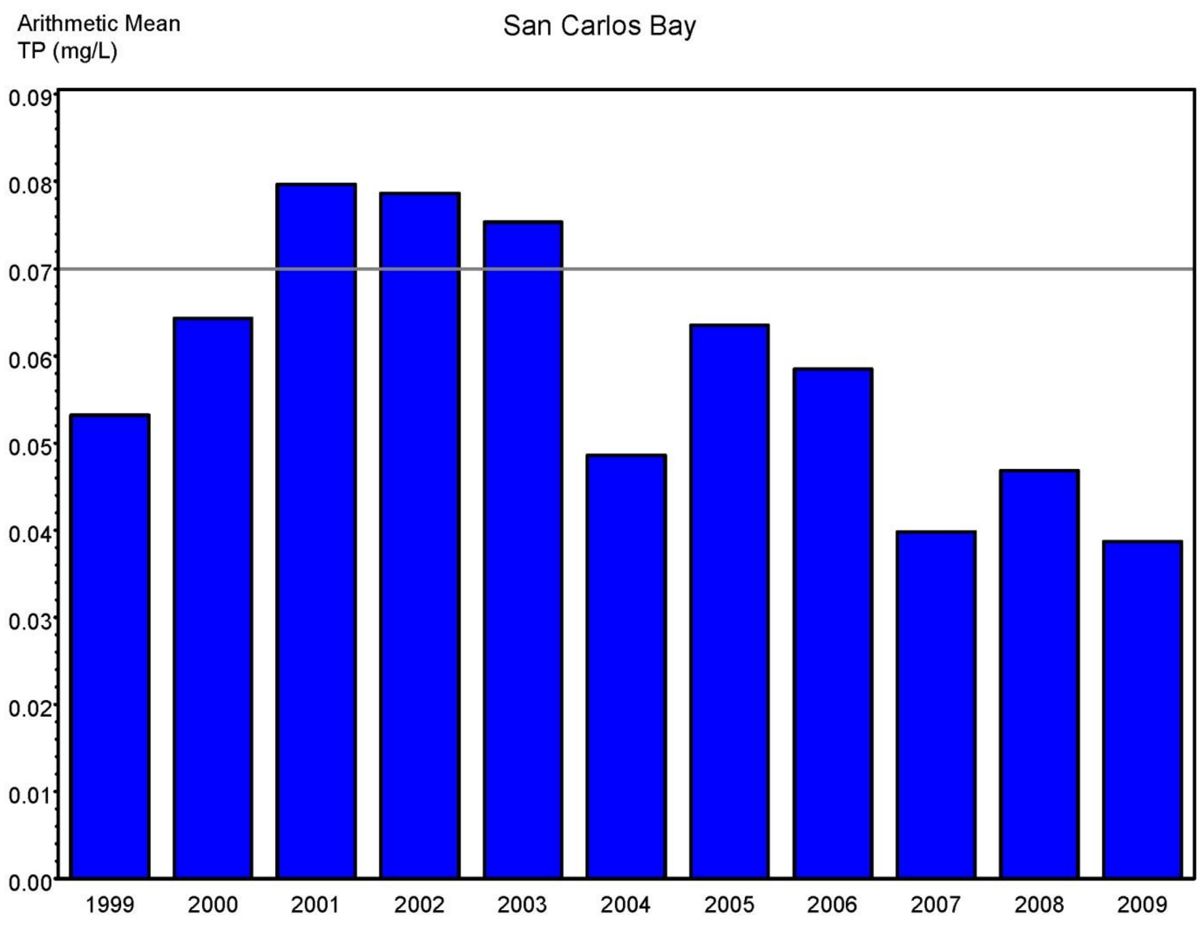


Figure 12. Comparison of proposed TP concentration criterion for San Carlos Bay to the annual arithmetic mean TP concentrations.

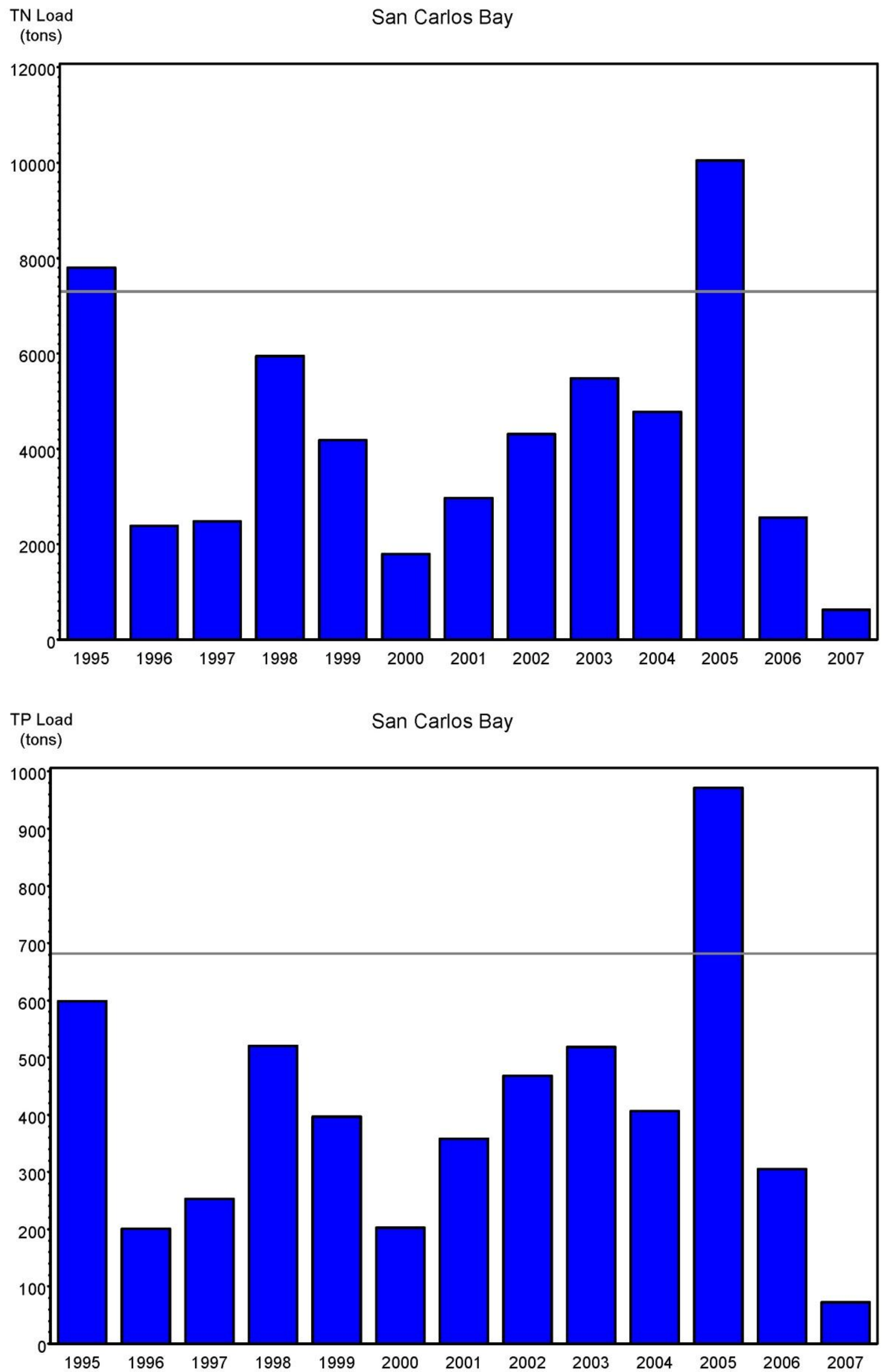


Figure 13. Comparison of proposed TN and TP load criteria for San Carlos Bay to annual loads.

3.7 Tidal Myakka River

Using the previously proposed TN concentration criterion as a starting point, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). TN concentrations explained only 29% of the variation in TP concentrations in Tidal Myakka. With regard to chlorophyll concentrations, no significant relationship was found between TP and chlorophyll concentrations in the Tidal Myakka (Table 9; Attachment 2).

The weak relationship between TN and TP concentrations in Tidal Myakka does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding 1 standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). The proposed TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in Tidal Myakka (Figure 14). The horizontal line represents the proposed criterion.

The previously proposed TN concentration criterion and the newly derived TP concentration criterion were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. A small amount of the variation in log-transformed TN and TP concentrations in Tidal Myakka were accounted for by log-transformed TN load (23%) and 2-month log-transformed TP load (24%), respectively. The best-fit relationships are presented in Table 9 and the full set of regression model plots are presented in Attachments 3 and 4). Previous efforts to develop statistically defensible relationships between chlorophyll and TN loads found no significant relationships (Janicki Environmental, 2010a). In a further effort to formulate nutrient loading criteria for TP, chlorophyll in Tidal Myakka was regressed with TP loads. As was found for TN loads, no significant relationship was identified between chlorophyll and TP loads in Tidal Myakka (Table 9; Attachment 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Tidal Myakka (Figure 15).

The proposed nutrient criteria for Tidal Myakka River are as follows:

- TN concentration = 1.02 mg/L
- TP concentration = 0.31 mg/L
- TN loading = 1,407 tons/yr
- TP loading = 351 tons/yr

Table 9. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Tidal Myakka River.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	[TP] = 0.096 + 0.185*[TN]	<0.0001	0.29
[TP]	[chl a] = 11.64 + 2.42 * 3-month average [TP]	0.10	0.02
TN Load	ln[TN] = -0.52 + 0.118 *ln(TN Load)	<0.0001	0.23
TP Load	[chl a] = 11.64 + 2.42 * ln (average 3-month TP Load)	0.10	0.02
TP Load	[TP] = 0.18 + 0.03 * ln (cumulative 2-month TP Load)	<0.0001	0.24

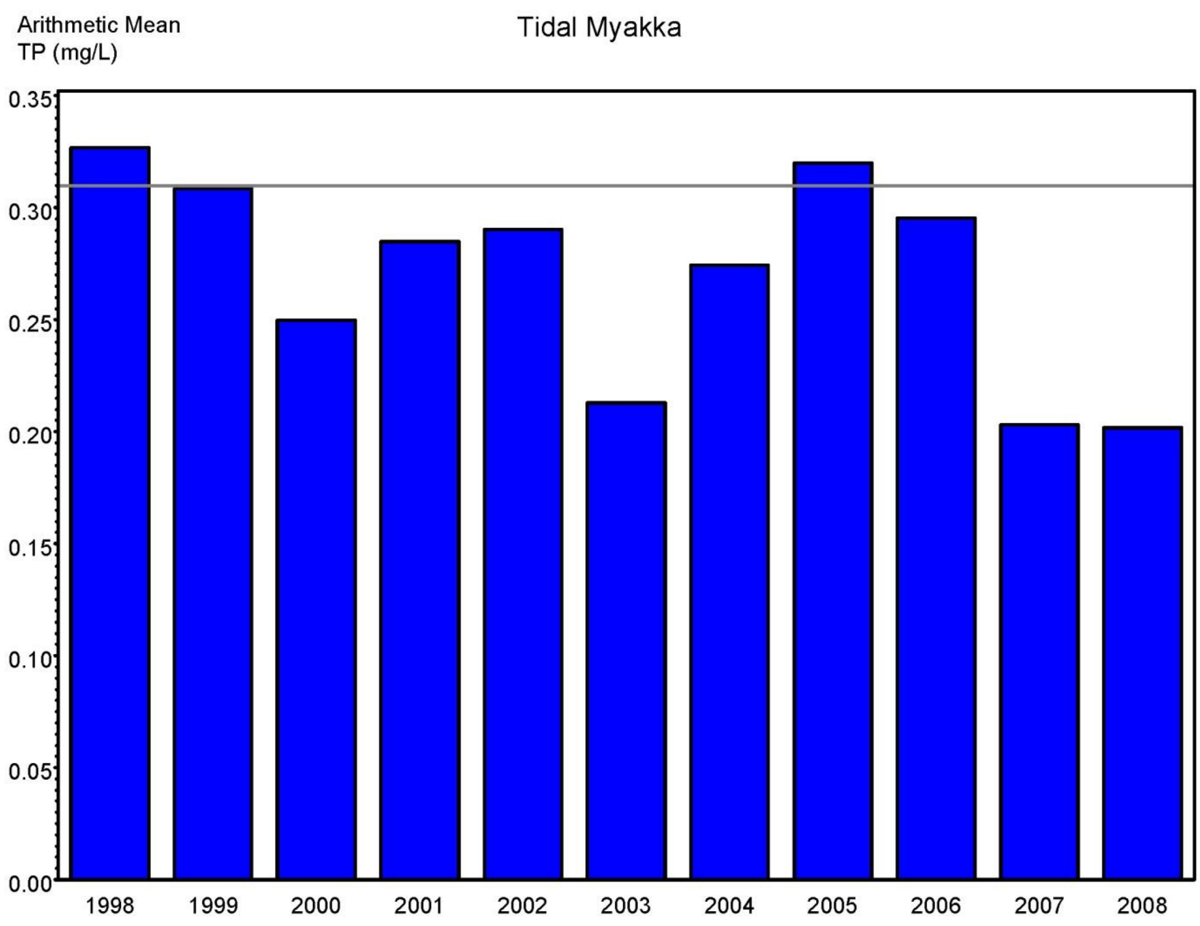
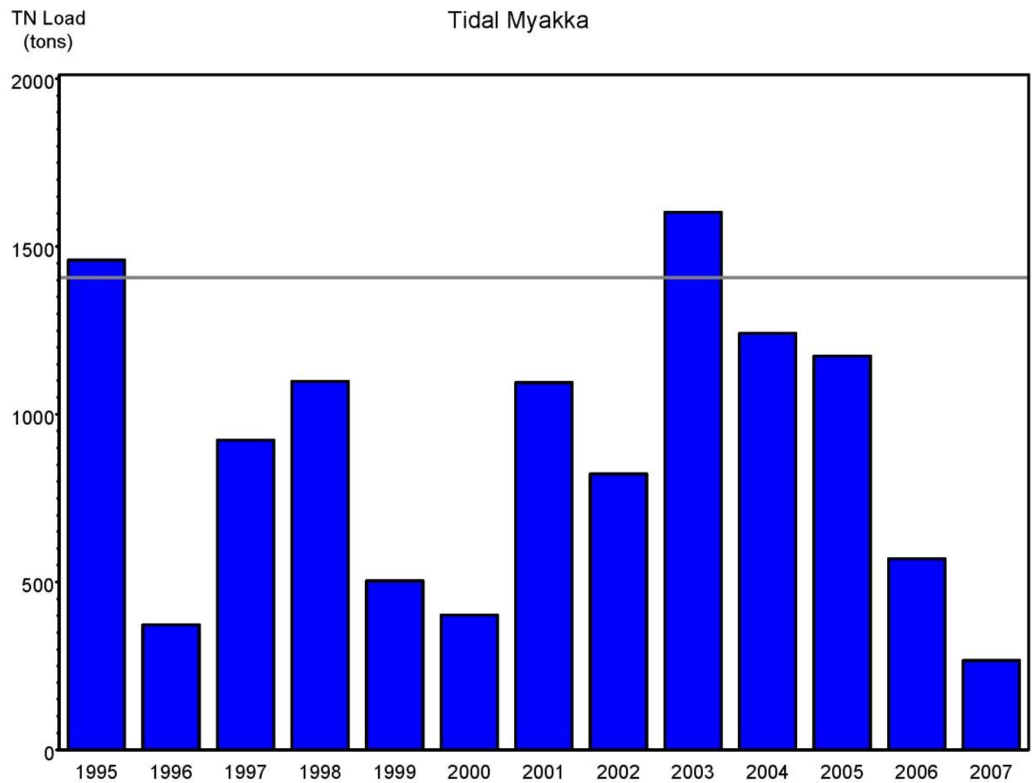


Figure 14. Comparison of proposed TP concentration criterion for the Tidal Myakka River to the annual arithmetic mean TP concentrations.



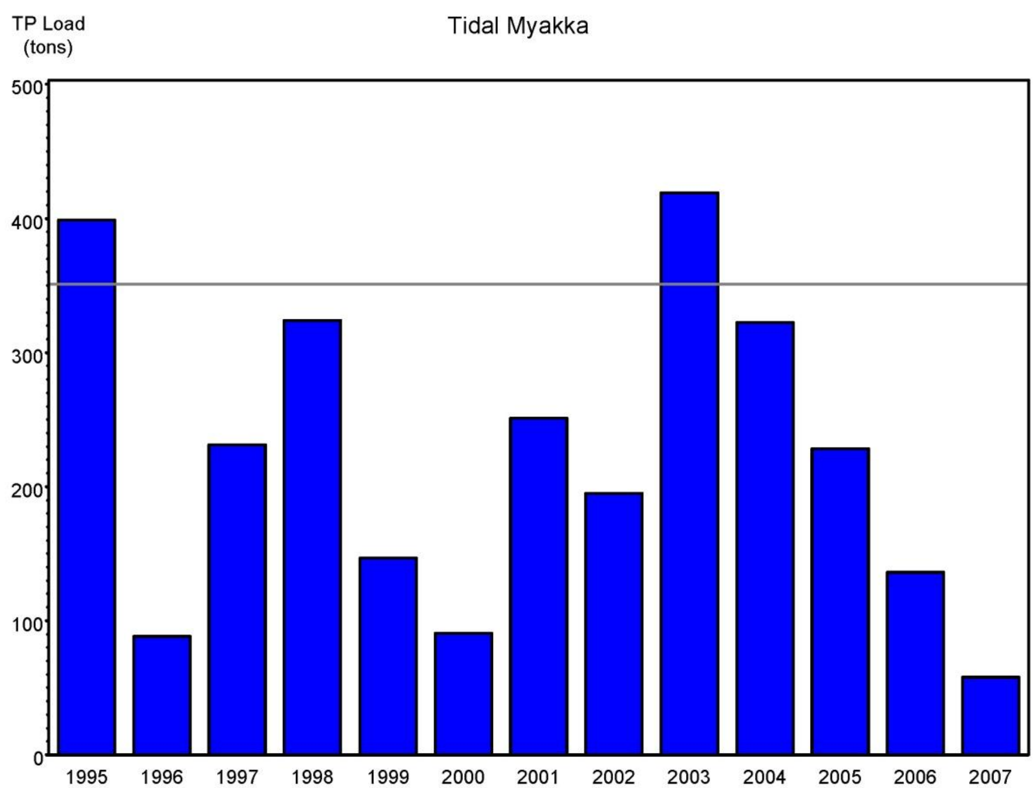


Figure 15. Comparison of proposed TN and TP load criteria for Tidal Myakka to annual loads.

3.8 Tidal Peace River

Using the previously proposed TN concentration criterion as a starting point, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). TN concentrations explained only 37% of the variation in TP concentrations in Tidal Peace. With regard to chlorophyll concentrations, a weak relationship was found between TP and chlorophyll concentrations in the Tidal Peace (Table 10; Attachment 2).

The weak relationship between TN and TP concentrations in Tidal Peace does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). The proposed TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in Tidal Peace (Figure 16). The horizontal line represents the proposed criterion.

The previously proposed TN concentration criterion and the newly derived TP concentration criterion were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. Less than fifty percent of the variation in TN and TP concentrations in Tidal Peace was accounted for by log-transformed TN load (42%) and log-transformed TP load (44%), respectively. The best-fit relationships are presented in Table 10 and the full set of regression model plots are presented in Attachments 3 and 4). Previous efforts to develop statistically defensible relationships between chlorophyll and TN loads found no significant relationships (Janicki Environmental, 2010a). In a further effort to formulate nutrient loading criteria for TP, chlorophyll in Tidal Peace was regressed with TP loads. As was found for TN loads, no significant relationship was identified between chlorophyll and TP loads in Tidal Peace (Table 10; Attachment 6). The Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Tidal Peace (Figure 17).

The proposed nutrient criteria for Tidal Peace River are as follows:

- TN concentration = 1.08 mg/L
- TP concentration = 0.50 mg/L
- TN loading = 4,343 tons/yr
- TP loading = 1,960 tons/yr

Table 10. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Tidal Peace River.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	[TP] =- 0.91 + 0.605*ln[TN]	<0.0001	0.37
[TP]	[chl a] = 18.45 + 5.15 * ln [TP]	0.013	0.04
TN Load	[TN] = 0.23 + 0.17 *ln(TN Load)	<0.0001	0.42
TP Load	ln [chl a] = 2.52 + -0.00083 * TP Load	0.03	0.04
TP Load	[TP] = 0.16 + 0.07 * ln (TP Load)	<0.0001	0.44

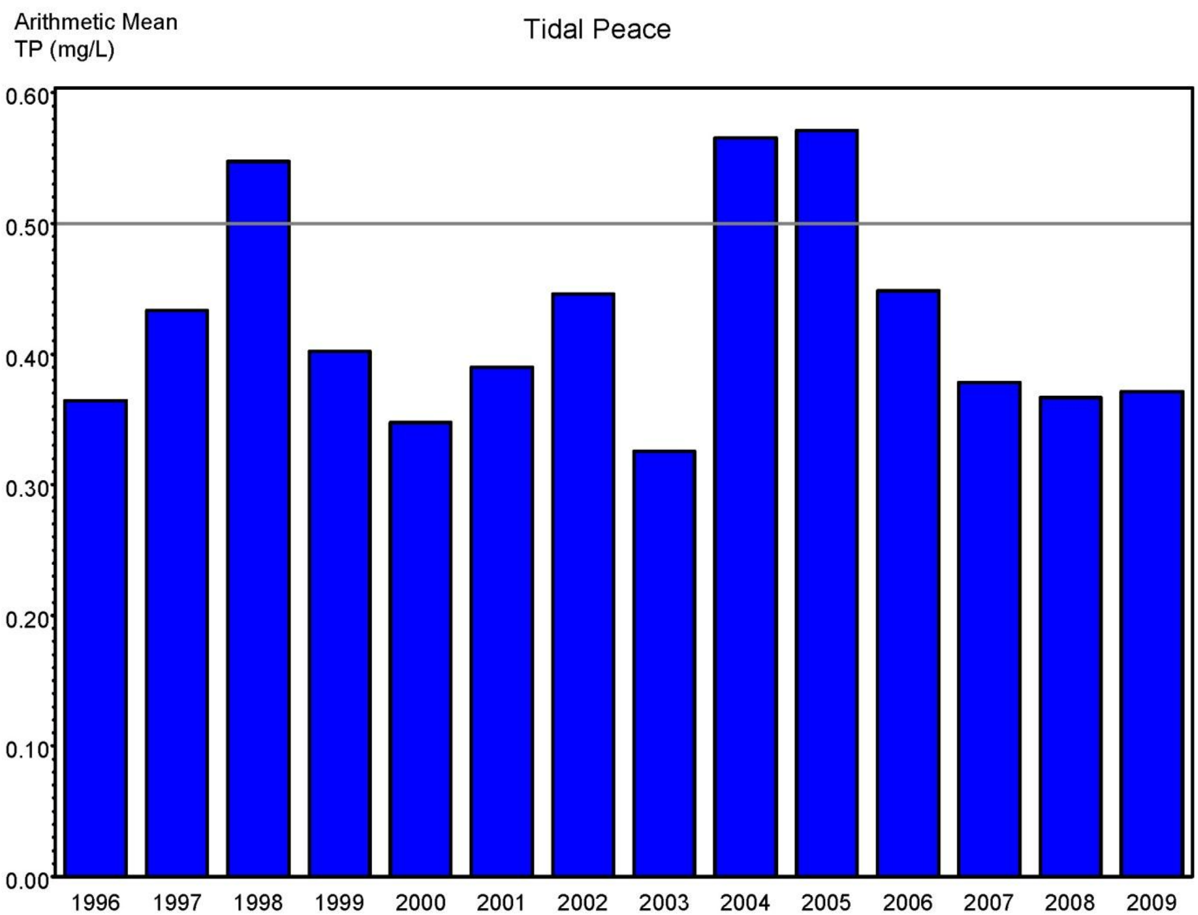


Figure 16. Comparison of proposed TP concentration criterion for the Tidal Peace River to the annual arithmetic mean TP concentrations.

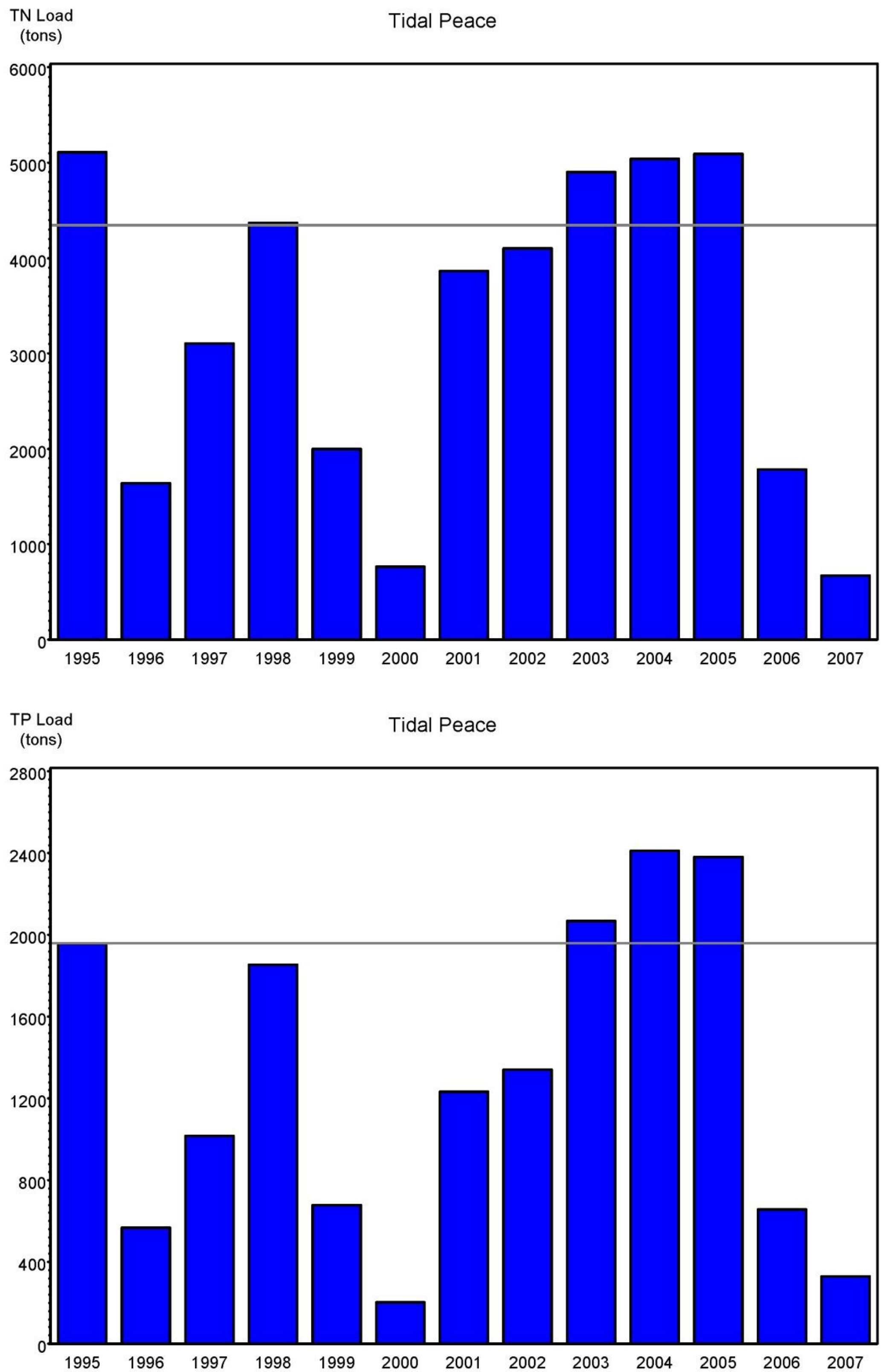


Figure 17. Comparison of proposed TN and TP loading criteria for Tidal Peace to annual loads.

3.9 Matlacha Pass

Using the previously proposed TN concentration criterion as a starting point, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). Log-transformed TN concentrations explained only 10% of the variation in TP concentrations in Matlacha Pass. Similarly low predictive power was observed for the log-transformed 2-month TP concentrations which explained only 24% of the variation in log-transformed chlorophyll *a* concentrations (Table 11; Attachment 2).

The weak relationship between TN and TP concentrations in Matlacha Pass does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). The proposed TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in Matlacha Pass (Figure 18). The horizontal line represents the proposed criterion.

The previously proposed TN concentration criterion and the newly derived TP concentration criterion were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. Less than 25 percent of the variation in TN and TP concentrations in Matlacha Pass was accounted for by cumulative three-month TN load (17%) and log-transformed cumulative two-month TP load (23%), respectively. The best-fit relationships are presented in Table 11 and the full set of regression model plots are presented in Attachments 3 and 4). Previous efforts to develop statistically defensible relationships between chlorophyll and TN loads found a significant relationship, however it was not deemed strong enough to develop criteria (Janicki Environmental, 2010a). In a further effort to formulate nutrient loading criteria for TP, chlorophyll in Matlacha Pass was regressed with TP loads. As was found for TN loads, a significant relationship was identified between chlorophyll and TP loads in Matlacha Pass (Table 10; Attachment 6). However, the relationship only explained 33% of the variation in chlorophyll concentrations. Therefore, the Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Matlacha Pass (Figure 19).

The proposed nutrient criteria for Matlacha Pass are as follows:

- TN concentration = 0.58 mg/L
- TP concentration = 0.08 mg/L
- TN loading = 216 tons/yr
- TP loading criterion = 24 tons/yr

Table 11. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Matlacha Pass.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[chl a] = 4.24 + 1.06*ln Mean 2-month TP Conc	<0.0001	0.24
[TP]	[TP] = 0.0217 – 0.075 * ln [TN]	0.0002	0.10
TP Load	ln [chl a] = 1.11 + 0.43 * ln Cumulative 2-month TP Load	<0.0001	0.33
TP Load	ln [TP] = -2.84 + 0.24 * ln Cumulative 2-month TP Load	<0.0001	0.23
TN Load	ln [TN] = -1.00 + 0.0057 * Cumulative 3-month TN Load	<0.0001	0.17

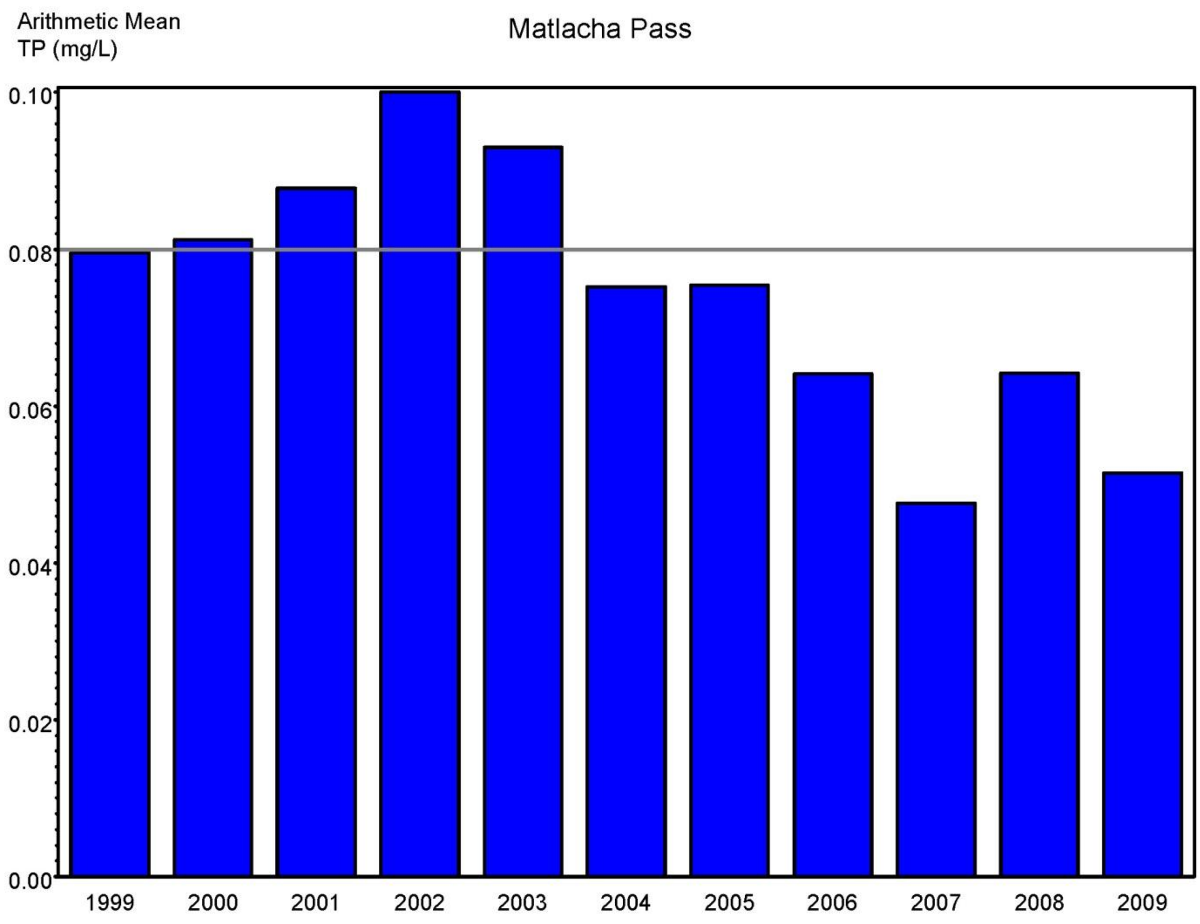


Figure 18. Comparison of proposed TP concentration criterion for Matlacha Pass to the annual arithmetic mean TP concentrations.

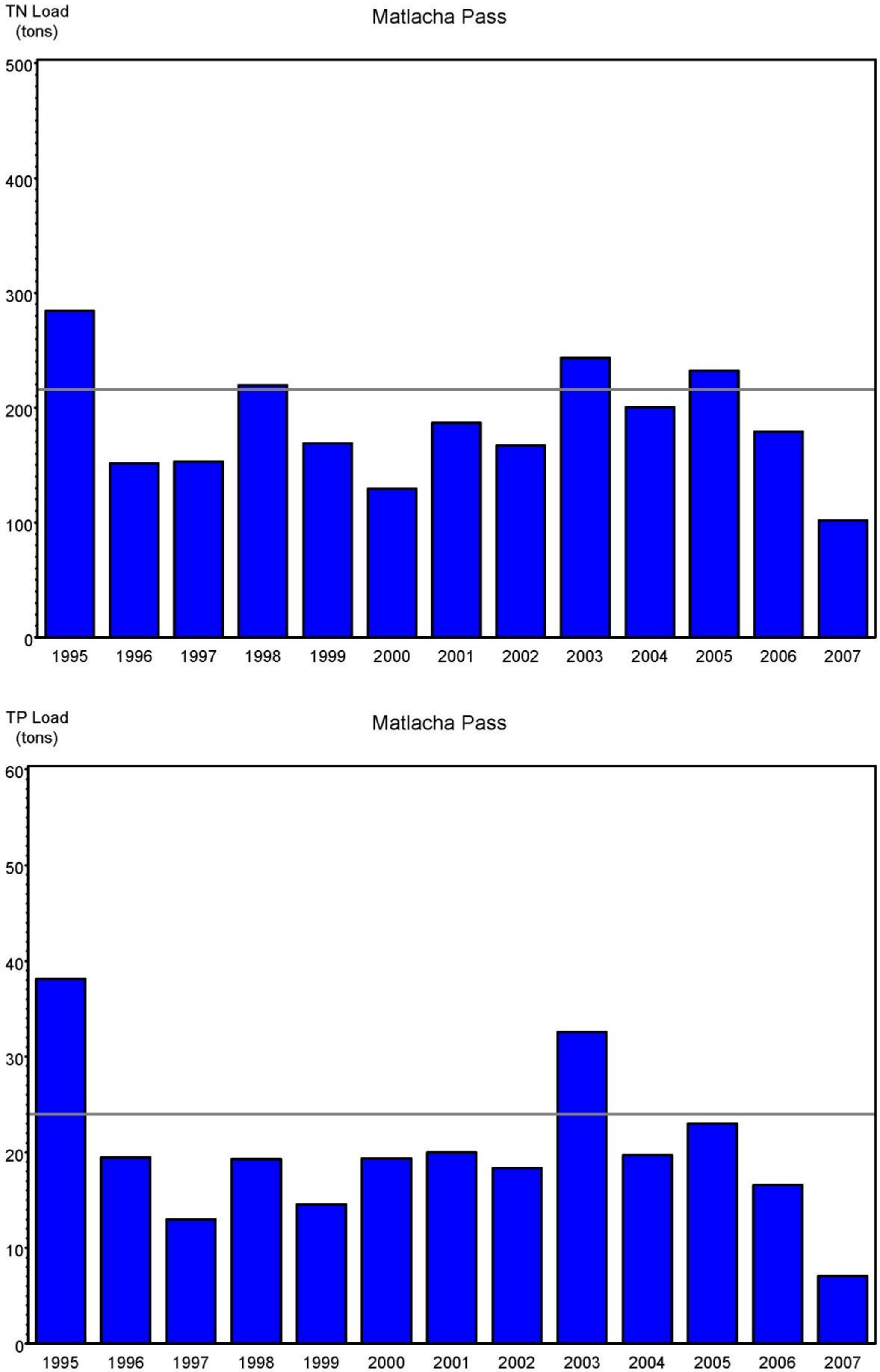


Figure 19. Comparison of proposed TN and TP load criteria for Matlacha Pass compared to annual TN and TP loads.

3.10 Tidal Caloosahatchee River

Tidal Caloosahatchee has been identified as impaired and a TMDL has been drafted. However, due to concerns raised with the draft TMDL for the Tidal Caloosahatchee, the TMDL is currently being revised. Therefore, it was decided to list the TN nutrient criterion for Tidal Caloosahatchee as TBD until the revision to the draft TMDL is completed (Janicki Environmental, 2010a).

Although the TN concentration criterion for Tidal Caloosahatchee is TBD, criteria were calculated for informational purposes using the same approach as was used in the other segments. TP concentrations were related to TN concentrations following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). TN concentrations explained only 22% of the variation in log-transformed TP concentrations in Tidal Caloosahatchee. Similarly low predictive power was observed for the log-transformed TP concentrations which explained only 7% of the variation in log-transformed chlorophyll *a* concentrations (Table 12; Attachment 2).

The weak relationship between TN and TP concentrations in Tidal Caloosahatchee does not allow the TP concentration criterion to be derived based on the reference period TN concentration criterion using the Stressor-Response Approach. Therefore, the TP concentration was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is the reference period TP concentration criterion (see below). The reference period TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in Tidal Caloosahatchee for informational purposes only (Figure 20).

The reference period TN and TP concentration criteria were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. Less than 50 percent of the variation in TN and log-transformed TP concentrations in Tidal Caloosahatchee was accounted for by TN load (44%) and TP load (25%), respectively. The best-fit relationships are presented in Table 12 and the full set of regression model plots are presented in Attachments 3 and 4). In a further effort to formulate nutrient loading criteria for TP, chlorophyll in Tidal Caloosahatchee was regressed with TP loads. A significant relationship was identified between log-transformed chlorophyll and log-transformed 2-month cumulative TP loads in Tidal Caloosahatchee (Table 12; Attachment 6). However, the relationship only explained 27% of the variation in chlorophyll concentrations. Therefore, loading criteria were calculated based on the Reference Period Approach. The reference period TN and TP loading criteria are compared to the observed annual TN and TP loadings for Tidal Caloosahatchee (Figure 21).

Although the criteria for Tidal Caloosahatchee are TBD, if the reference period was used, the nutrient criteria for the Tidal Caloosahatchee River would be:

- TN concentration = 1.09 mg/L
- TP concentration = 0.11 mg/L
- TN loading = 5,916 tons/yr
- TP loading = 563 tons/yr

Table 12. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Tidal Caloosahatchee River.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[chl a] = 2.40 + 0.40 * ln [TP]	0.002	0.07
[TP]	ln [TP] = -2.97 – 0.625 * [TN]	<0.0001	0.22
TP Load	ln [chl a] = 0.28 + 0.32 * ln Cumulative 2-month TP Load	<0.0001	0.27
TP Load	ln[TP] = -2.79 + 0.005 * TP Load	<0.0001	0.25
TN Load	[TN] = 0.32 + 0.0006 * TN Load	<0.0001	0.44

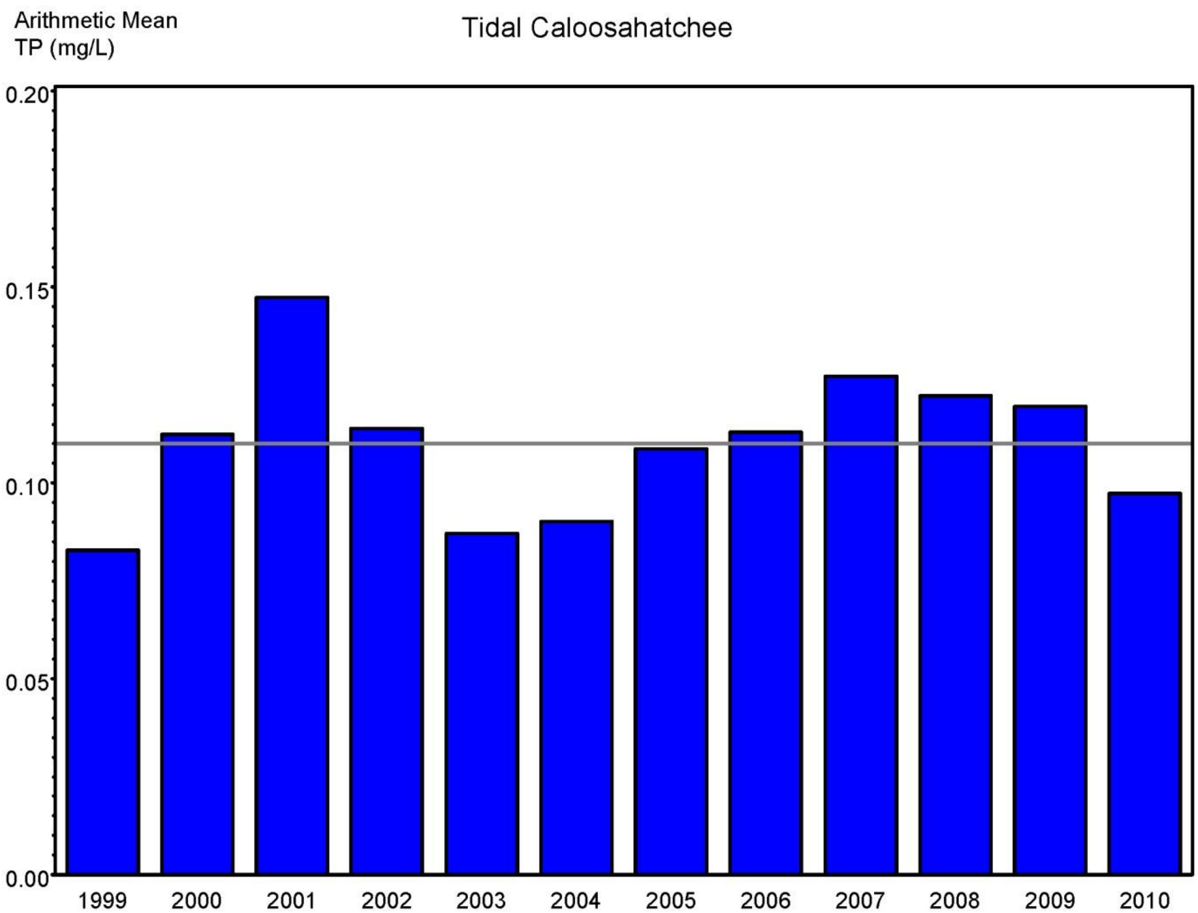
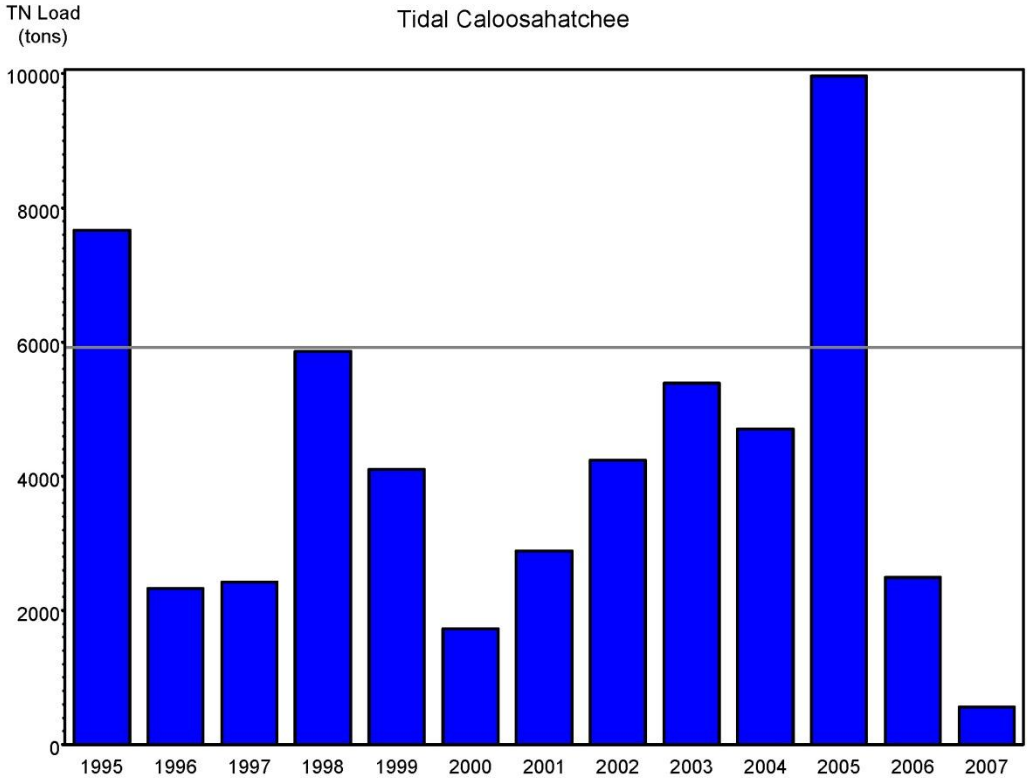


Figure 20. Comparison of proposed TP concentration criterion for Lower Tidal Caloosahatchee to the annual arithmetic mean TP concentrations.



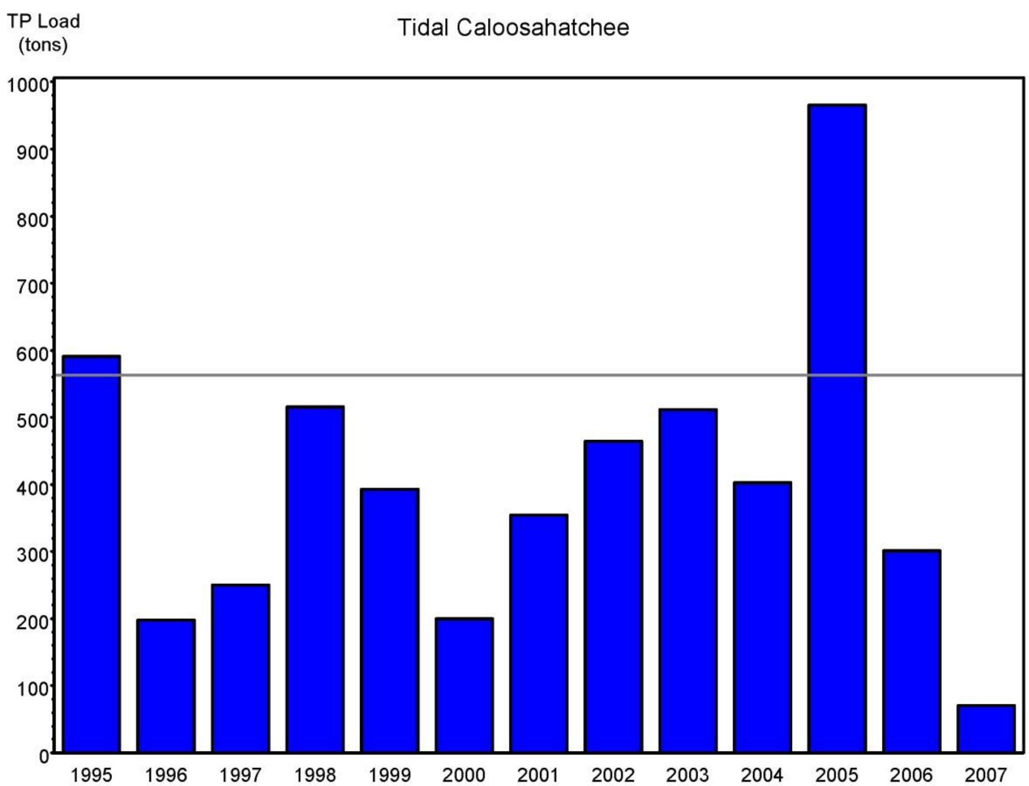


Figure 21. Comparison of proposed TN and TP load criteria for Tidal Caloosahatchee to annual loads.

3.11 Estero Bay

Using the previously proposed TN concentration criterion as a starting point, TP concentration was related to TN concentration following the Stressor-Response Approach, including various lag effects, in order to derive TP concentration criteria (Attachment 1). Attempts to regress TN and TP concentrations did not produce a significant relationship in Estero Bay. Though a significant relationship was observed for the log-transformed TP concentrations and in log-transformed chlorophyll *a* concentrations, the regression explained only 7% of the variation (Table 13; Attachment 2).

The weak relationship between TN and TP concentrations in Estero Bay does not allow the TP concentration criterion to be derived based on the previously proposed TN concentration criterion using the Stressor-Response Approach. Therefore, the TP concentration criterion was derived using the Reference Period Approach. First, the annual arithmetic mean TP concentration of the monthly mean values was calculated for each year from 2003-2007 and the average of these annual means was designated as the TP concentration target for this segment. The natural variability in the criterion was accounted for by adding one half standard deviation, as calculated from the period of record annual means, to the target to derive the TP concentration threshold, which is also the TP concentration criterion (Table 14). The proposed TP concentration criterion is compared to the observed arithmetic mean annual TP concentrations in Estero Bay (Figure 22). The horizontal line represents the proposed criterion.

The previously proposed TN concentration criterion and the newly derived TP concentration criterion were then related to TN and TP loads, again using the Stressor-Response Approach, in an attempt to derive nutrient loading criteria as a function of nutrient concentration criteria. No significant statistical relationship was identified between TP concentrations and loads, while the relationship between TN concentrations and log-transformed 2-month cumulative TN loads was quite weak ($r^2 = 0.08$). The best-fit relationships are presented in Table 13 and the full set of regression model plots are presented in Attachments 3 and 4. Previous efforts to develop statistically defensible relationships between chlorophyll and TN loads found a significant relationship, however it was not deemed strong enough to develop criteria (Janicki Environmental, 2010a). In a further effort to formulate nutrient loading criteria for TP, chlorophyll in Estero Bay was regressed with TP loads. As was found for TN loads, a significant relationship was identified between chlorophyll and 2-month cumulative TP loads in Estero Bay (Table 13; Attachment 6). However, the relationship only explained 26% of the variation in chlorophyll concentrations. Therefore, the Reference Period Approach was ultimately used to establish TN and TP loading criteria for the period from 2003-2007 (Table 15) as relationships derived using the Stressor-Response Approach lacked the predictive power required to use this method. The proposed TN and TP loading criteria are compared to the observed annual TN and TP loadings for Estero Bay (Figure 23).

The proposed nutrient criteria for Estero Bay are as follows:

- TN concentration = 0.63 mg/L
- TP concentration = 0.07 mg/L
- TN loading = 587 tons/yr
- TP loading = 61 tons/yr

Table 13. Best-fit regressions for deriving numeric nutrient criteria based on relationships between nutrient concentrations, loads and chlorophyll *a* thresholds for Estero Bay.			
Criterion to obtain	**Regression**	**p > F**	**r^2**
[TP]	ln[chl a] = 2.38 + 0.29*ln Mean TP Conc	0.001	0.07
[TP]	[TP] = 0.058 – 0.0032 * ln [TN]	0.33	0.01
TP Load	[TP] = 0.06 - 0.001 * ln Cumulative 3-month TP Load	0.6578	0.00
TP Load	[chl a] = 4.07 + 0.12 * Cumulative 2-month TP Load	<0.0001	0.26
TN Load	[TN] = 0.33+ 0.06 * ln Cumulative 2-month TN Load	0.0018	0.08

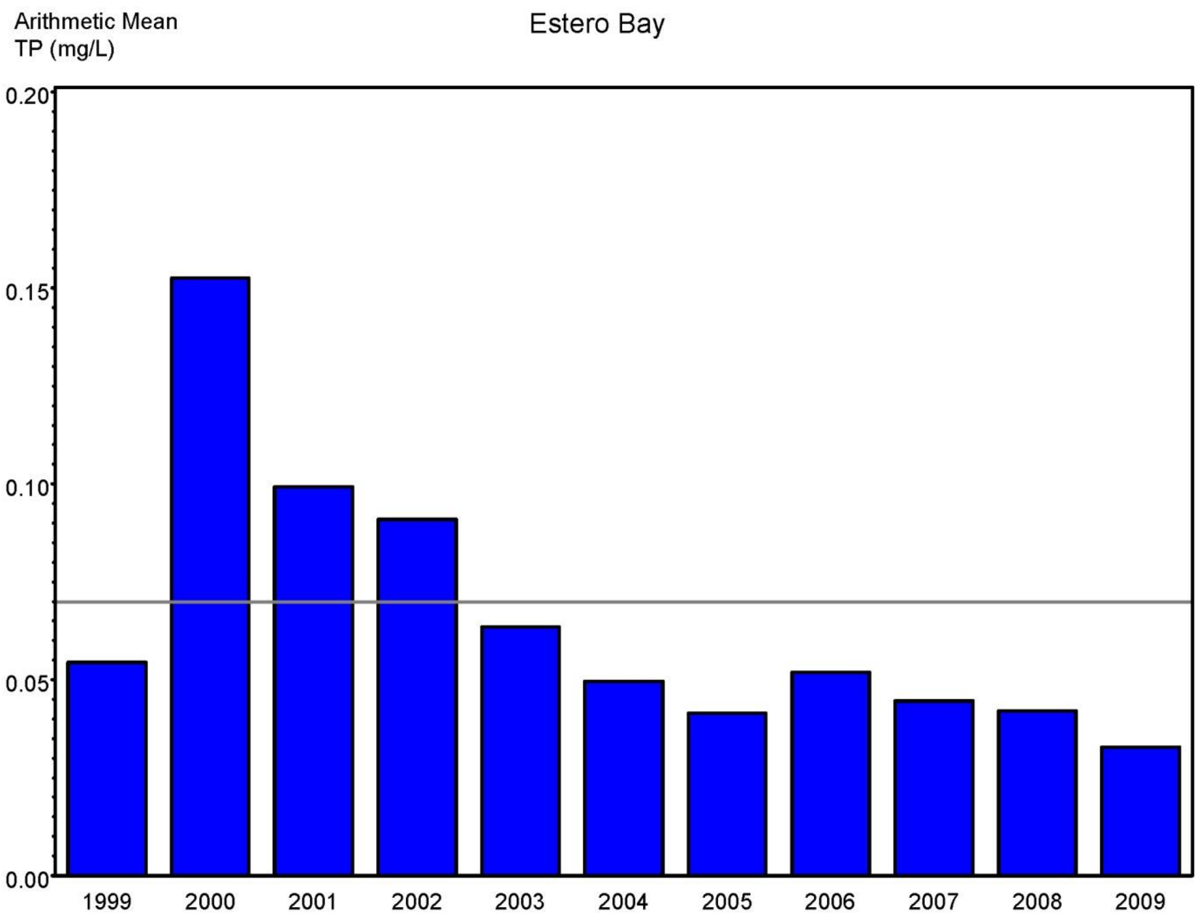
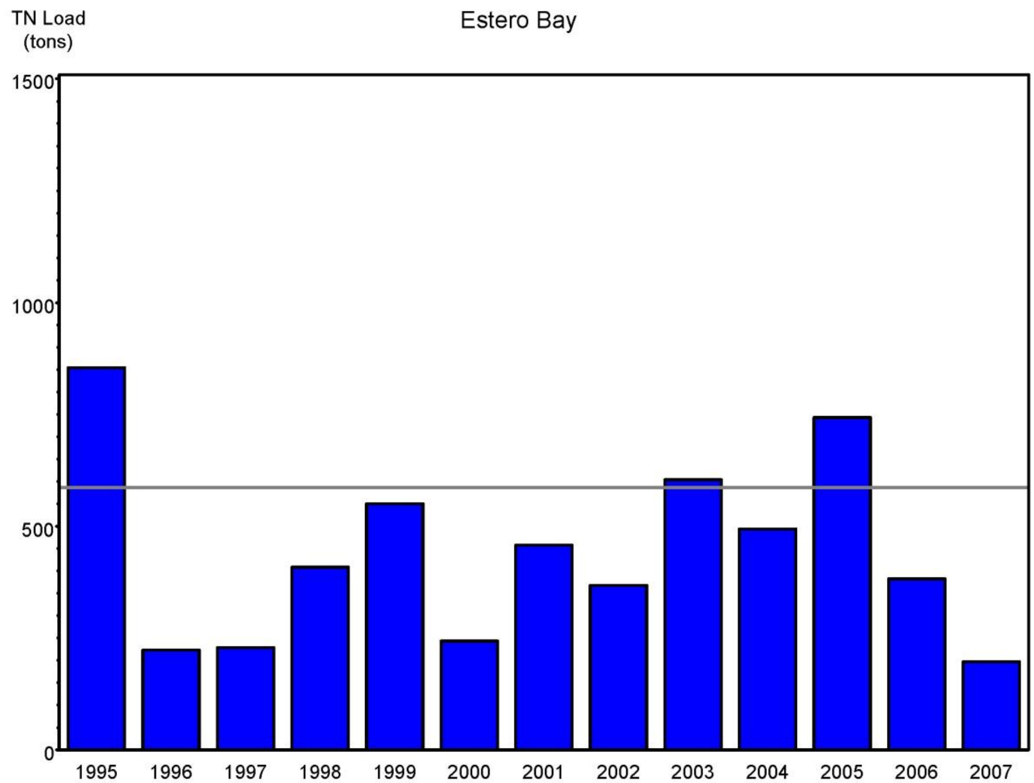


Figure 22. Comparison of proposed TP concentration criterion for Estero Bay to the annual arithmetic mean TP concentrations.



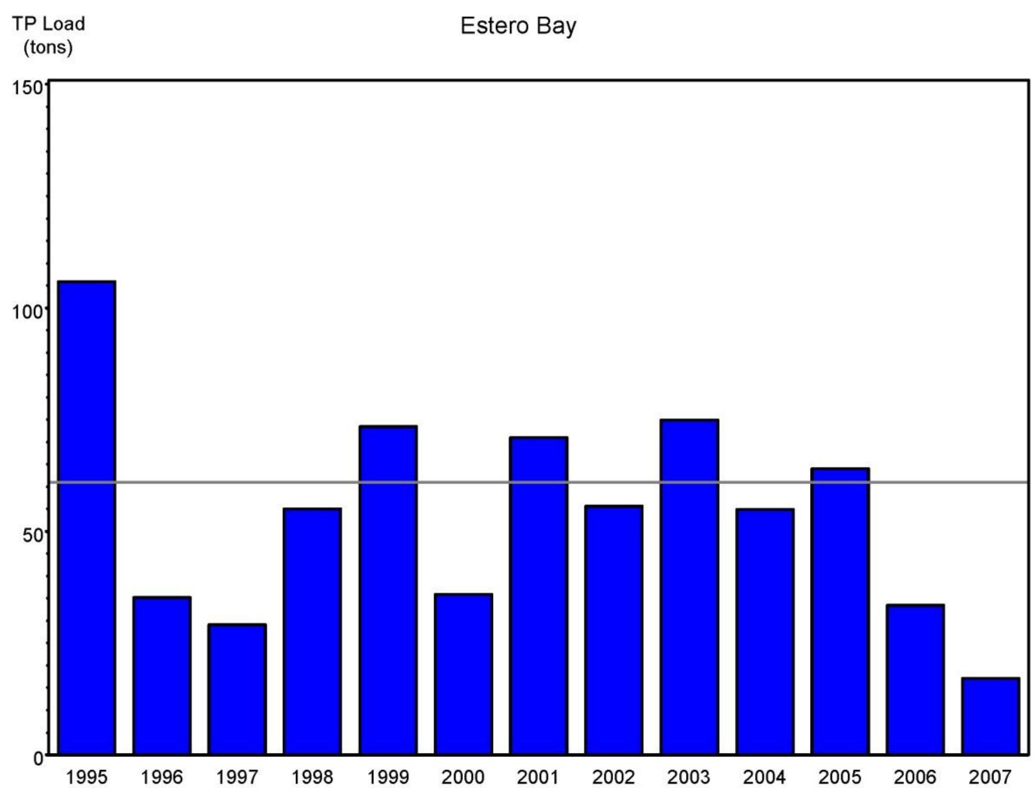


Figure 23. Comparison of proposed TN and TP load criteria for Estero Bay to annual loads.

Table 14. TP concentration criteria derived using the Reference Period Approach. The reference period was 2003-2007.	
Segment	**TP concentration criterion (mg/L)**
Dona and Roberts Bay	0.18
Upper Lemon Bay	0.26
Lower Lemon Bay	0.17
Charlotte Harbor Proper	0.19
Pine Island Sound	0.06
San Carlos Bay	0.07
Tidal Myakka River	0.31
Tidal Peace River	0.50
Matlacha Pass	0.08
Tidal Caloosahatchee River	TBD
Estero Bay	0.07

Table 15. TN and TP loading criteria based on the Reference Period Approach. The reference period was 2003-2007.		
Segment	**TN Load (tons/yr)**	**TP Load (tons/yr)**
Dona and Roberts Bay	250	48
Upper Lemon Bay	102	18
Lower Lemon Bay	136	21
Charlotte Harbor Proper[1]	5,987	2,281
Pine Island Sound	190	8
San Carlos Bay	TBD	TBD
Tidal Myakka River	1,407	351
Tidal Peace River	4,343	1,960
Matlacha Pass	216	24
Tidal Caloosahatchee River	TBD	TBD
Estero Bay	587	61

[1]Loads are sum of Charlotte Harbor Proper and the Tidal Peace and Myakka Rivers.

Table 16. TN concentration criteria derived using the Reference Period Approach. The reference period was 2003-2007.	
Segment	**TN Concentration Criterion (mg/L)**
Dona and Roberts Bay	0.42*
Upper Lemon Bay	0.56*
Lower Lemon Bay	0.62*
Charlotte Harbor Proper	0.67*
Pine Island Sound	0.57*
San Carlos Bay	0.56*
Tidal Myakka River	1.02*
Tidal Peace River	1.08*
Matlacha Pass	0.58*
Tidal Caloosahatchee River	TBD*
Estero Bay	0.63*

*Indicates previously proposed TN concentration criteria (Janicki Environmental, 2010a).

4.0 Conclusions

The following conclusions can be drawn from the analyses and results discussed in this report:

- The CHNEP has recently completed development of segment-specific TN concentration criteria and chlorophyll *a* thresholds for the estuarine segments of the CHNEP.

- The CHNEP segments are largely co-limited with respect to nutrient limitation, as indicated by ambient TN:TP ratios, with the exception of Dona and Roberts Bay, Upper Lemon Bay, and the Tidal Peace River and Tidal Myakka River segments, where ratios indicate nitrogen limitation.

- Overall, there were no obvious relationships between TN and TP concentrations that explained more than 39% of the variation in TP concentration and despite statistically significant relationships for most segments, coefficient of determination (r^2) values were low, indicating that TN concentrations are not a good predictor of TP concentrations in the CHNEP segments.

- Stressor-Response models of chlorophyll *a* and TP concentrations were determined to be an ineffective means of developing TP concentration criteria as these relationships explained no more than 24% of the variation in chlorophyll *a* concentrations.

- The Reference Period Approach (2003-2007) provides the most suitable and internally consistent method for establishing TN and TP concentration criteria for the CHNEP segments, with the exception of the Tidal Caloosahatchee. The Tidal Caloosahatchee has been determined to be impaired for nutrients and a draft TMDL has been developed. However, the TMDL is being revised due to concerns raised by stakeholders. Therefore, the criteria for Tidal Caloosahatchee are "to be determined" until the TMDL revision is completed (Janicki Environmental, 2010a). Issues pertaining to the implementation of the proposed nutrient criteria are discussed in a separate technical memo (Janicki Environmental, 2011). The following are the proposed concentration numeric nutrient criteria for CHNEP segments:

Segment	TN concentration criteria (mg/L)	TP concentration criteria (mg/L)
– Dona and Roberts Bay	0.42	0.18
– Upper Lemon Bay	0.56	0.26
– Lower Lemon Bay	0.62	0.17
– Charlotte Harbor Proper	0.67	0.19
– Pine Island Sound	0.57	0.06
– San Carlos Bay	0.56	0.07
– Tidal Myakka River	1.02	0.31
– Tidal Peace River	1.08	0.50
– Matlacha Pass	0.58	0.08
– Tidal Caloosahatchee River	TBD	TBD
– Estero Bay	0.63	0.07

- The relationships between TN loadings and TN concentrations, and those between TP loadings and TP concentrations, do not provide a defensible approach for establishing loading-based numeric nutrient criteria in any segment based on low predictive power (typically <0.3) between segment concentration and segment loads.

- The relationships between monthly chlorophyll *a* concentrations and TN and TP loadings were among the most predictive Stressor-Response relationships examined here, with nutrient loadings often explaining 30-50% of the variation in chlorophyll a concentrations. However, the relationships left too much variation unexplained to be useful in establishing numeric criteria.

- The Reference Period Approach (2003-2007) provides the most defensible method to define loading-based numeric nutrient criteria for the CHNEP segments with the exception of Tidal Caloosahatchee and San Carlos Bay. The Tidal Caloosahatchee has been determined to be impaired for nutrients and a draft TMDL has been developed. However, the TMDL is being revised due to concerns raised by stakeholders. Therefore, the criteria for Tidal Caloosahatchee are "to be determined" until the TMDL revision is completed. Because the San Carlos Bay loadings are dominated by the Tidal Caloosahatchee loadings, San Carlos Bay loading criteria are also "to be determined" until the TMDL for Tidal Caloosahatchee is completed. Issues pertaining to the implementation of the proposed nutrient criteria are discussed in a separate technical memo (Janicki Environmental, 2011). The following are the proposed TN and TP loading criteria for CHNEP segments:

Segment	TN Criteria (tons/yr)	TP Criteria (tons/yr)
- Dona and Roberts Bay	250	48
- Upper Lemon Bay	102	18
- Lower Lemon Bay	136	21
- Charlotte Harbor Proper	5,987	2,281
- Pine Island Sound	190	8
- San Carlos Bay	TBD	TBD
- Tidal Myakka River	1,407	351
- Tidal Peace River	4,343	1,960
- Matlacha Pass	216	24
- Tidal Caloosahatchee River	TBD	TBD
- Estero Bay	587	61

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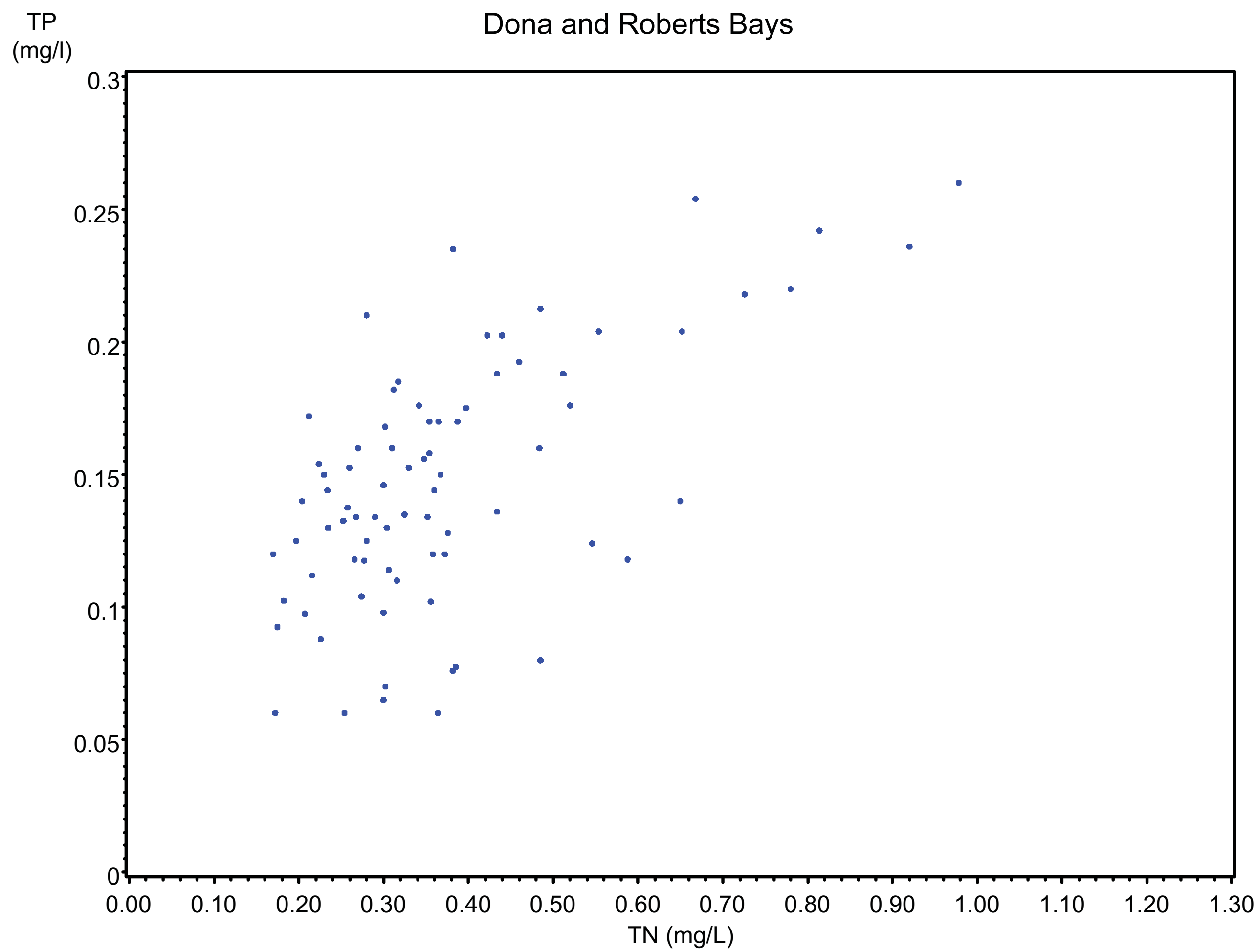
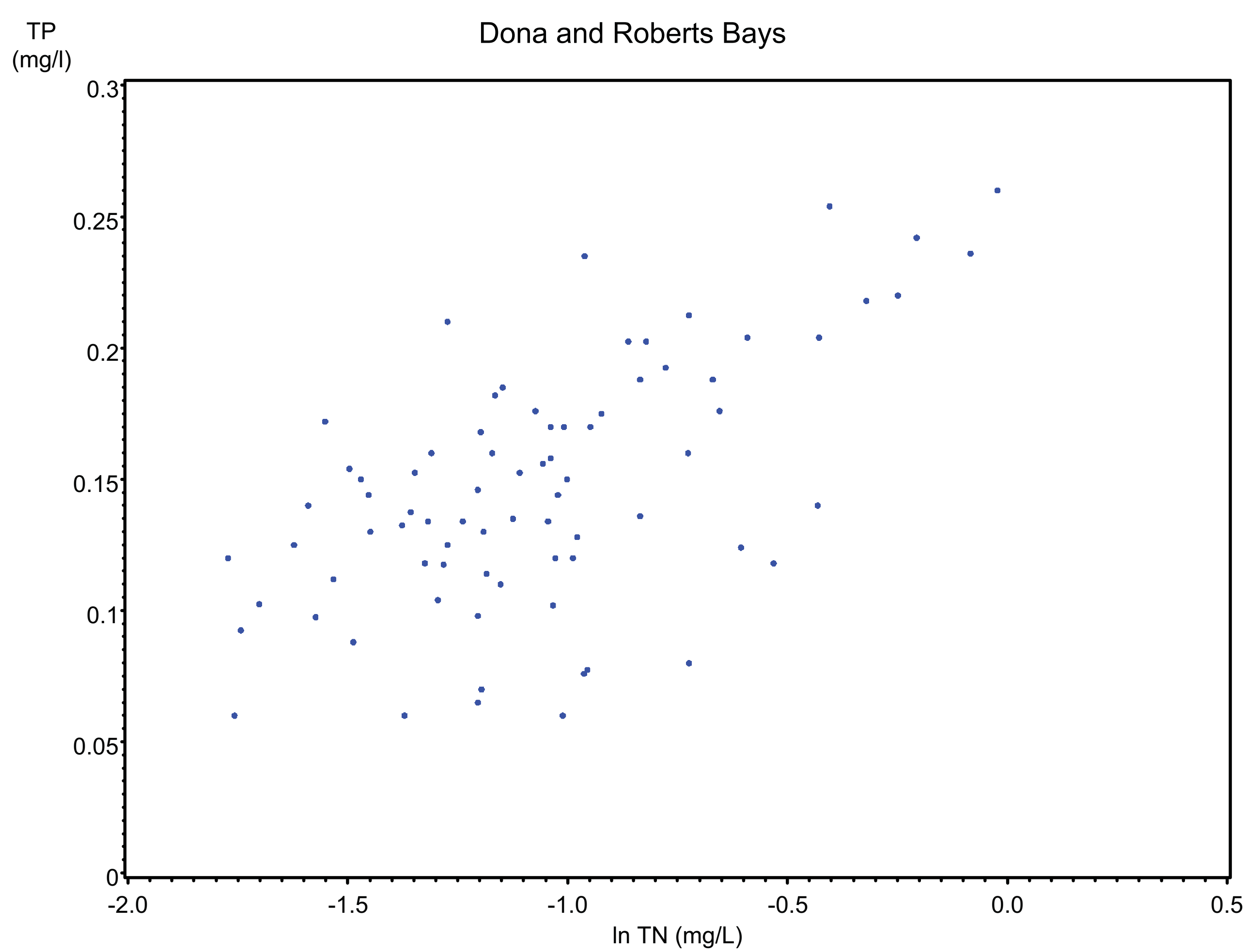
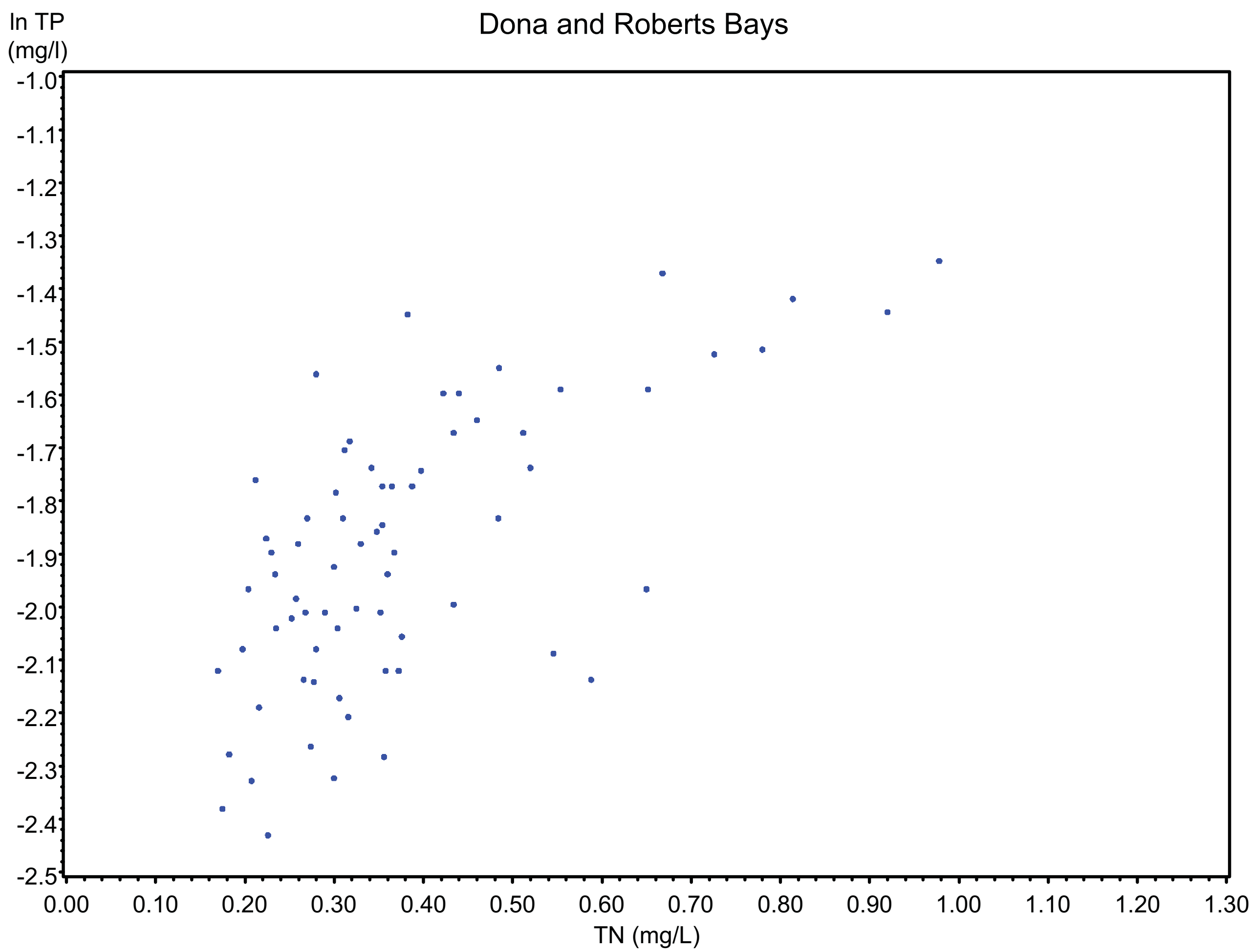
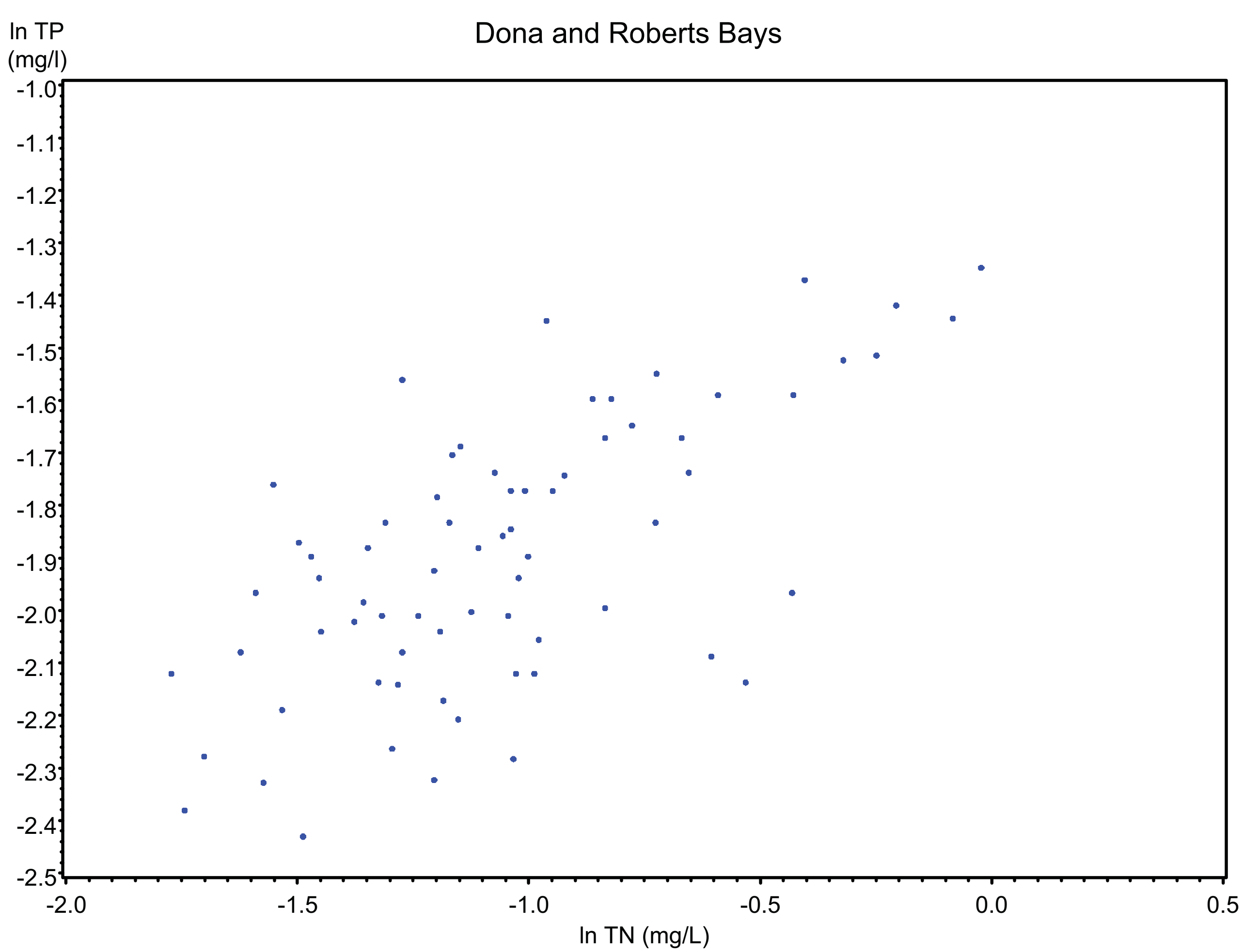
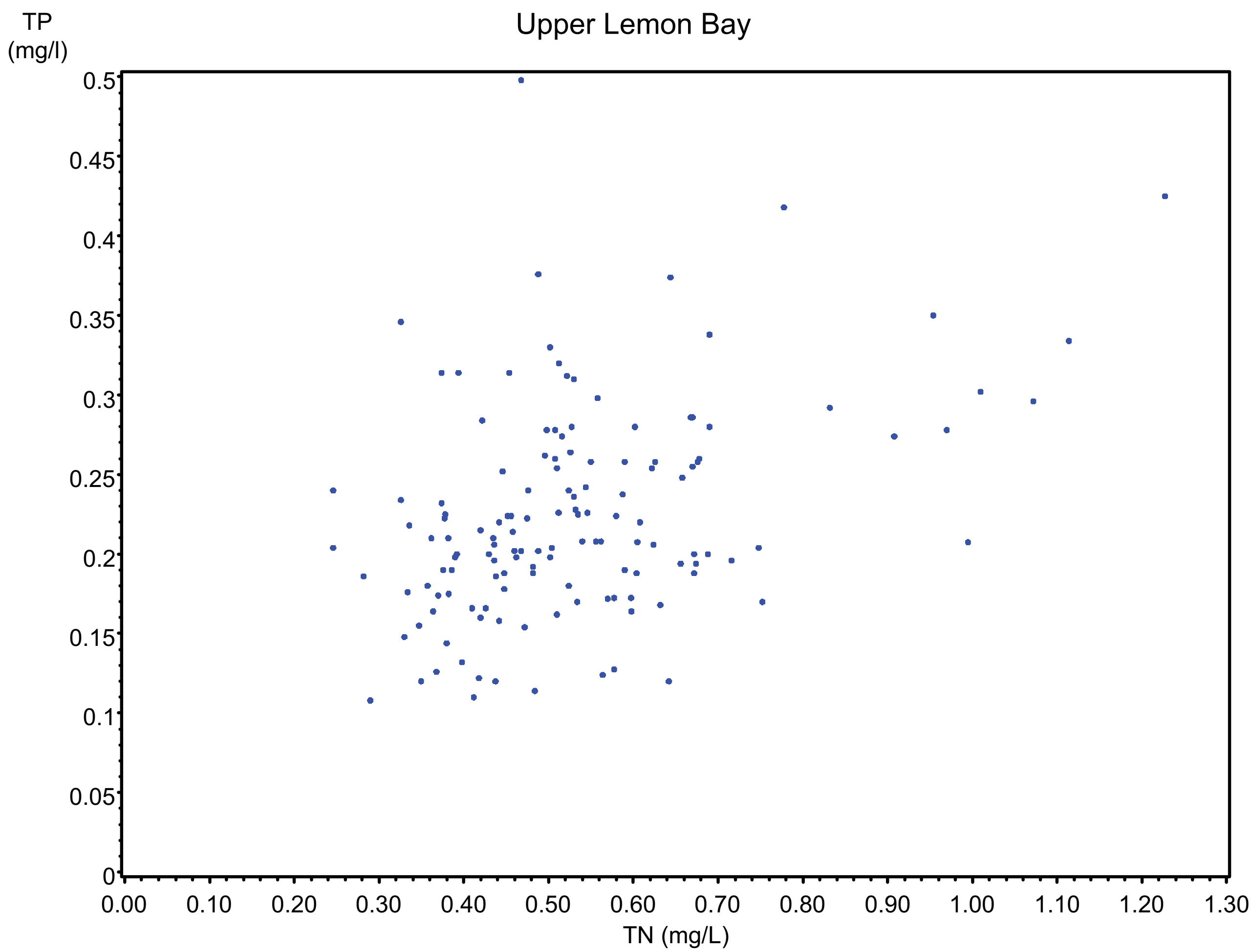
Attachment 1
TP concentration as a function of TN concentration

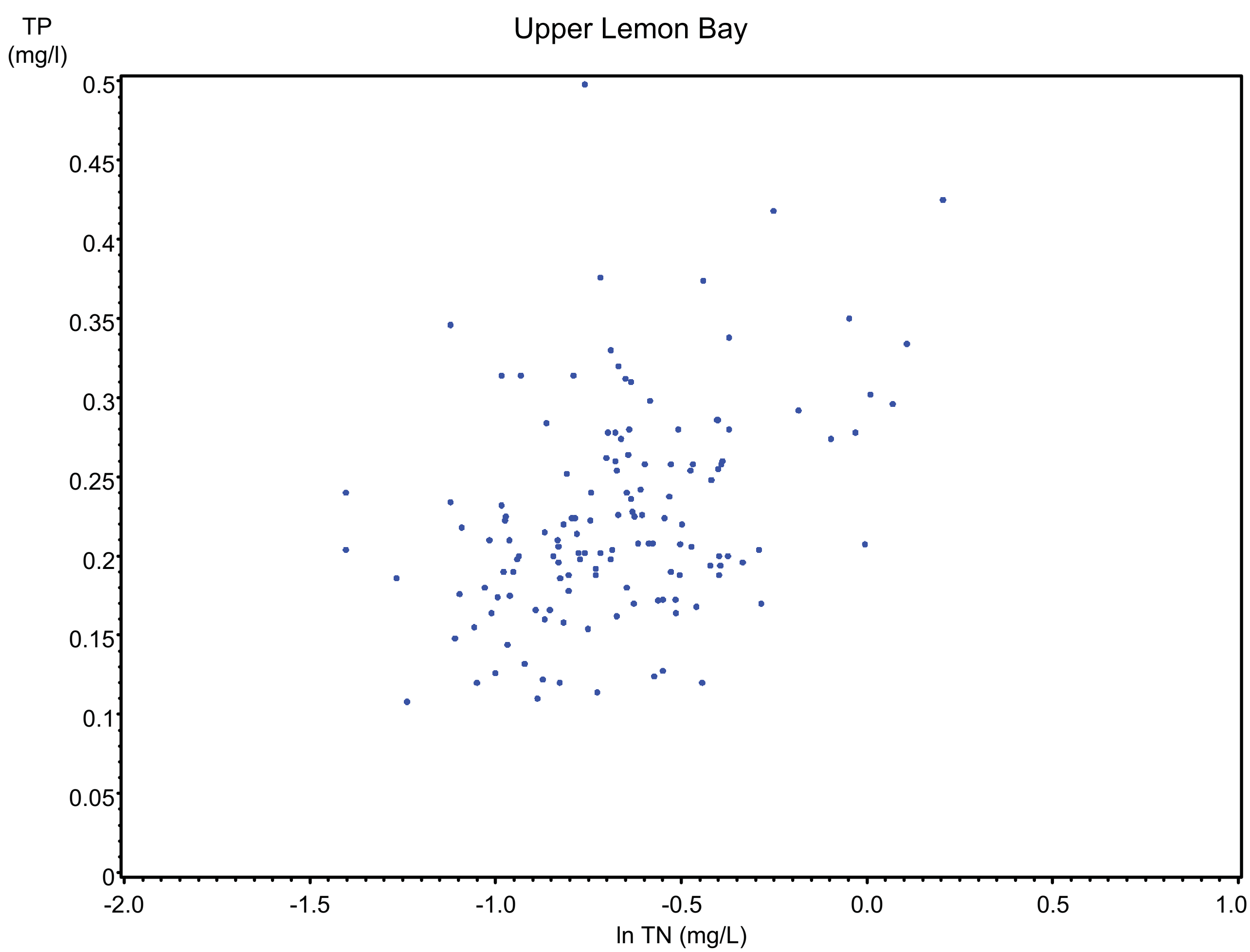

Dona and Roberts Bays
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
1.20
1.30
TN (mg/L)

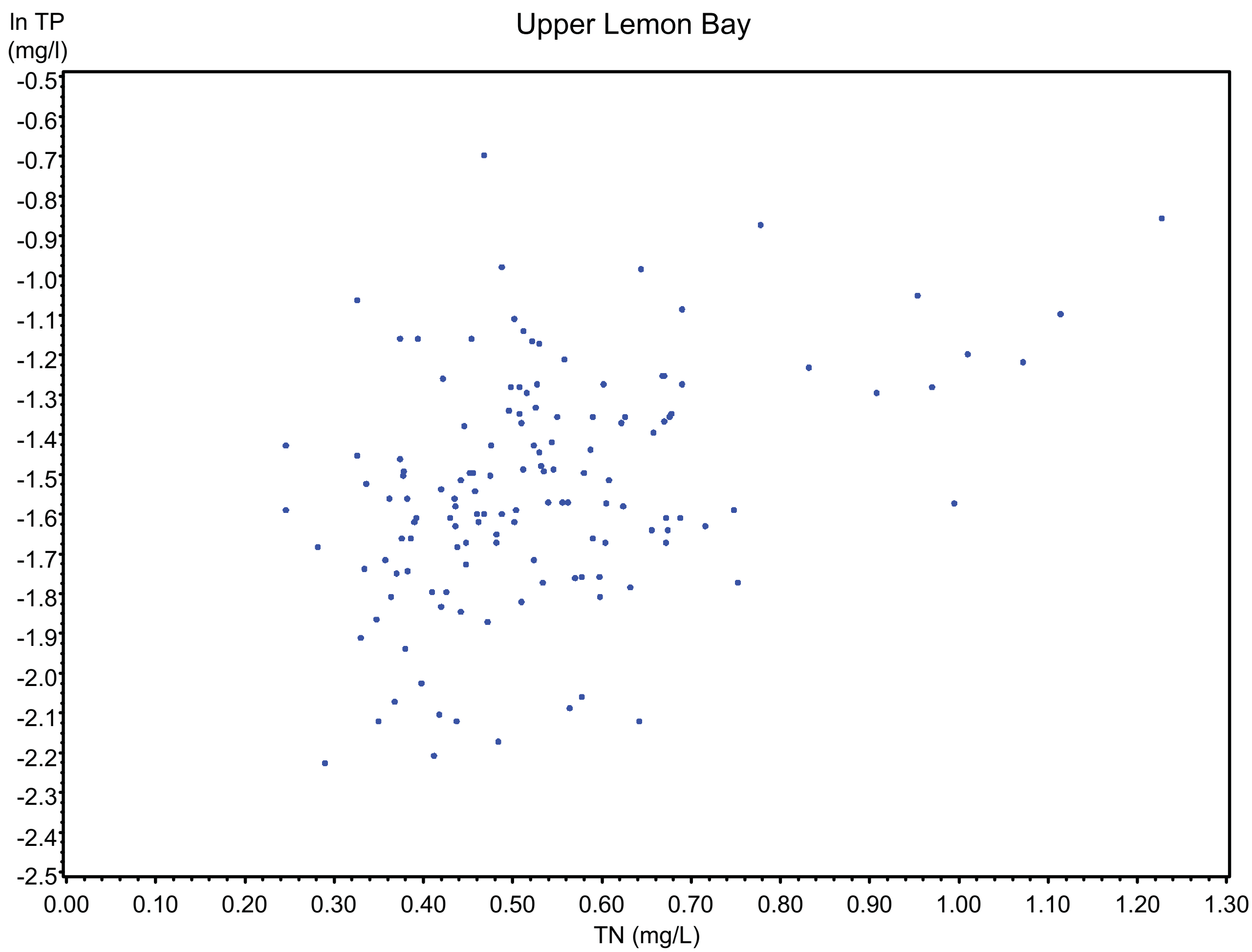

Dona and Roberts Bays
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.0
-1.5
-1.0
-0.5
0.0
0.5
ln TN (mg/L)

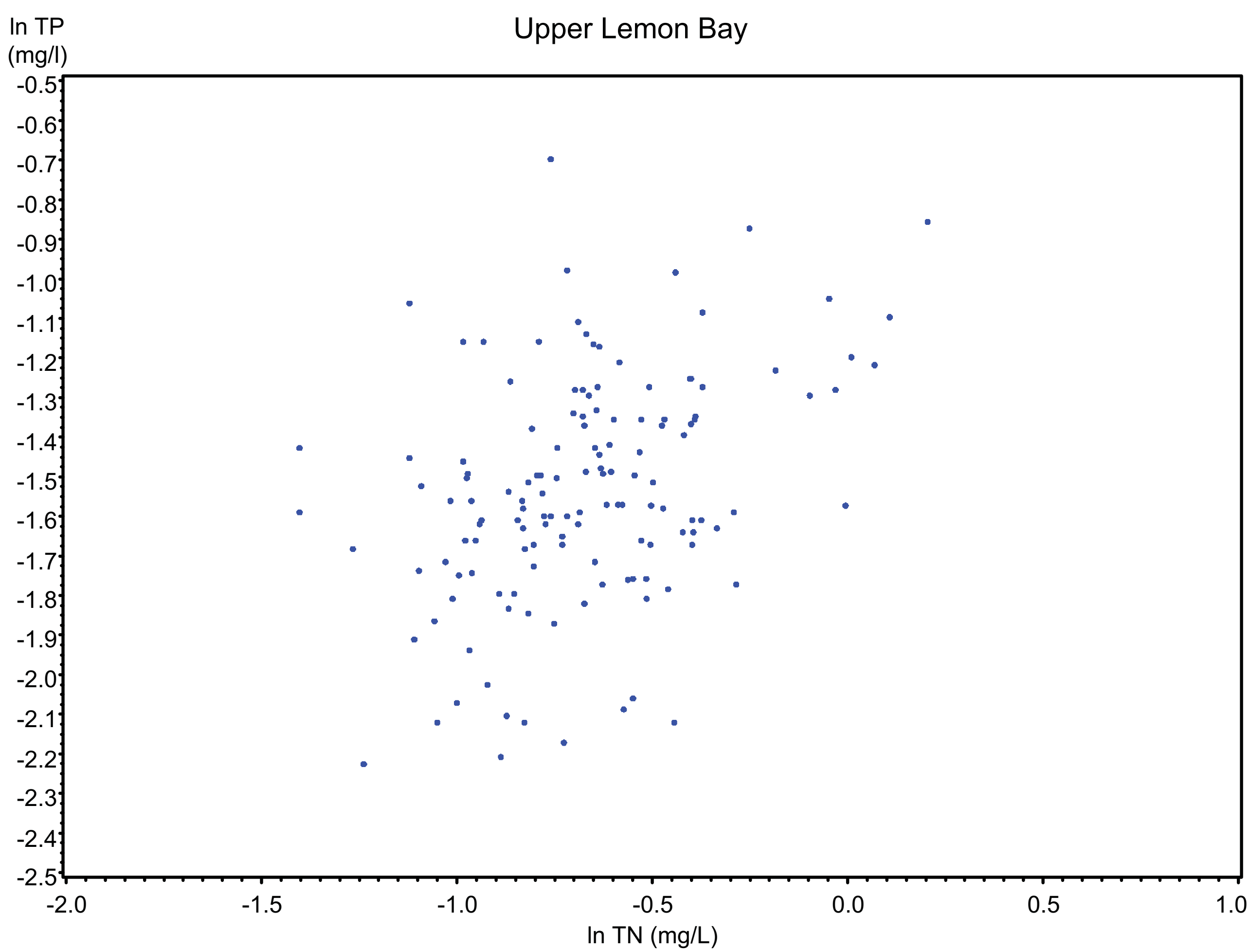

Dona and Roberts Bays
ln TP (mg/l)
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-2.2
-2.3
-2.4
-2.5
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30
TN (mg/L)

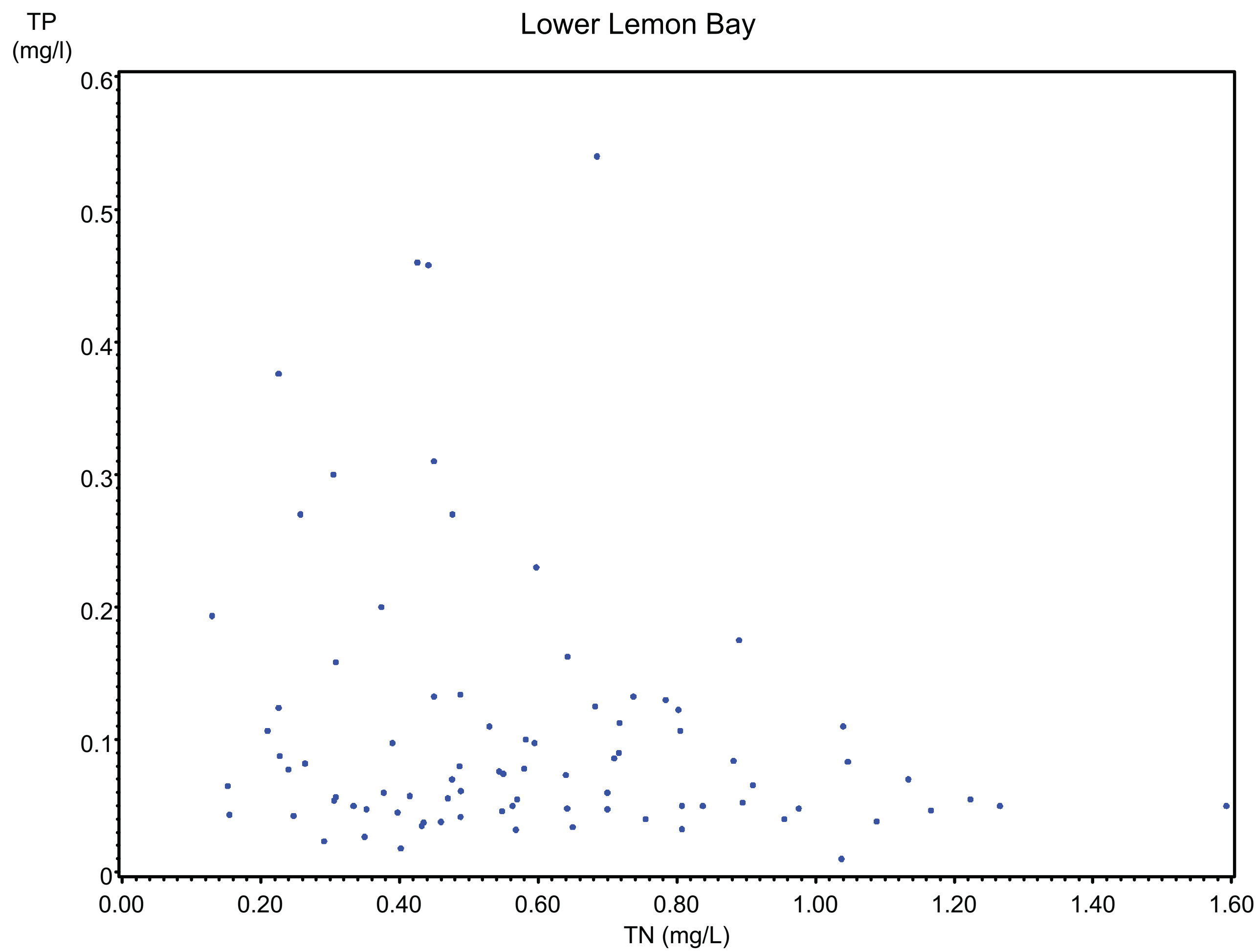

Dona and Roberts Bays
ln TP (mg/l)
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-2.2
-2.3
-2.4
-2.5
-2.0 -1.5 -1.0 -0.5 0.0 0.5
ln TN (mg/L)

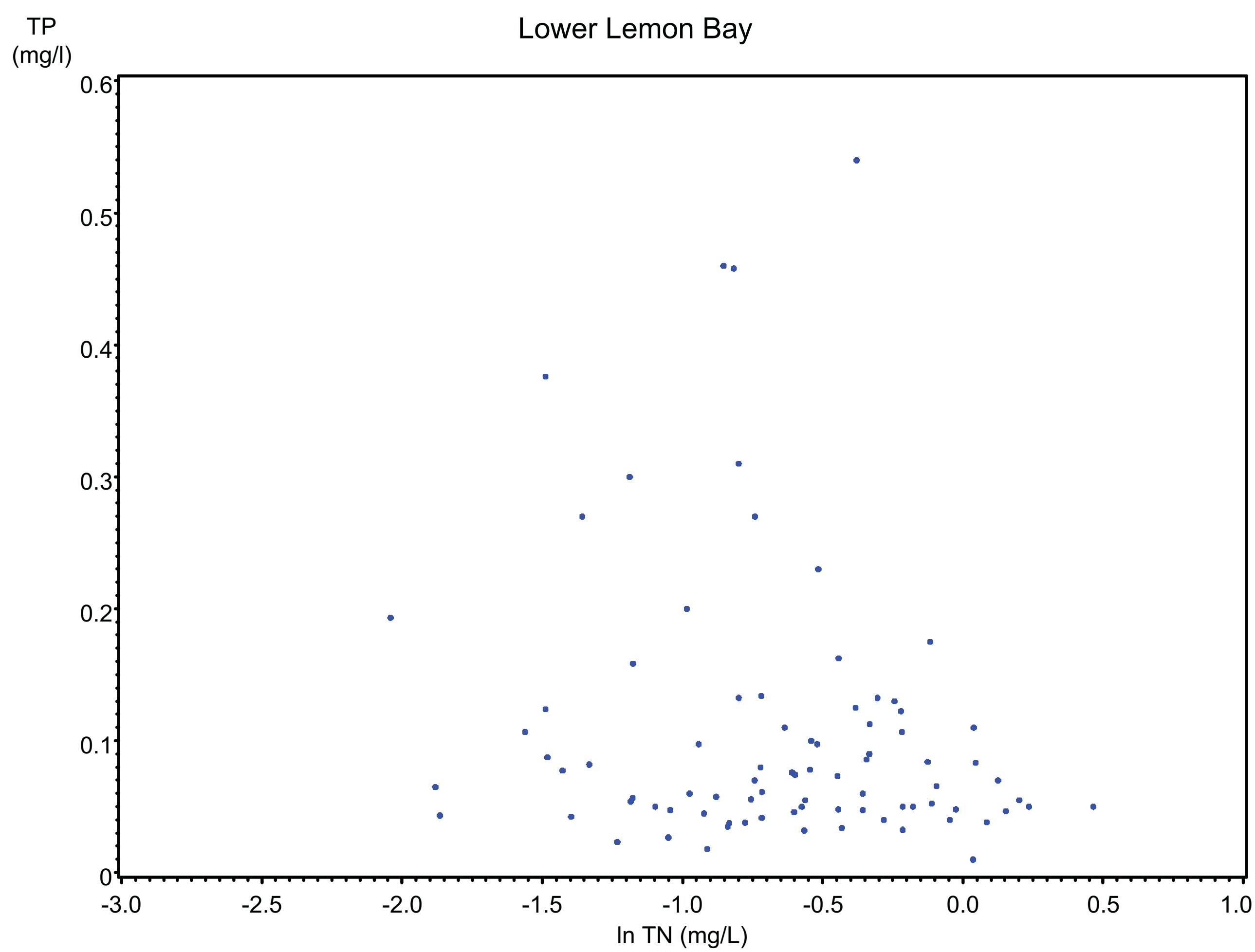

TP
(mg/l)
Upper Lemon Bay
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30
TN (mg/L)

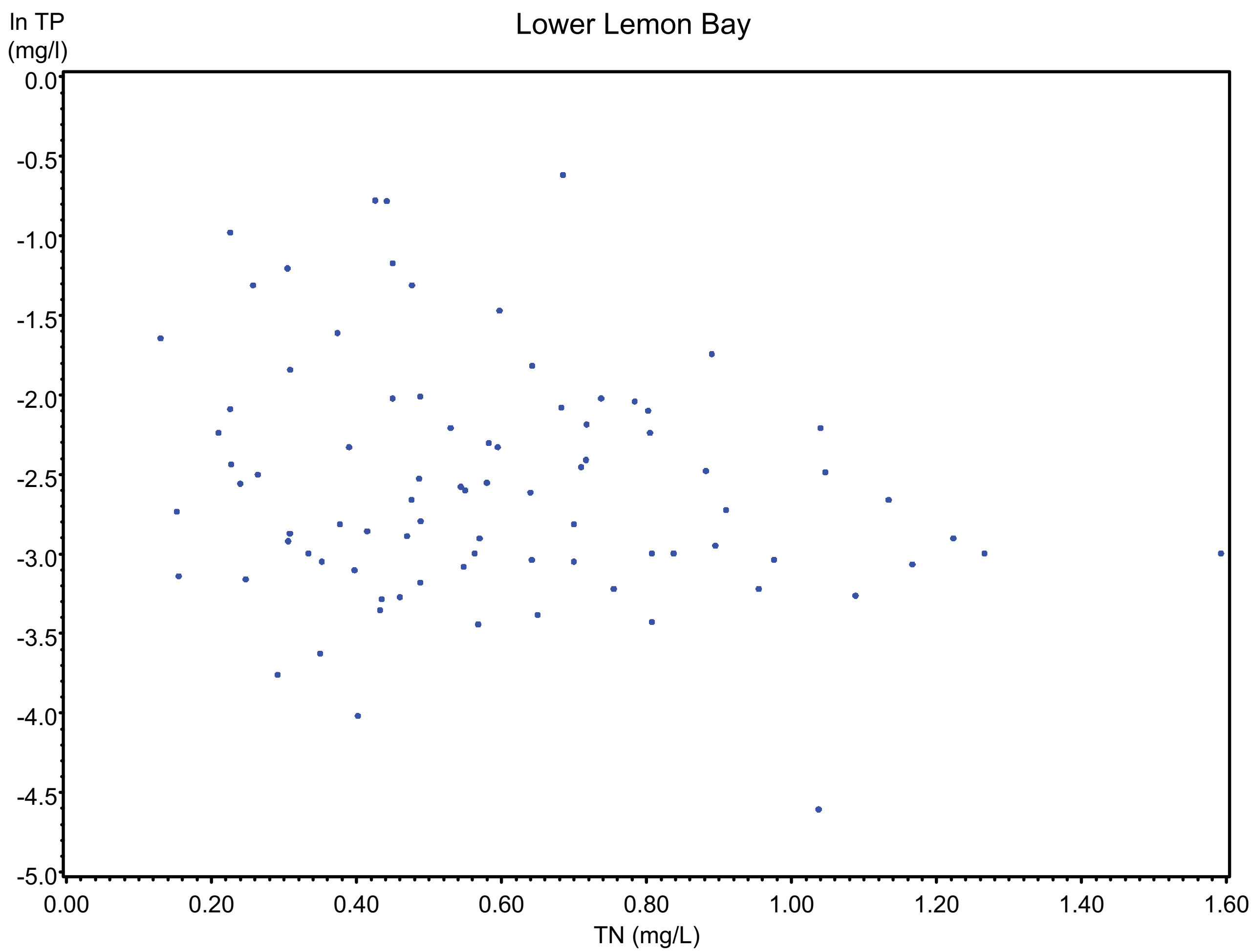

TP
(mg/l)
Upper Lemon Bay
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0
ln TN (mg/L)

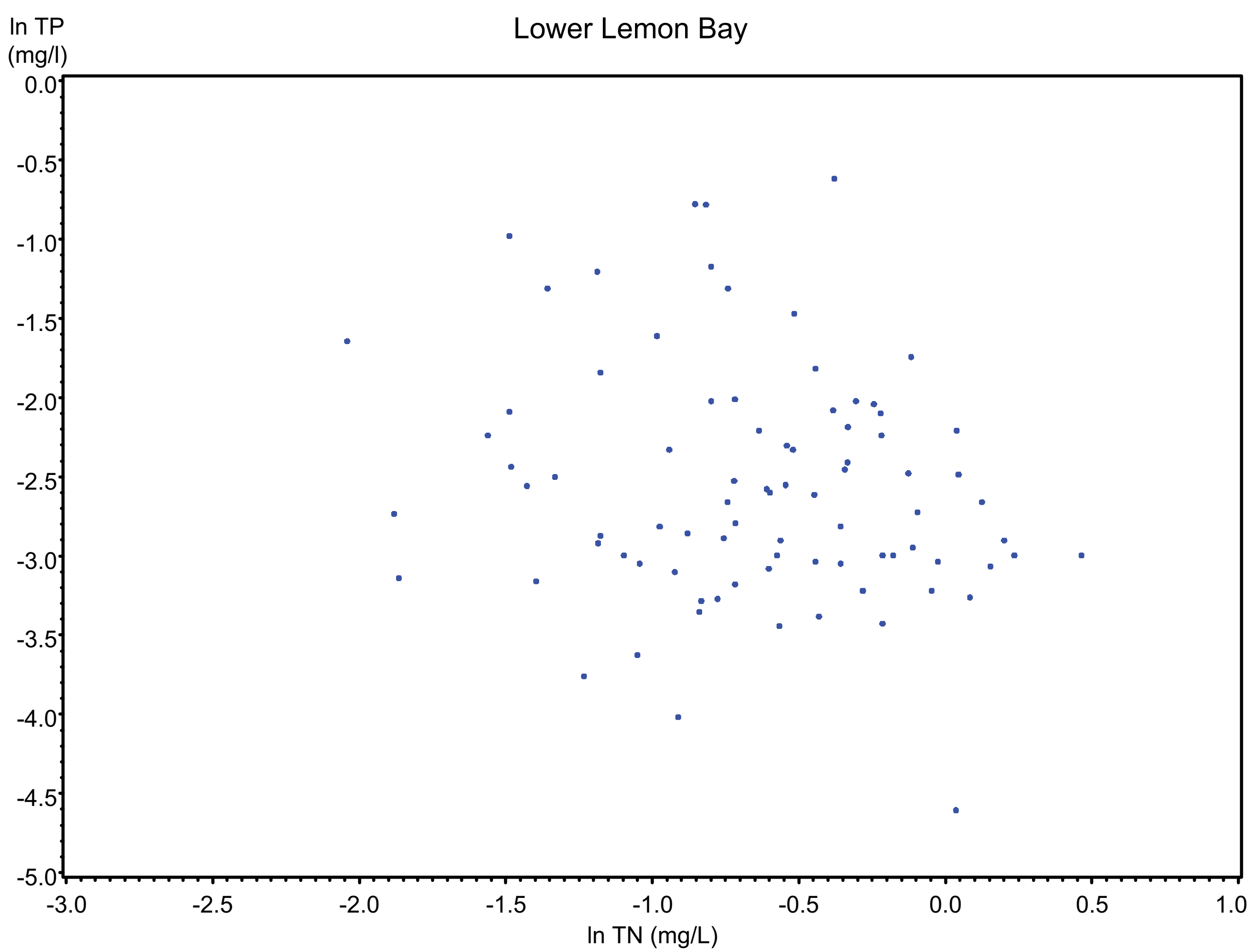

Upper Lemon Bay
ln TP (mg/l)
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-2.2
-2.3
-2.4
-2.5
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
1.20
1.30
TN (mg/L)

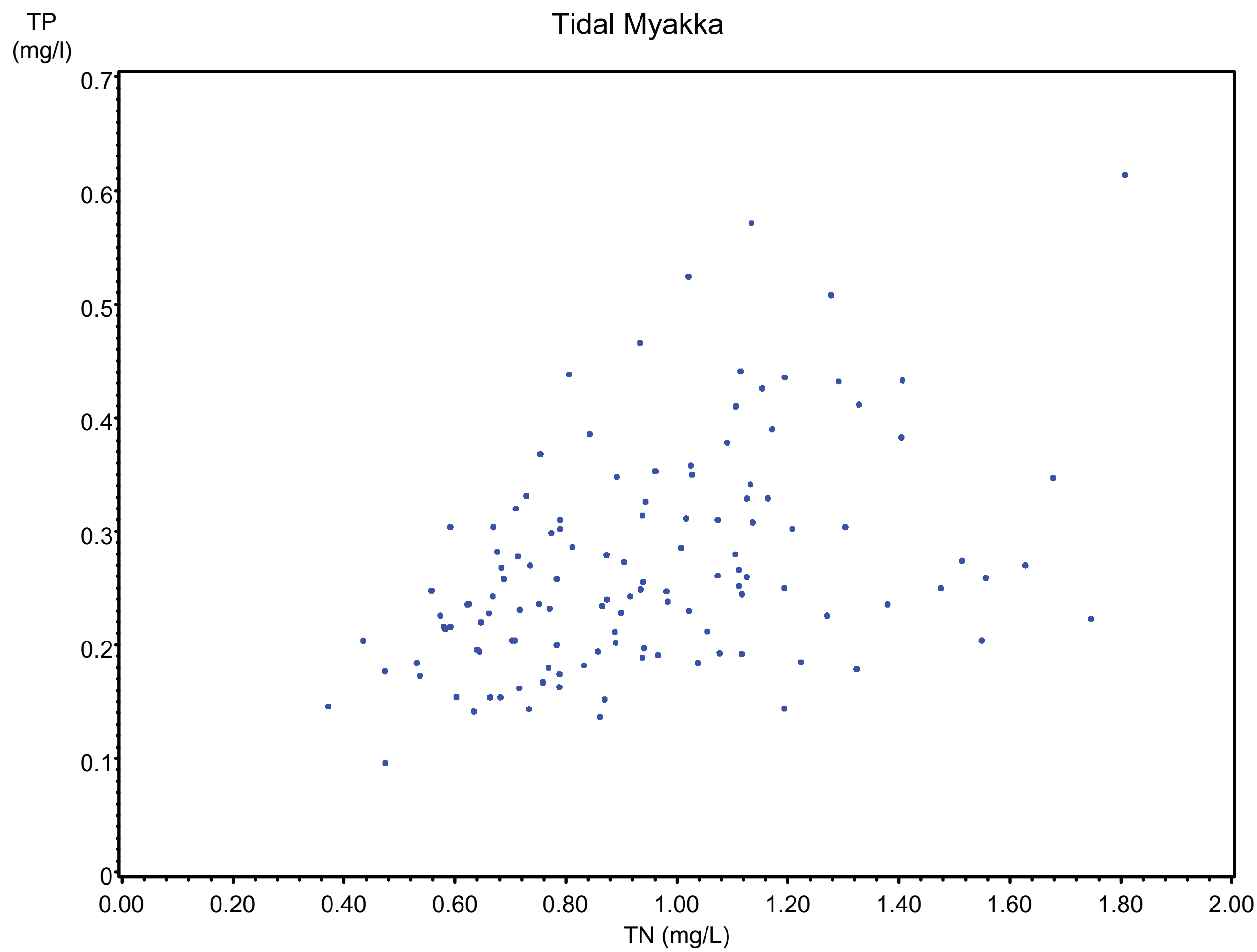

Upper Lemon Bay
ln TP (mg/l)
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-2.2
-2.3
-2.4
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)

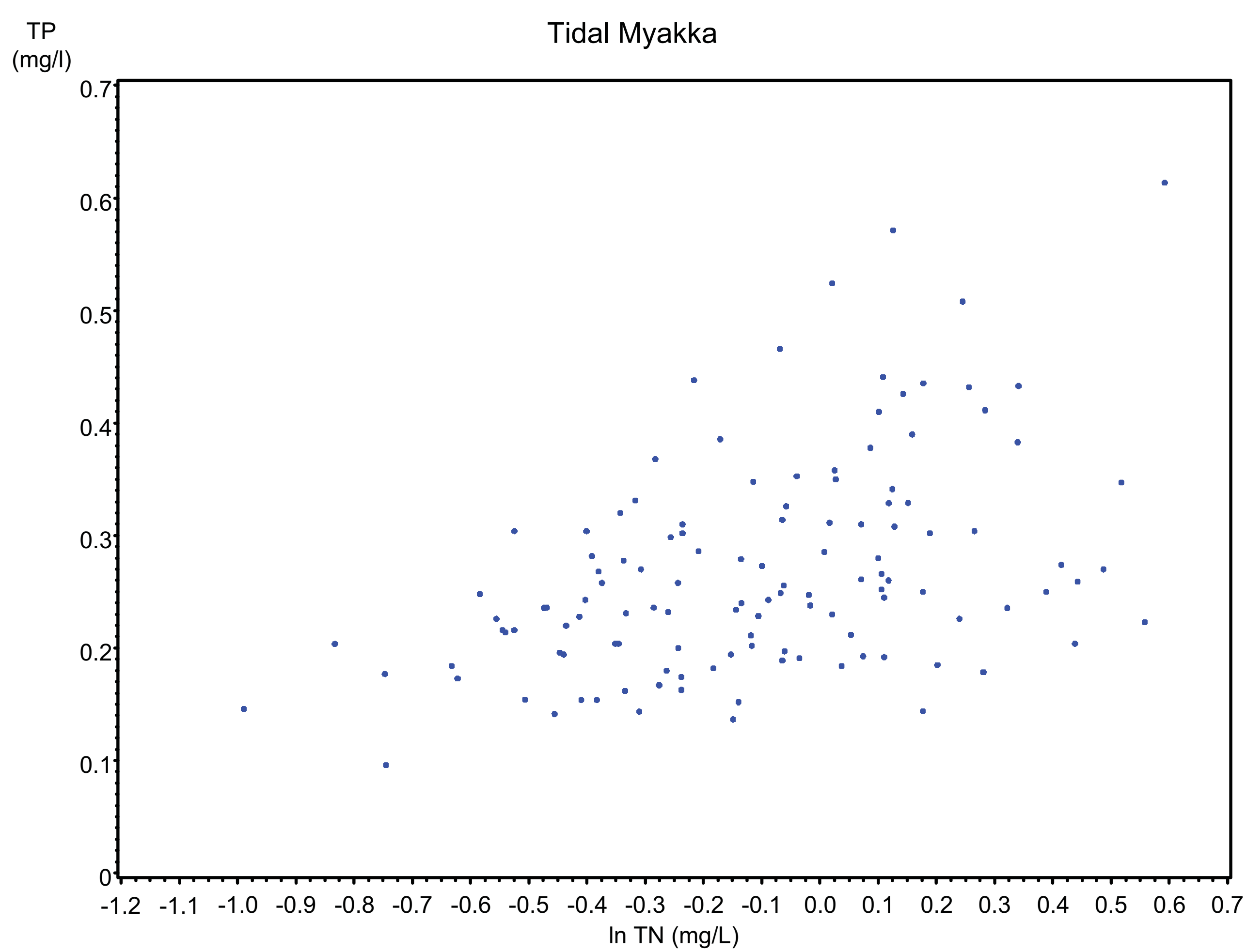

Lower Lemon Bay
TP
(mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
TN (mg/L)

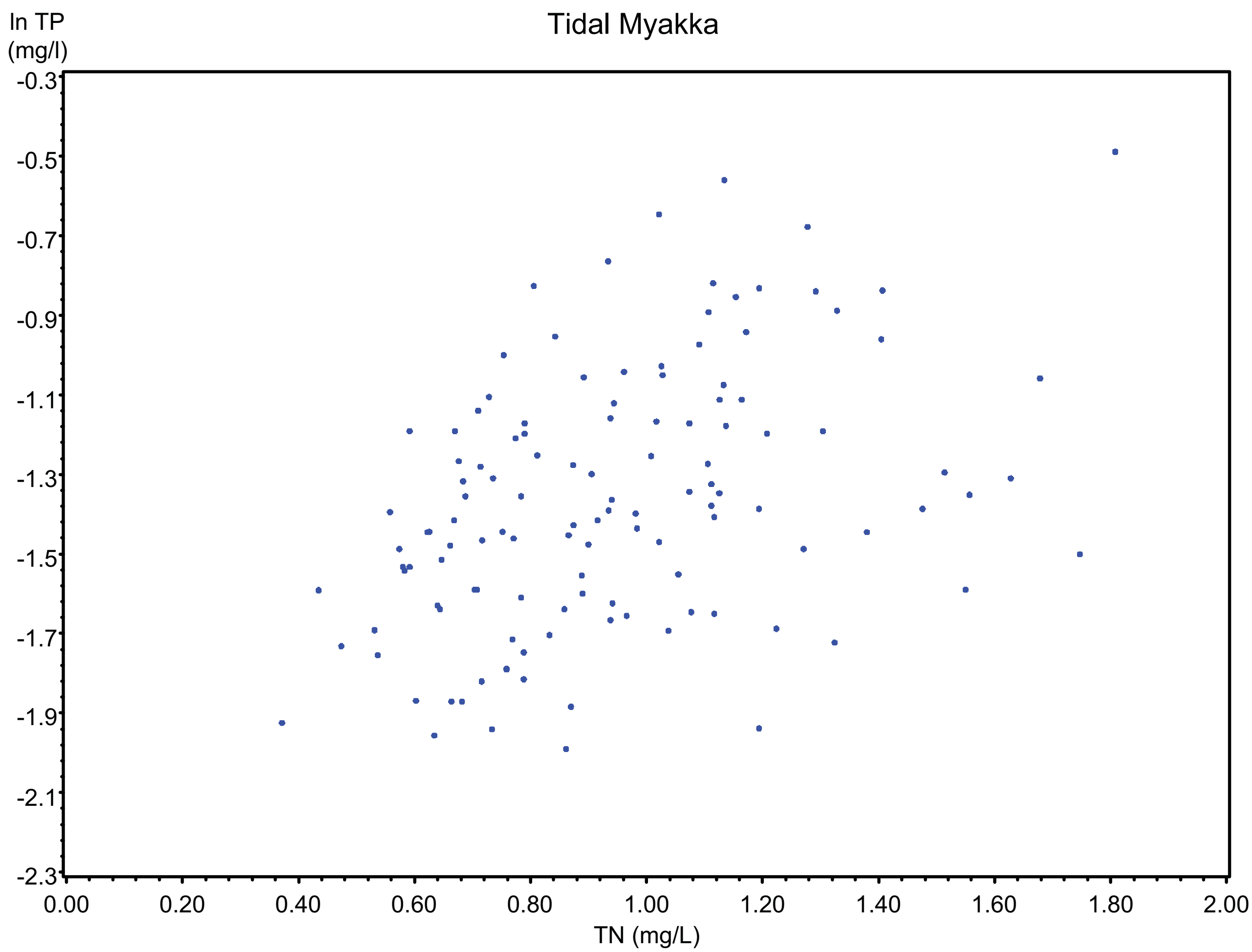

Lower Lemon Bay
TP
(mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)


Lower Lemon Bay
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
TN (mg/L)

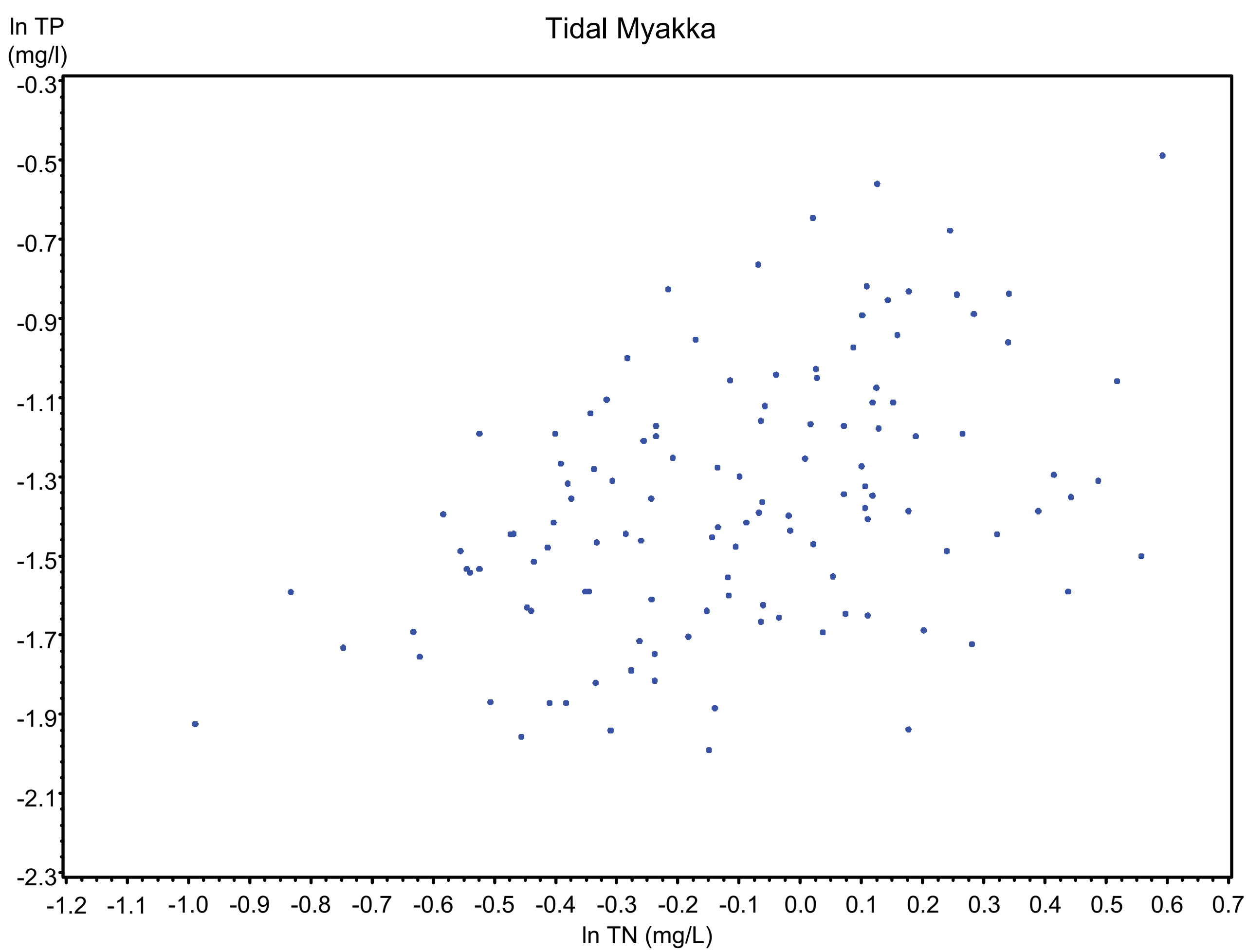

Lower Lemon Bay
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)


Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
TN (mg/L)

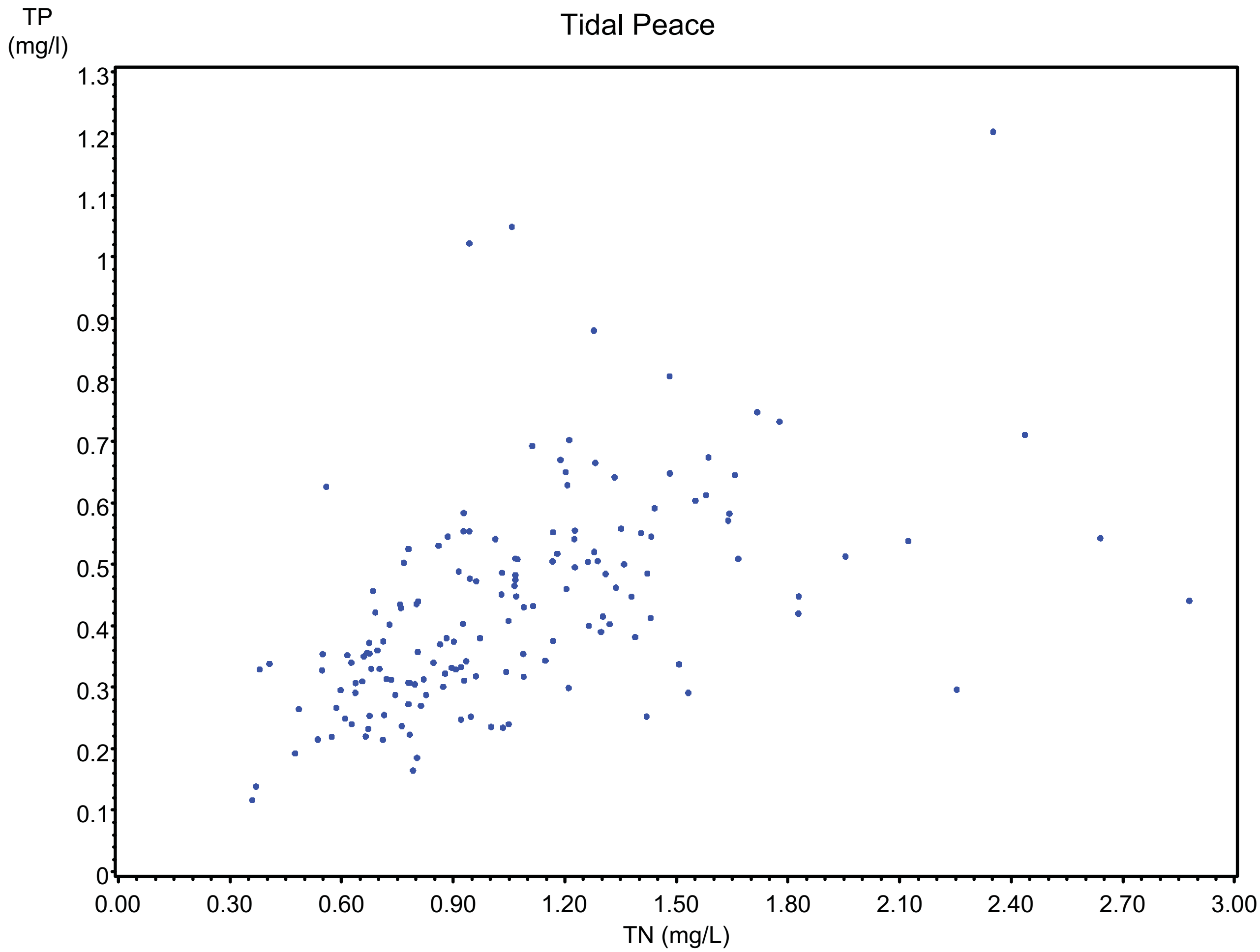

Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1.2
-1.1
-1.0
-0.9
-0.8
-0.7
-0.6
-0.5
-0.4
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
ln TN (mg/L)

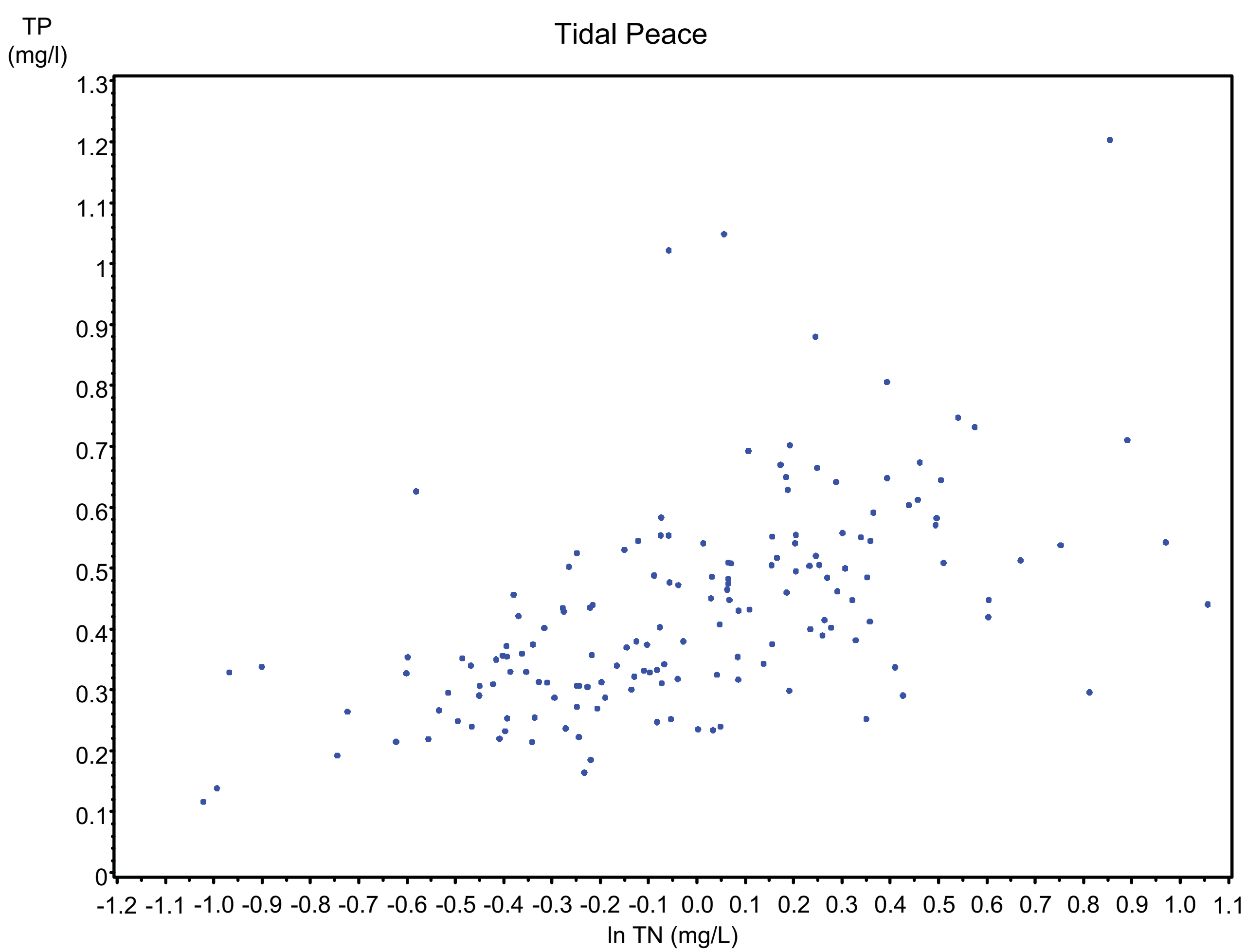


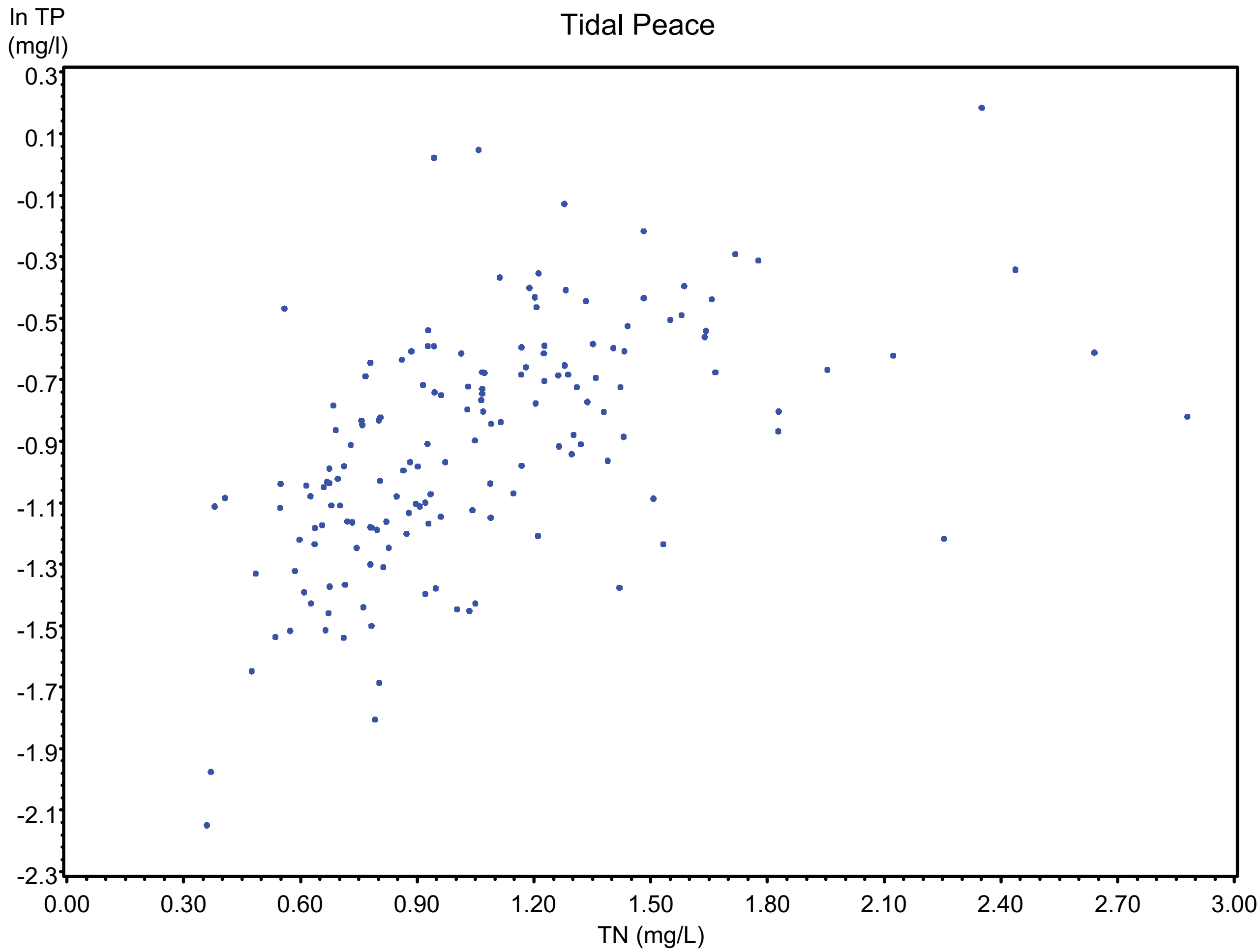
Tidal Myakka
ln TP
(mg/l)
-0.3
-0.5
-0.7
-0.9
-1.1
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
TN (mg/L)

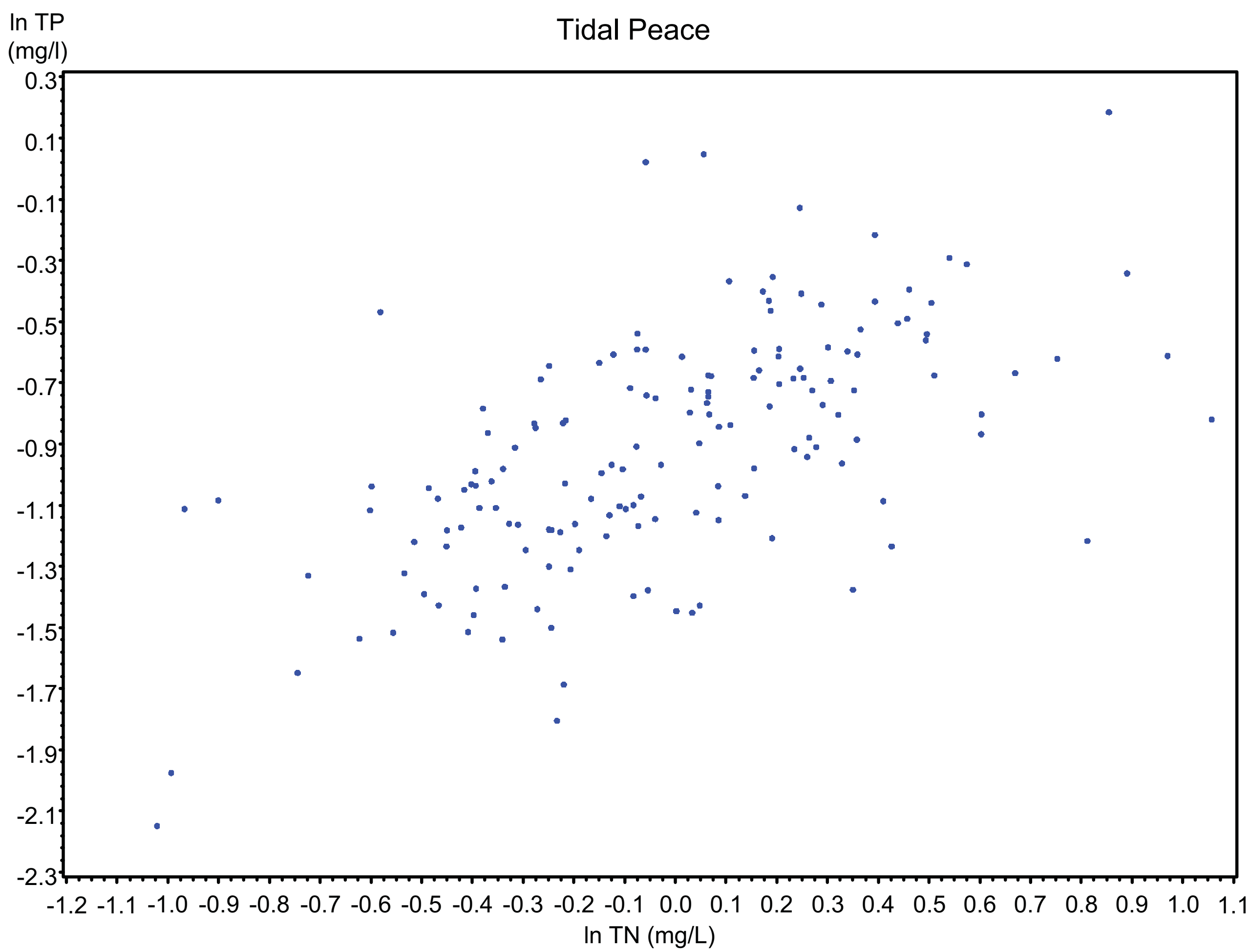


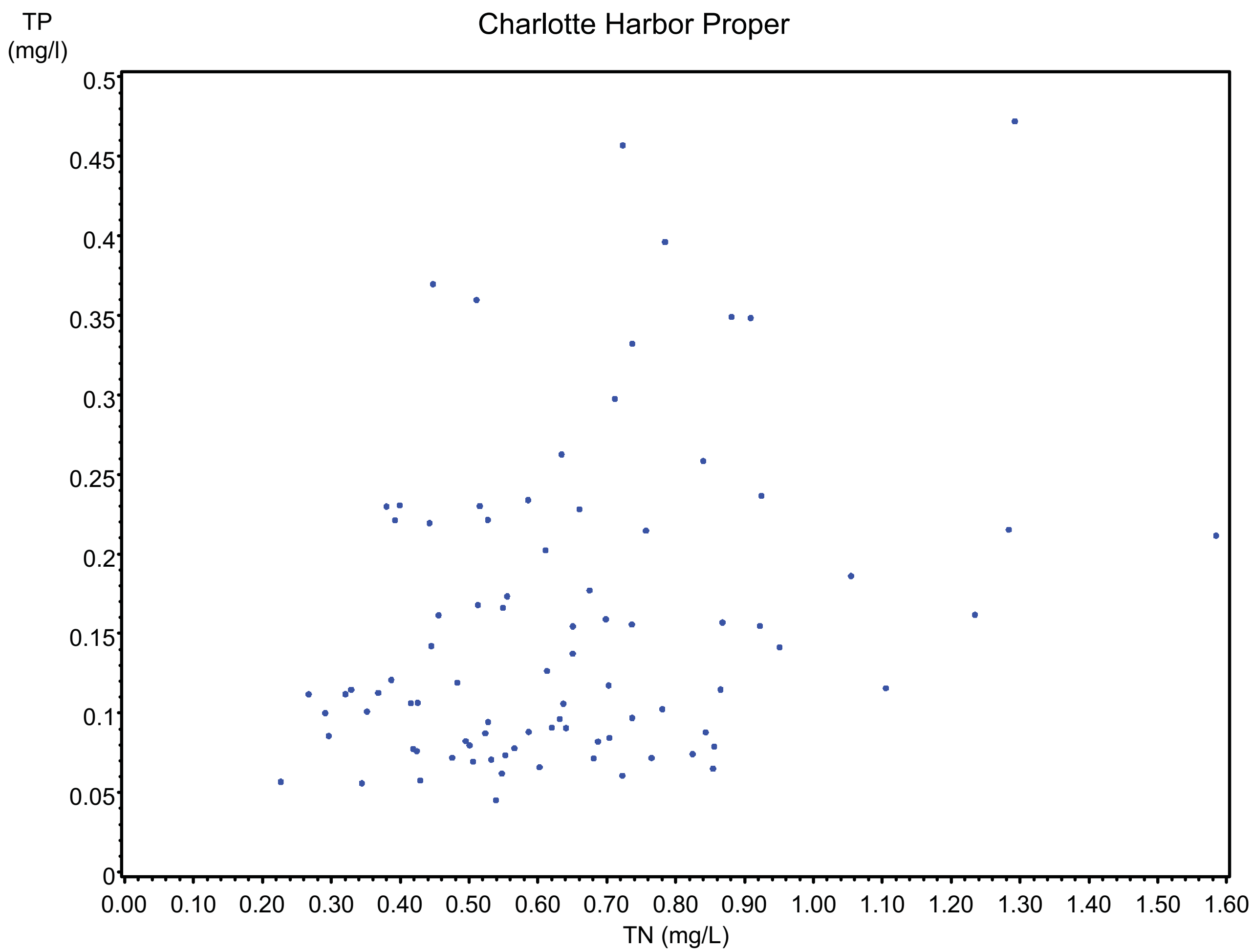
Tidal Myakka
ln TP
(mg/l)
-0.3
-0.5
-0.7
-0.9
-1.1
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
-1.2
-1.1
-1.0
-0.9
-0.8
-0.7
-0.6
-0.5
-0.4
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
ln TN (mg/L)

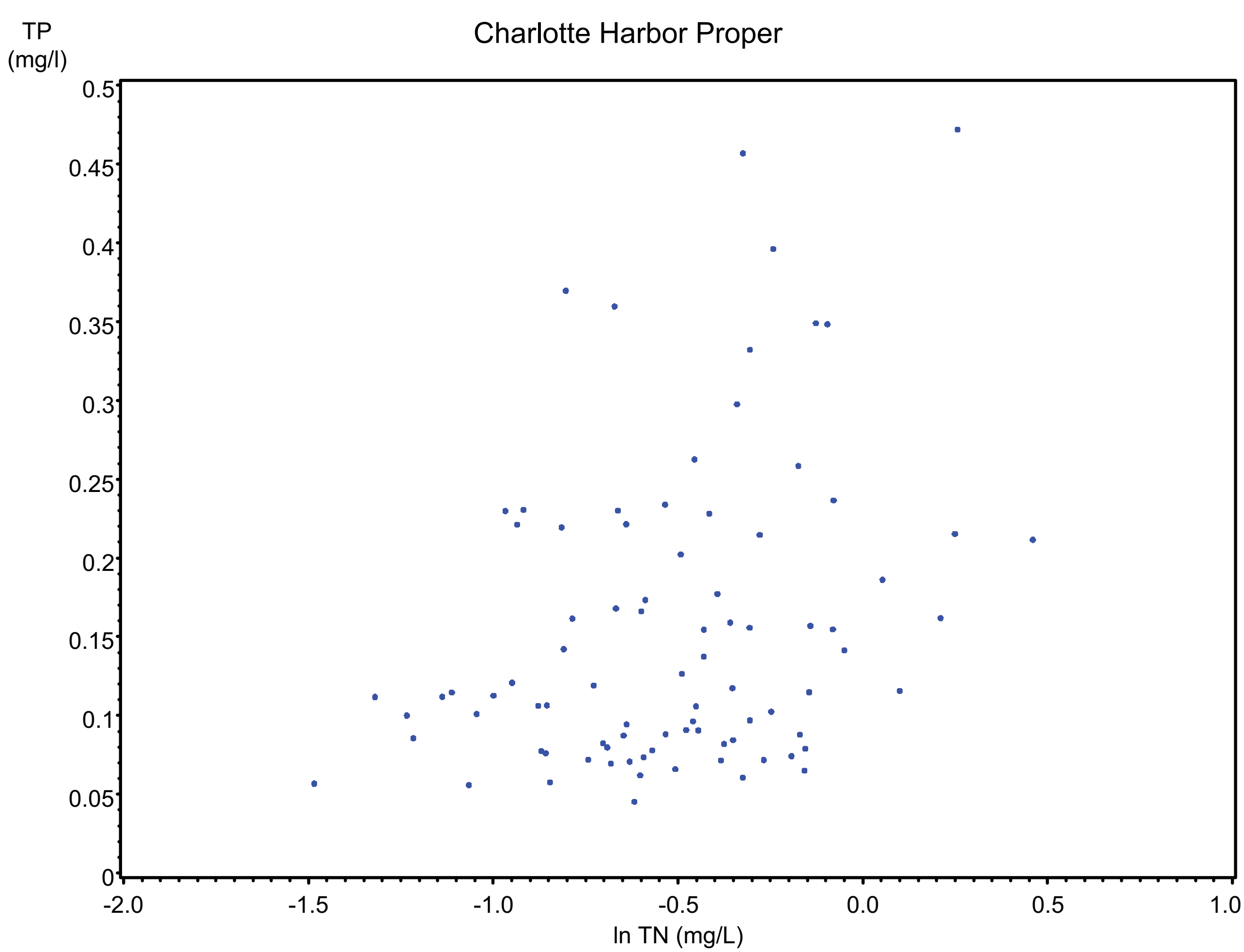

TP (mg/l)
Tidal Peace
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.00 0.30 0.60 0.90 1.20 1.50 1.80 2.10 2.40 2.70 3.00
TN (mg/L)

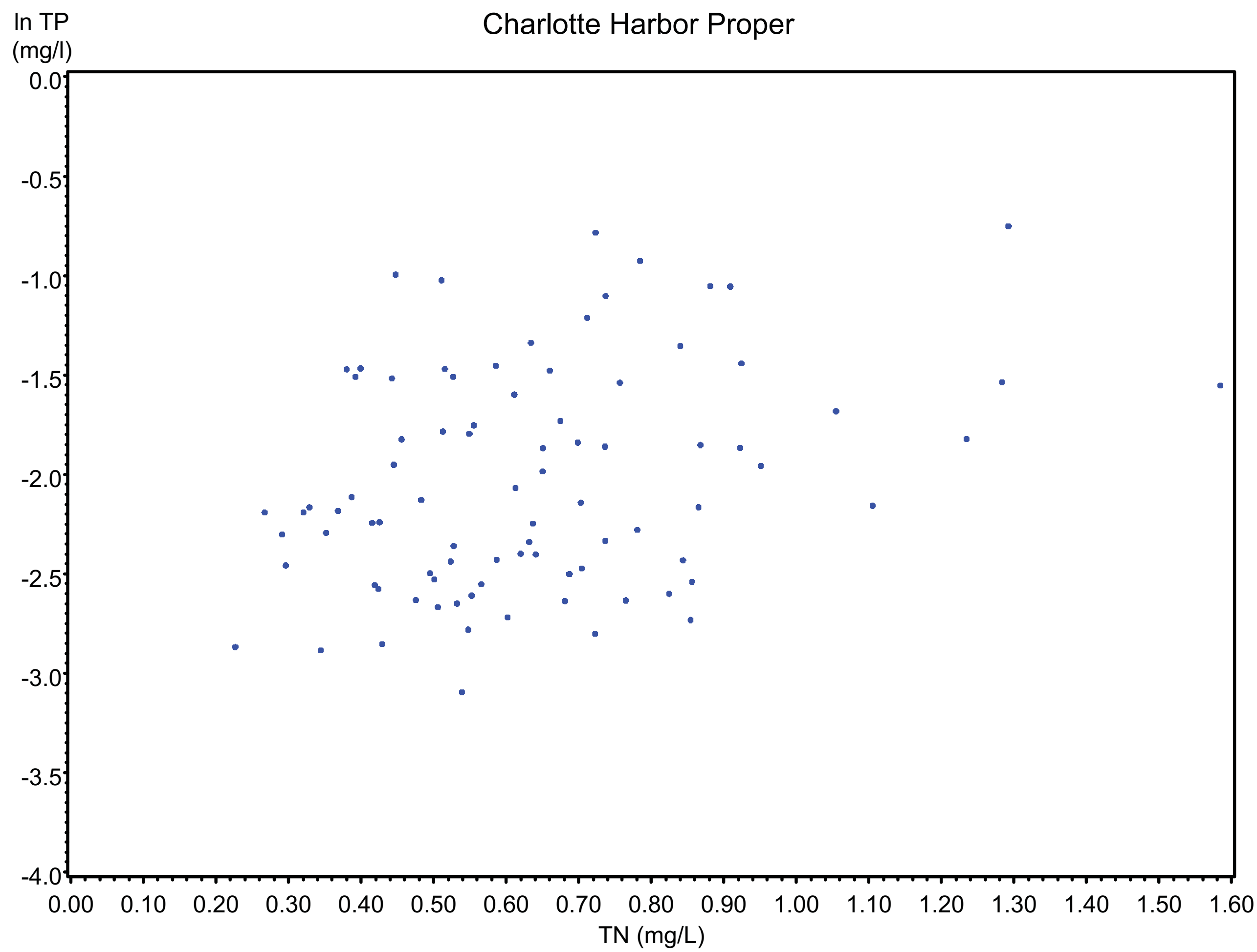

TP (mg/l)
Tidal Peace
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-1.2 -1.1 -1.0 -0.9 -0.8 -0.7 -0.6 -0.5 -0.4 -0.3 -0.2 -0.1 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1
ln TN (mg/L)

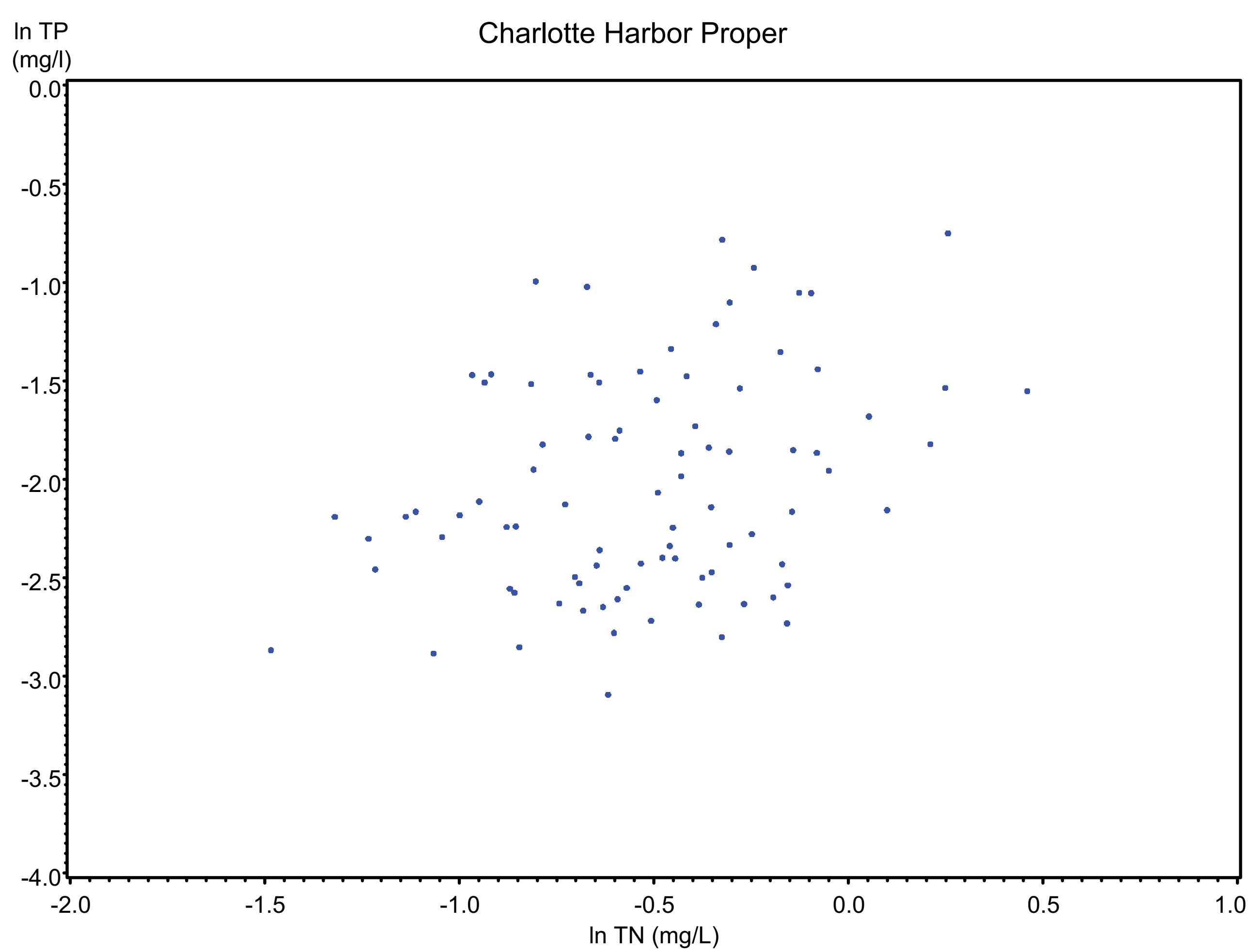

Tidal Peace
ln TP (mg/l)
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
0.00 0.30 0.60 0.90 1.20 1.50 1.80 2.10 2.40 2.70 3.00
TN (mg/L)

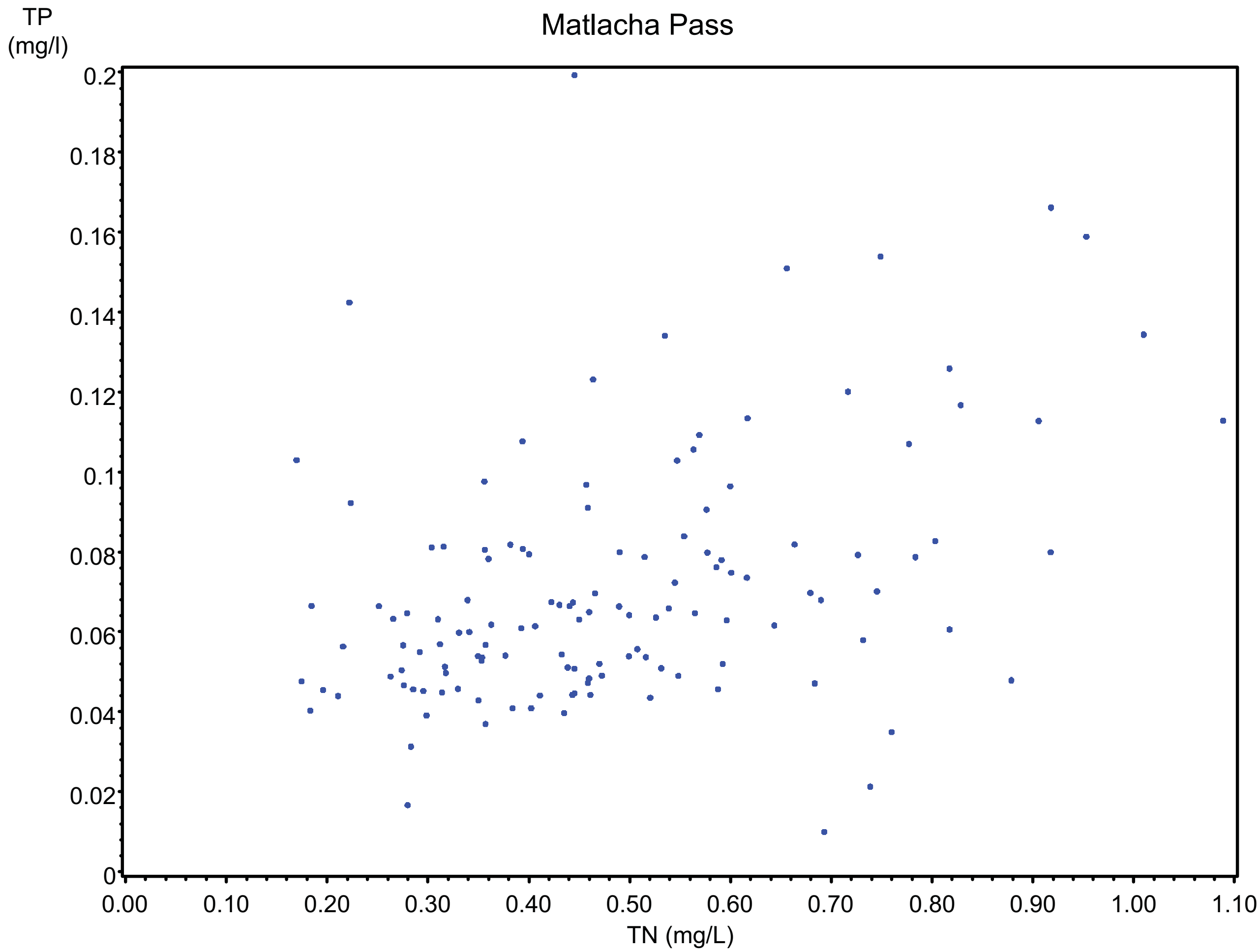

Tidal Peace
ln TP (mg/l)
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
-1.2 -1.1 -1.0 -0.9 -0.8 -0.7 -0.6 -0.5 -0.4 -0.3 -0.2 -0.1 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1
ln TN (mg/L)


Charlotte Harbor Proper
TP (mg/l)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60
TN (mg/L)

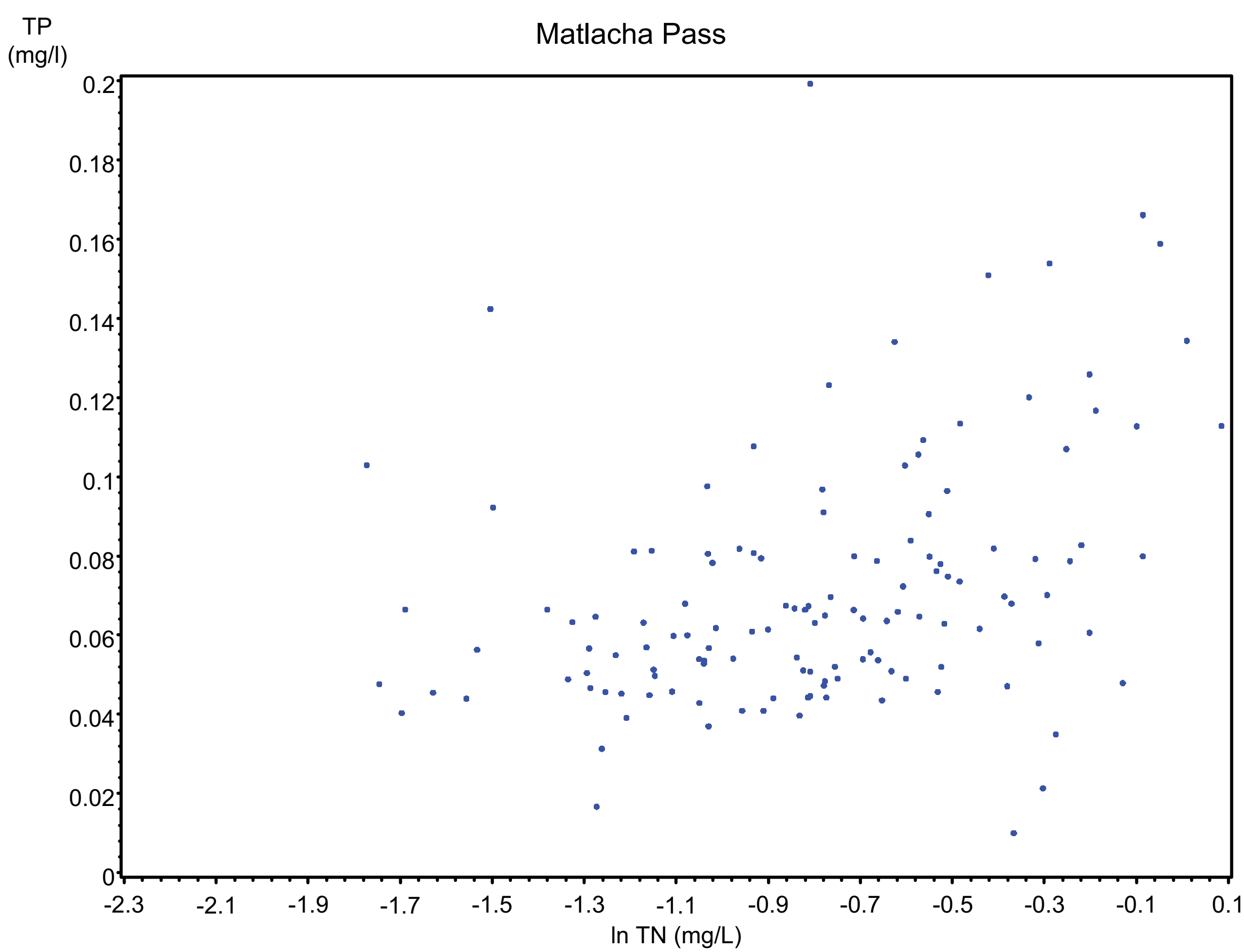

Charlotte Harbor Proper
TP (mg/l)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5
-2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0
ln TN (mg/L)


Charlotte Harbor Proper
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
1.20
1.30
1.40
1.50
1.60
TN (mg/L)

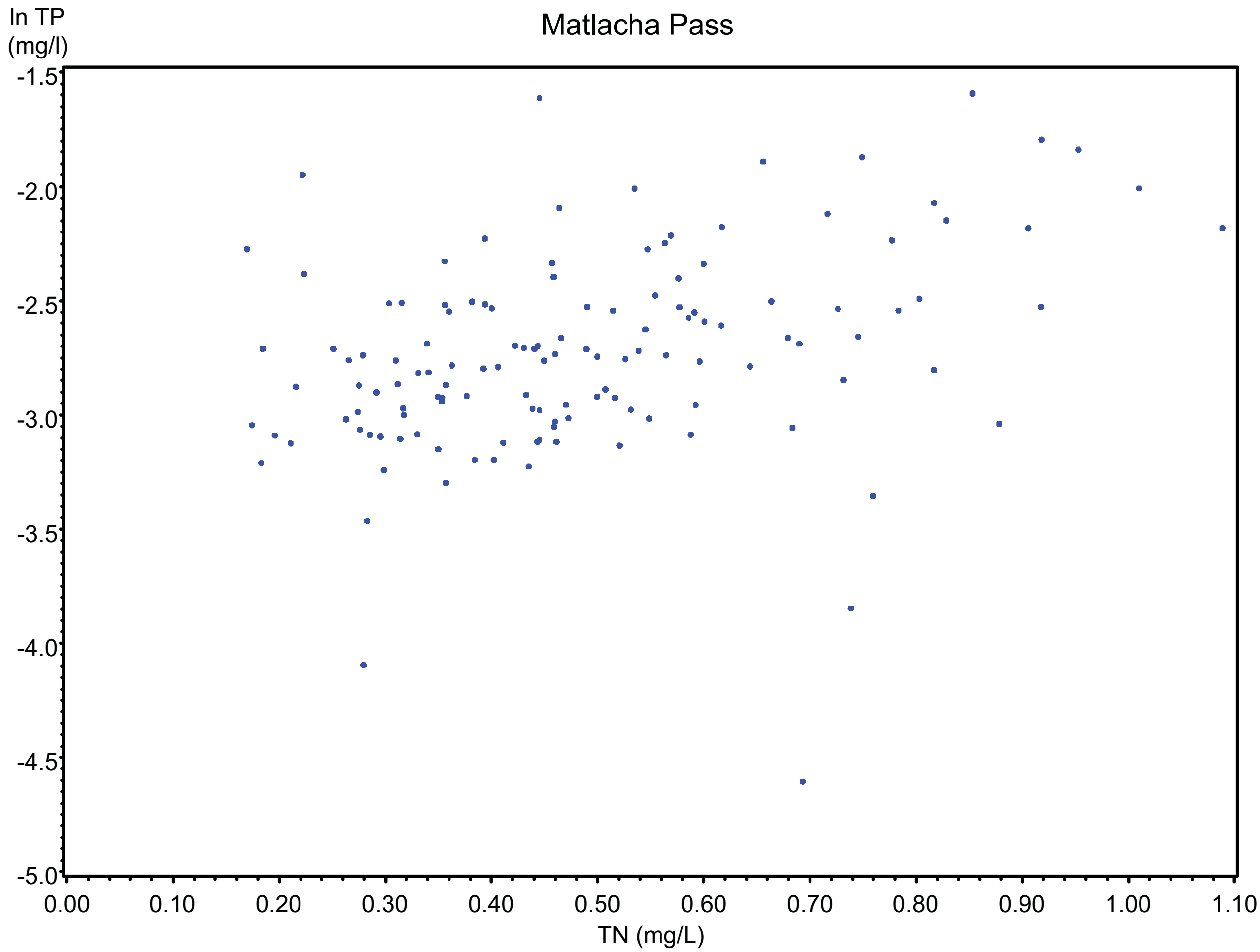

Charlotte Harbor Proper
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)

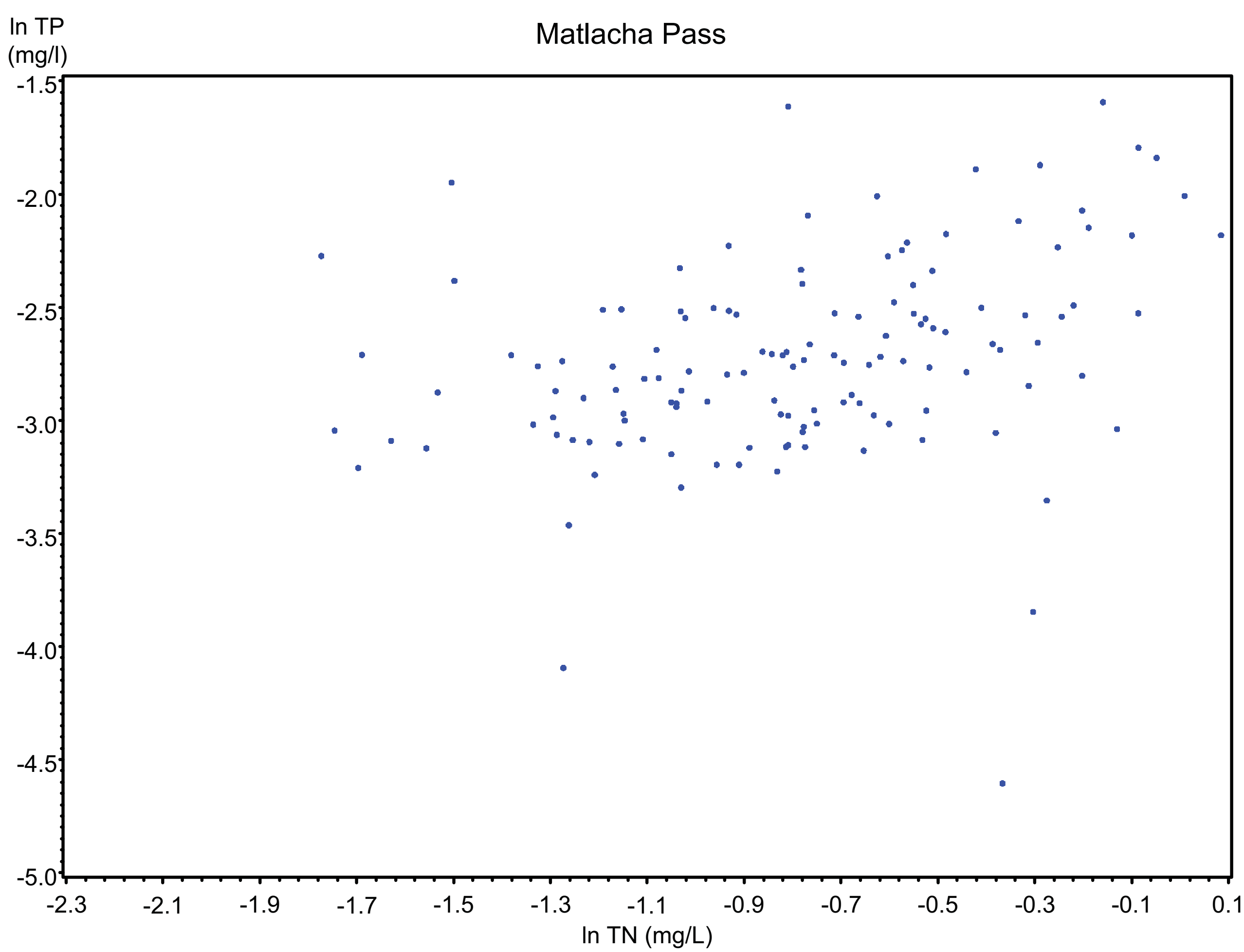


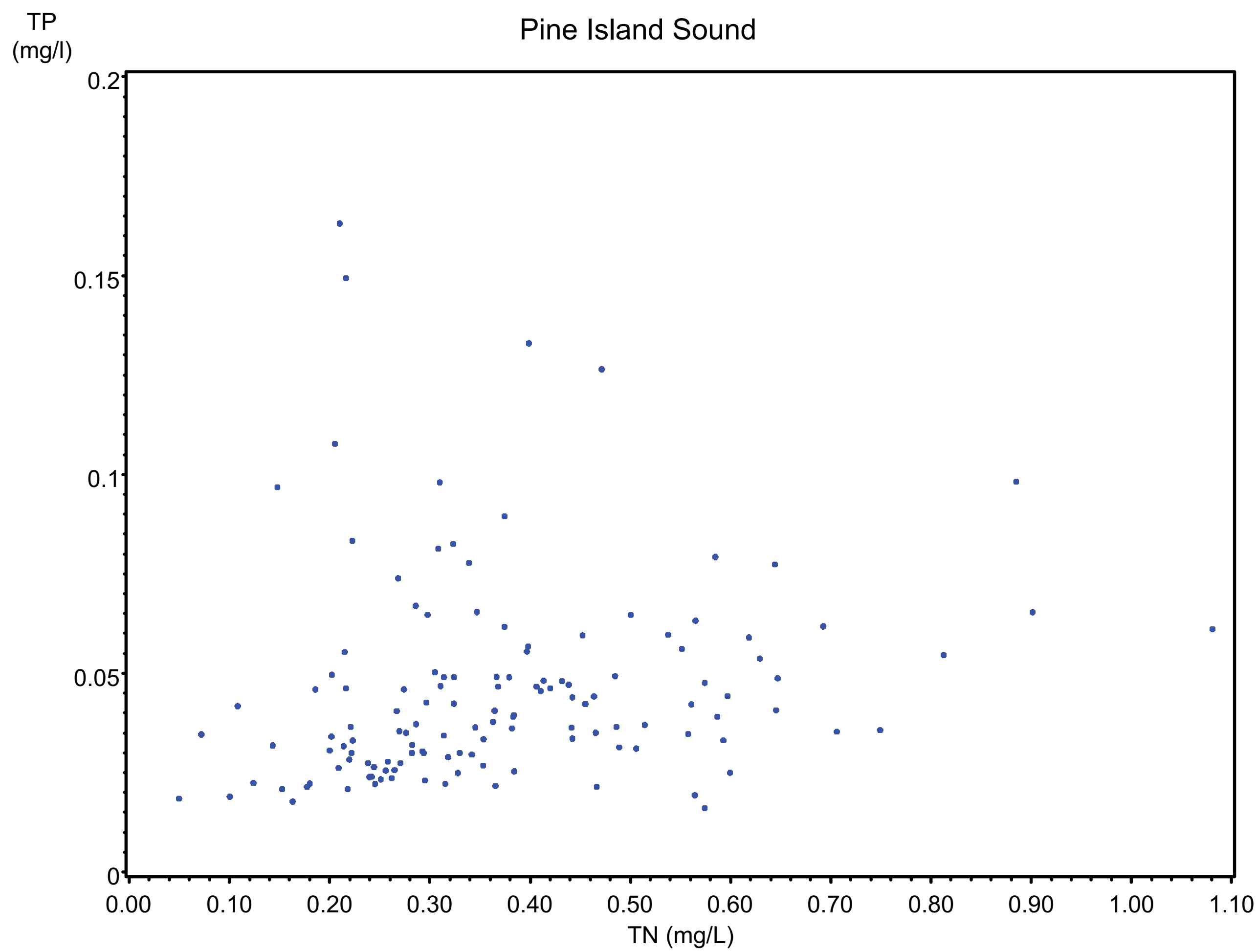
Matlacha Pass
TP
(mg/l)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10
TN (mg/L)

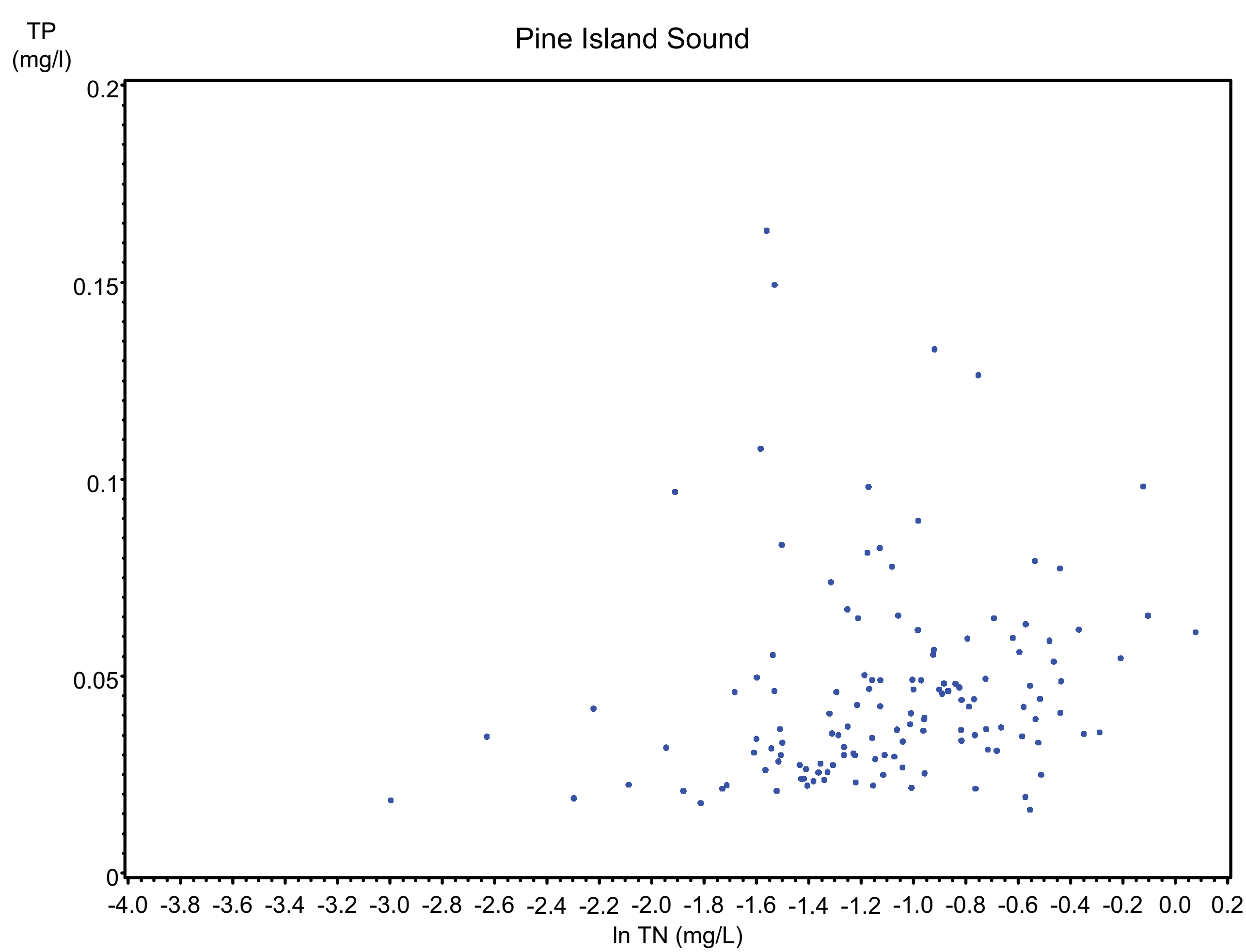


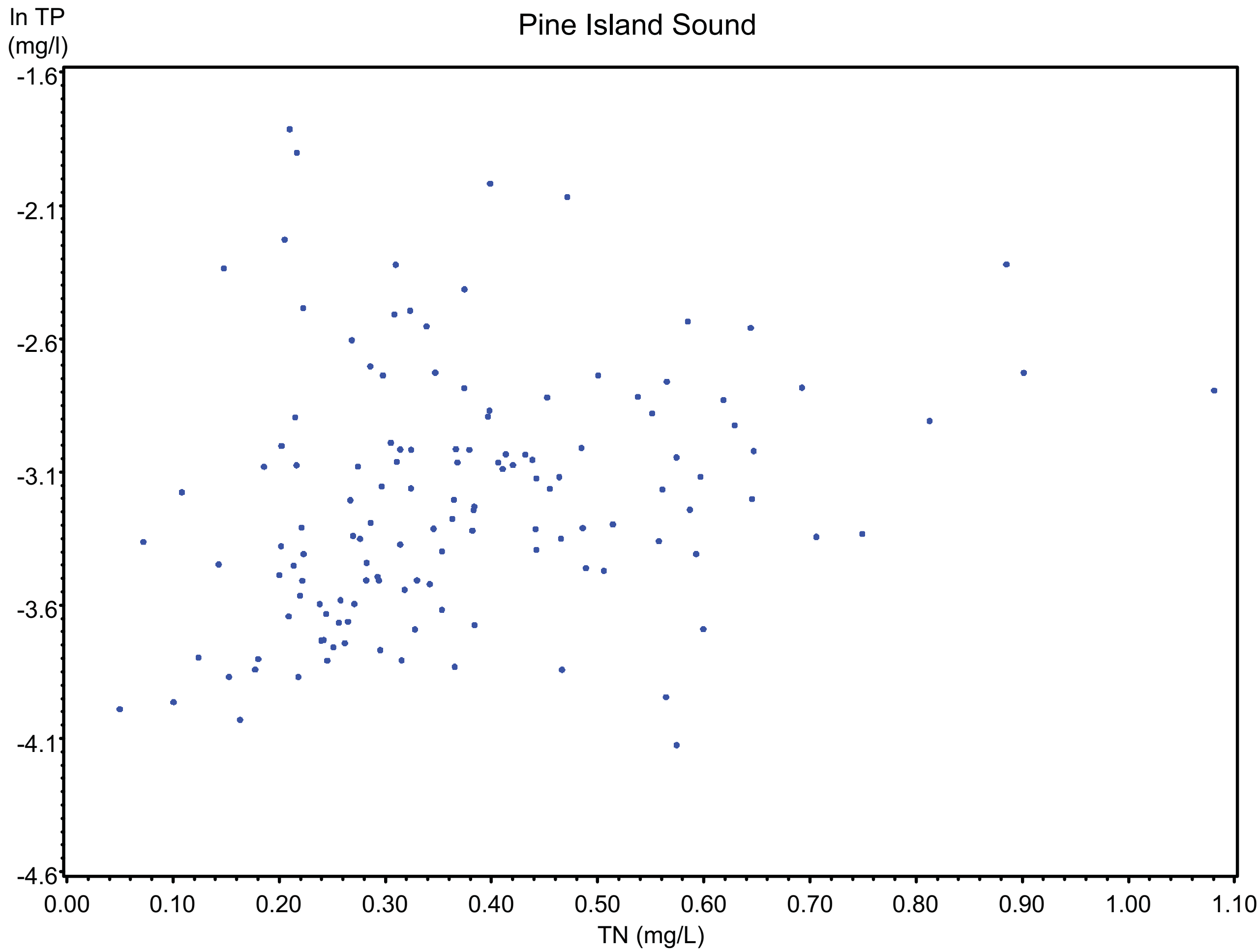
Matlacha Pass
TP
(mg/l)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
-2.3 -2.1 -1.9 -1.7 -1.5 -1.3 -1.1 -0.9 -0.7 -0.5 -0.3 -0.1 0.1
ln TN (mg/L)

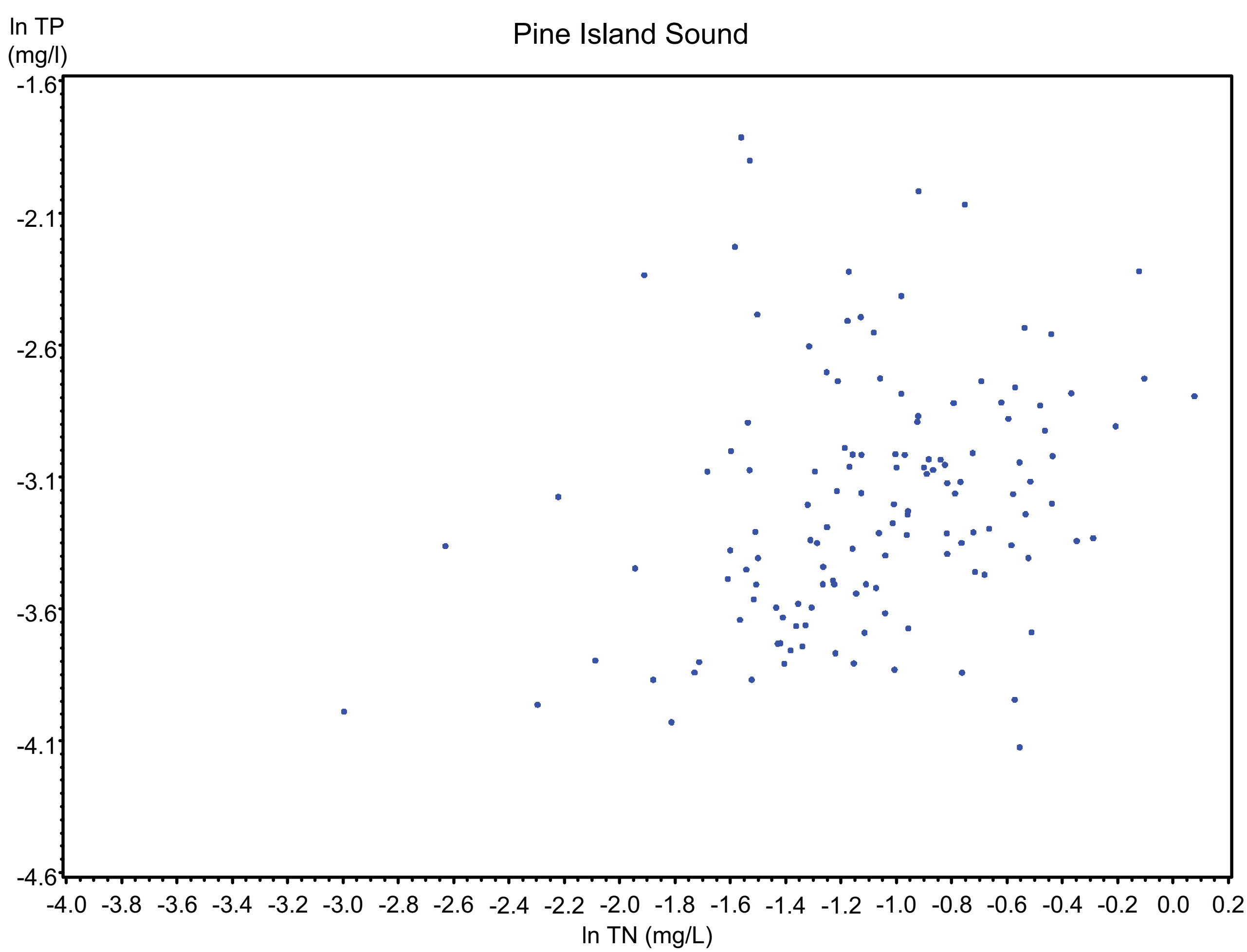

Matlacha Pass
ln TP
(mg/l)
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
TN (mg/L)

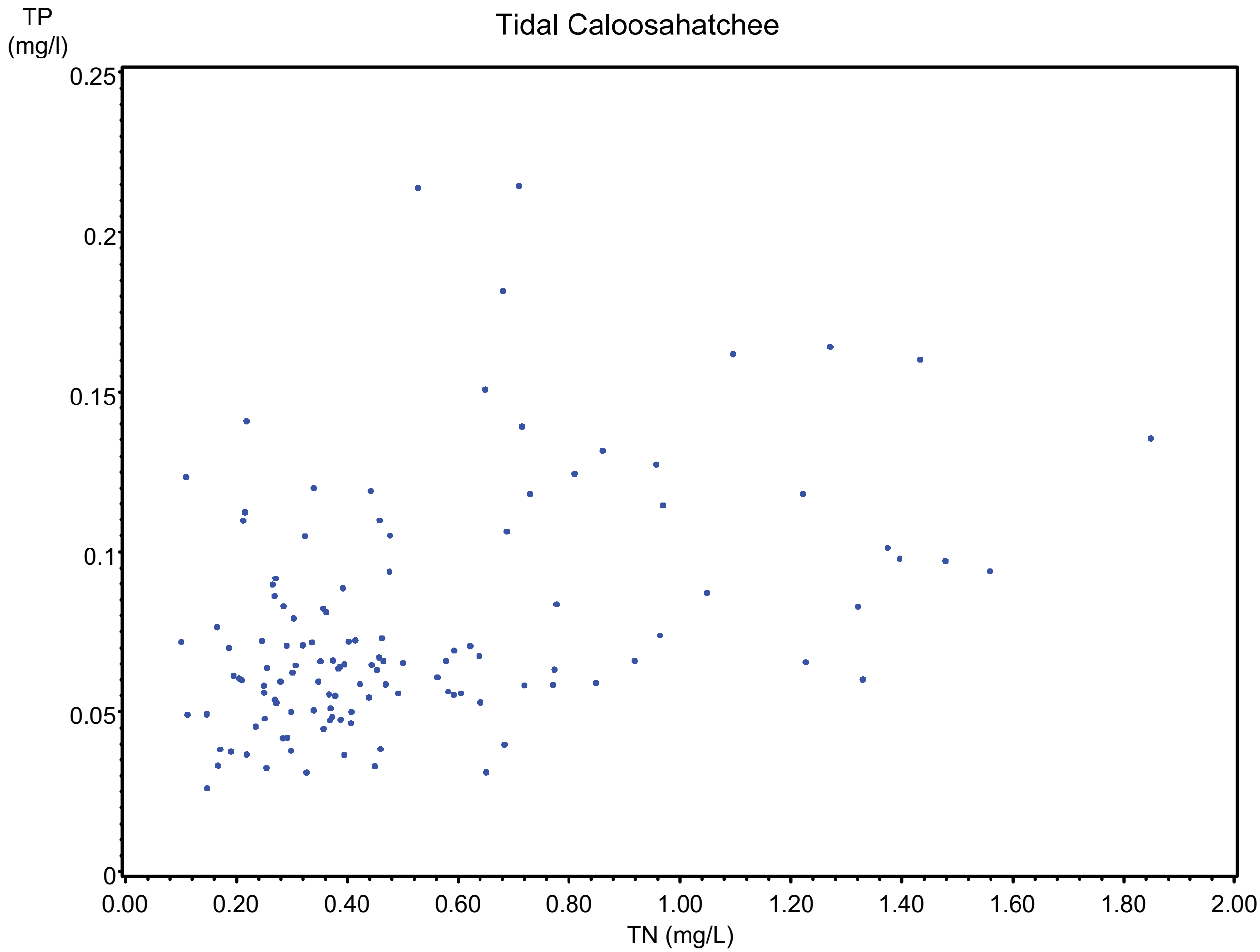

Matlacha Pass
ln TP
(mg/l)
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-2.3
-2.1
-1.9
-1.7
-1.5
-1.3
-1.1
-0.9
-0.7
-0.5
-0.3
-0.1
0.1
ln TN (mg/L)

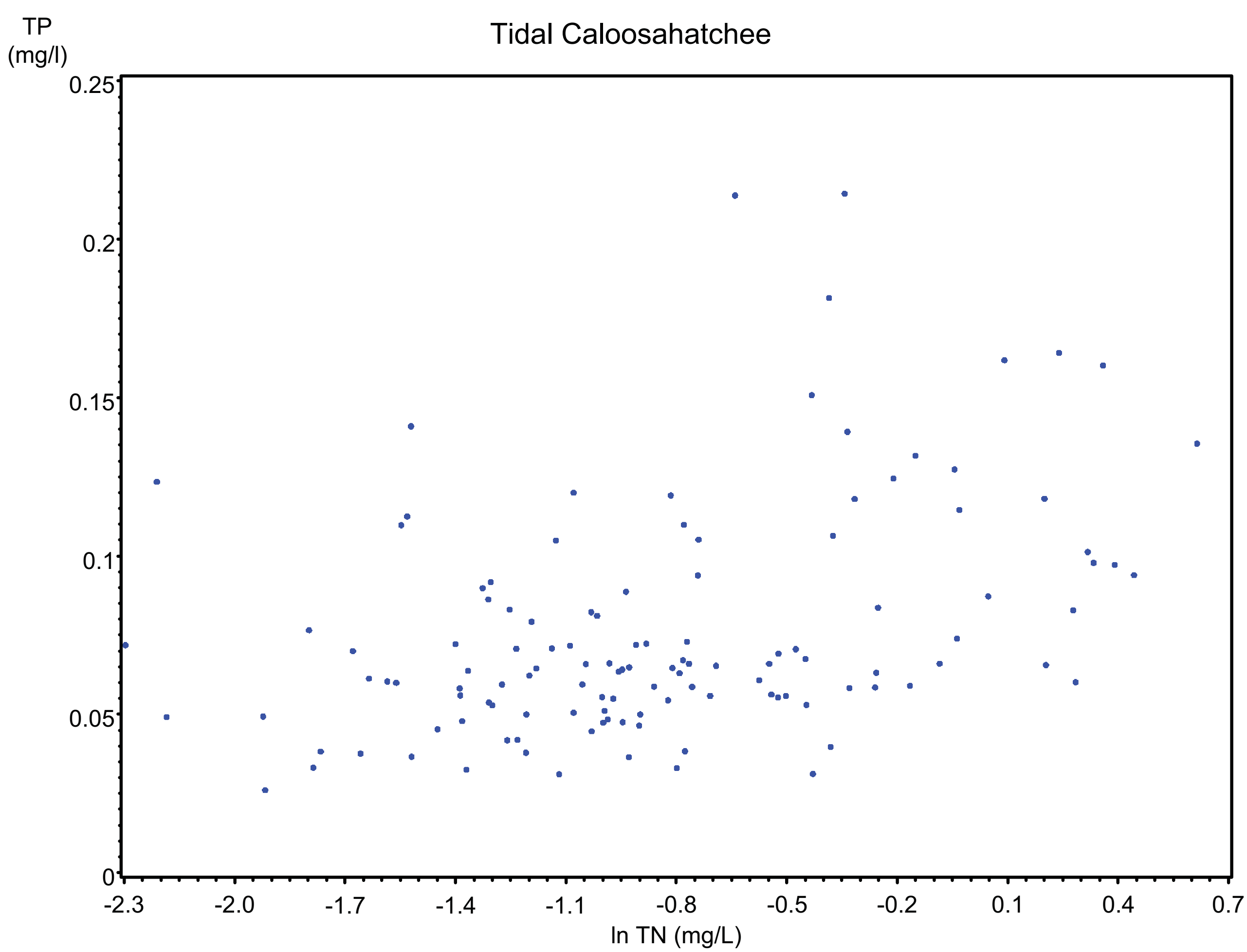

Pine Island Sound
TP (mg/l)
0.2
0.15
0.1
0.05
0
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10
TN (mg/L)

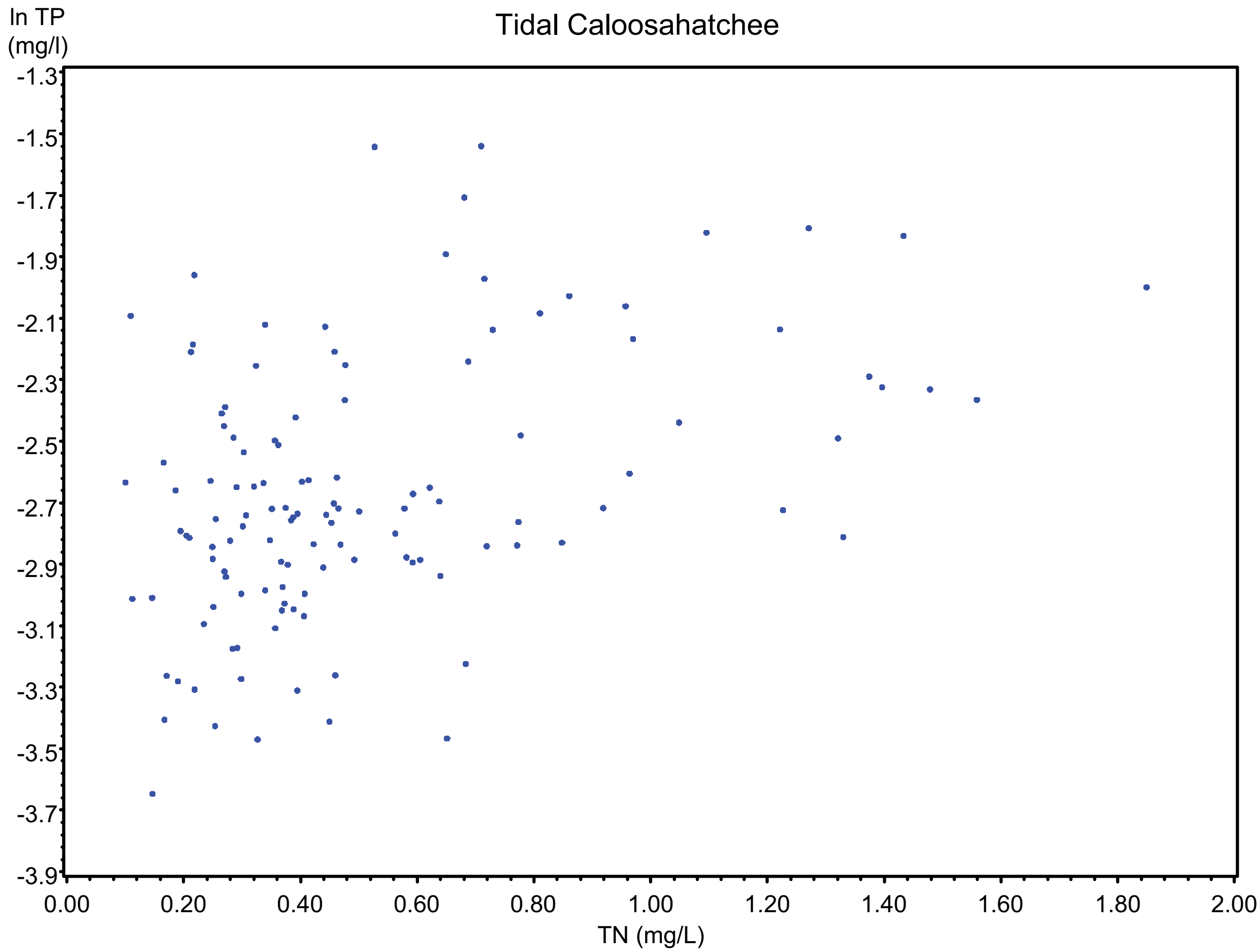

Pine Island Sound
TP (mg/l)
0.2
0.15
0.1
0.05
0
-4.0 -3.8 -3.6 -3.4 -3.2 -3.0 -2.8 -2.6 -2.4 -2.2 -2.0 -1.8 -1.6 -1.4 -1.2 -1.0 -0.8 -0.6 -0.4 -0.2 0.0 0.2
ln TN (mg/L)

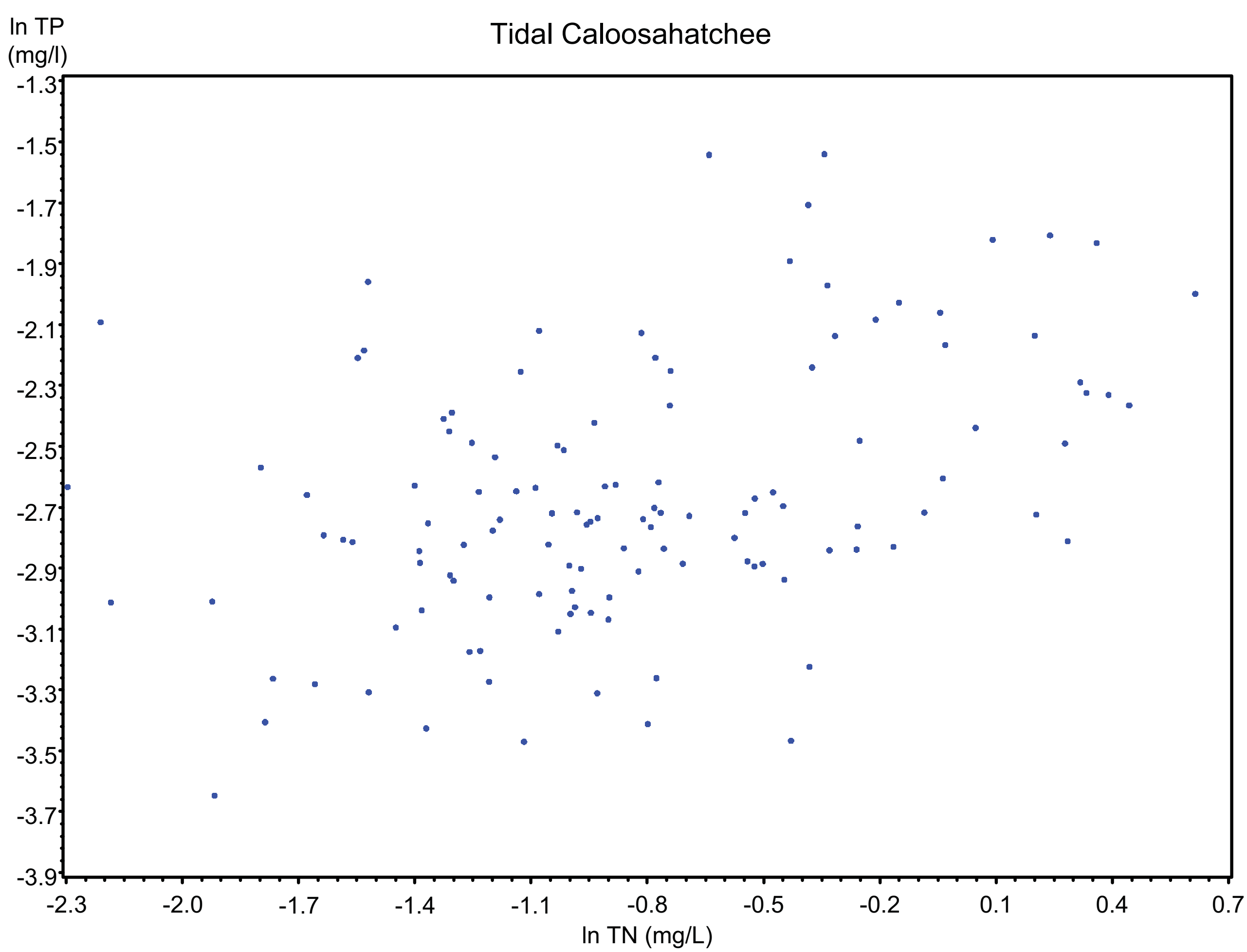

Pine Island Sound
ln TP
(mg/l)
-1.6
-2.1
-2.6
-3.1
-3.6
-4.1
-4.6
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
0.80
0.90
1.00
1.10
TN (mg/L)

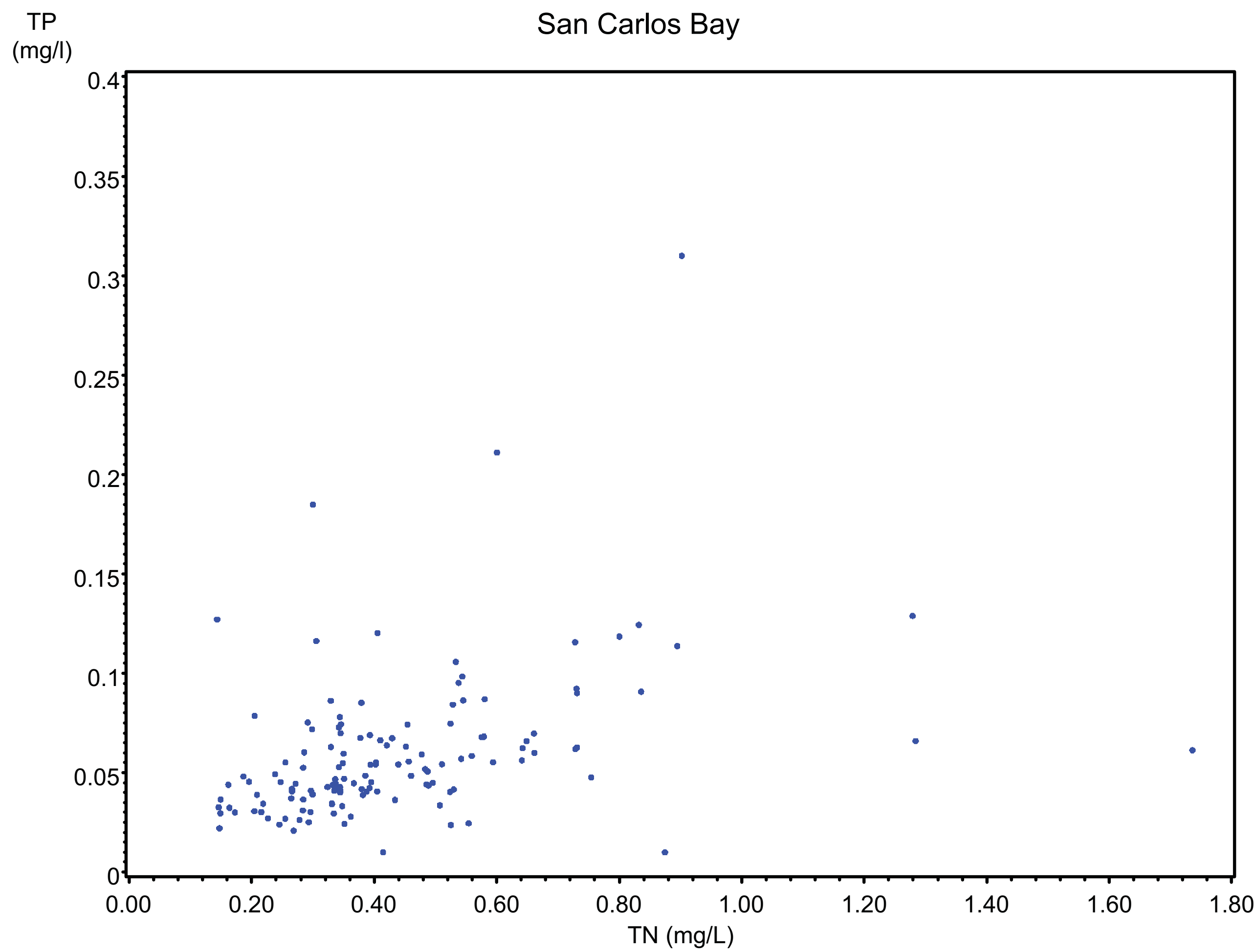

Pine Island Sound
ln TP
(mg/l)
-1.6
-2.1
-2.6
-3.1
-3.6
-4.1
-4.6
-4.0
-3.8
-3.6
-3.4
-3.2
-3.0
-2.8
-2.6
-2.4
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln TN (mg/L)

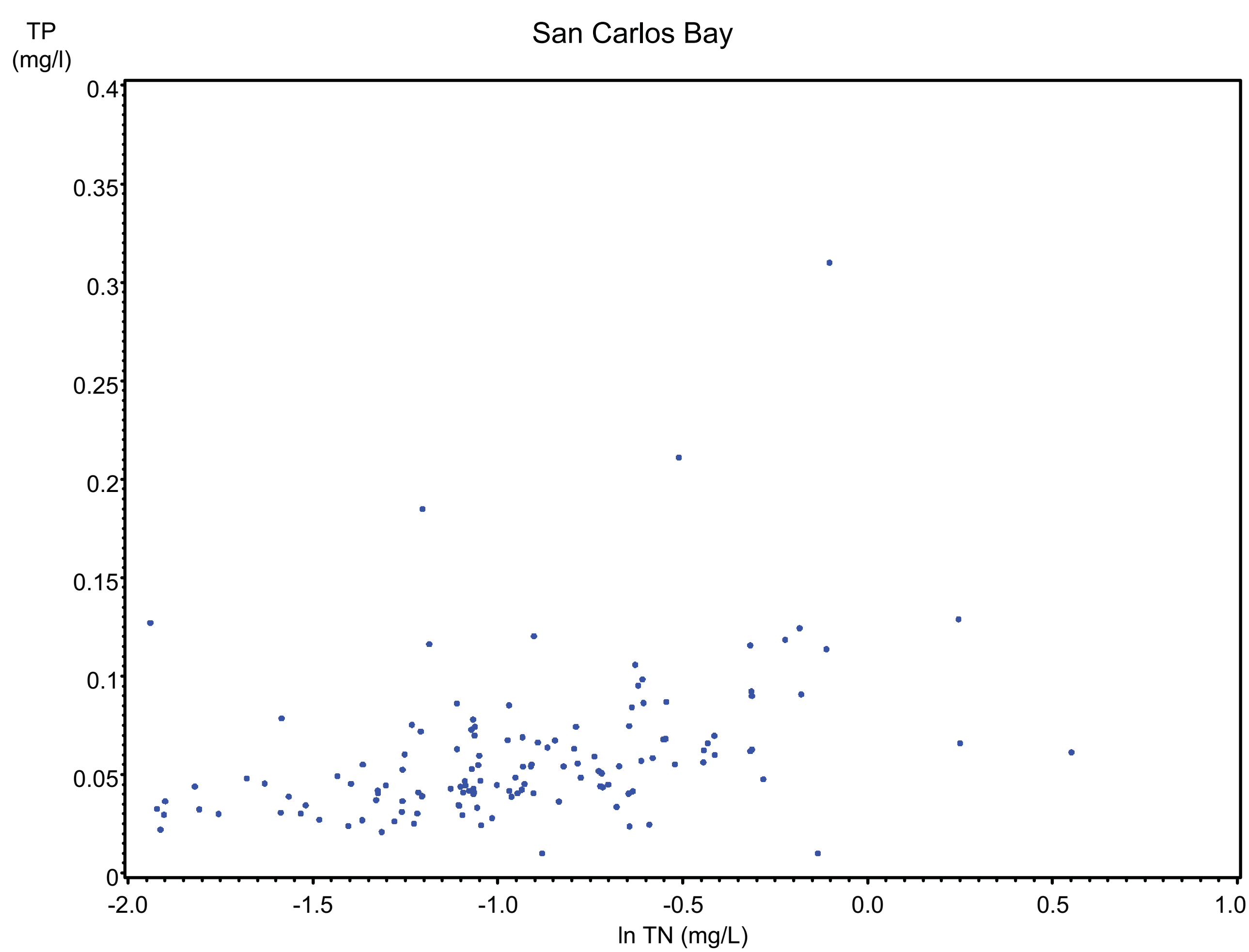

TP
(mg/l)
Tidal Caloosahatchee
0.25
0.2
0.15
0.1
0.05
0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
TN (mg/L)

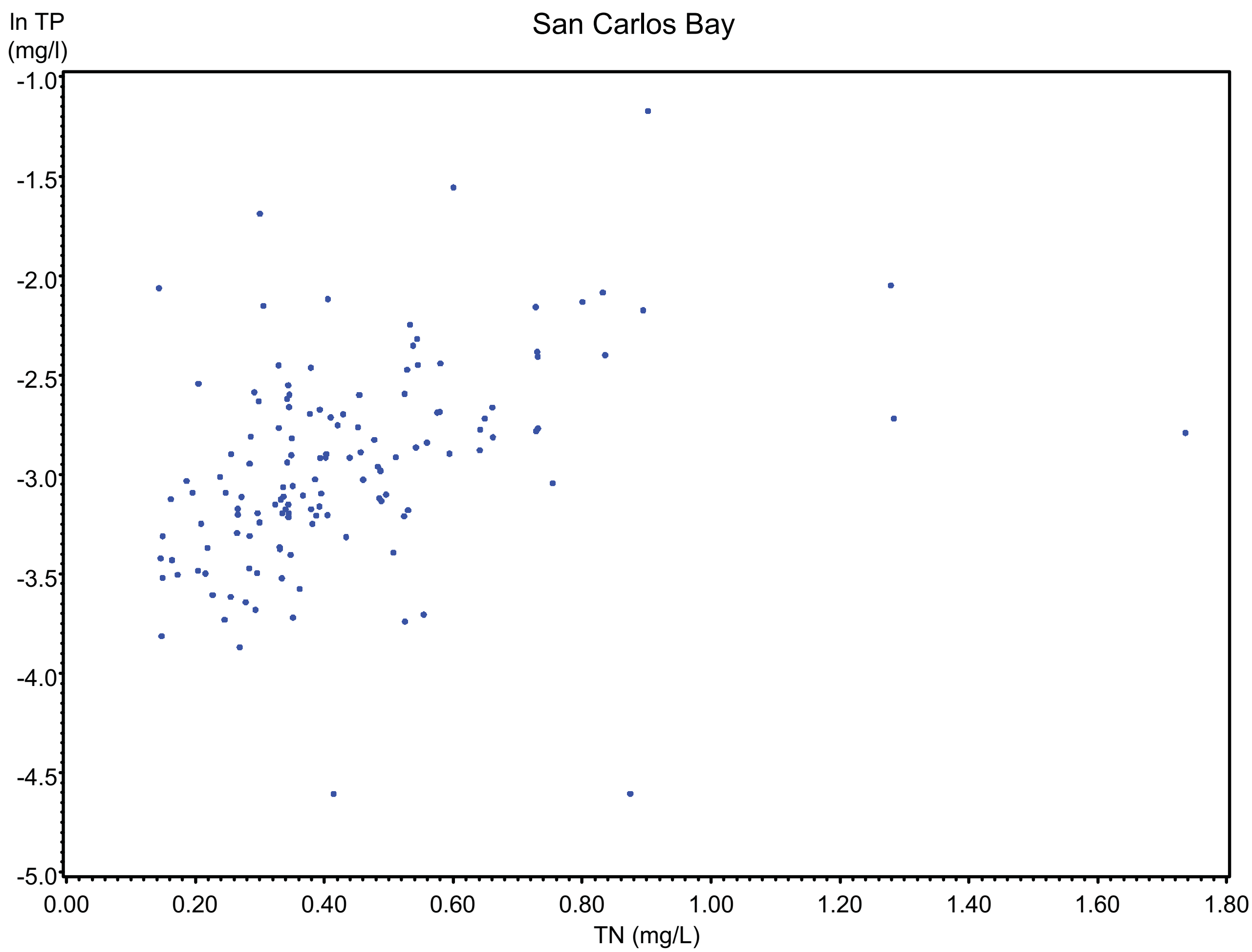

TP
(mg/l)
Tidal Caloosahatchee
0.25
0.2
0.15
0.1
0.05
0
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
-0.2
0.1
0.4
0.7
ln TN (mg/L)

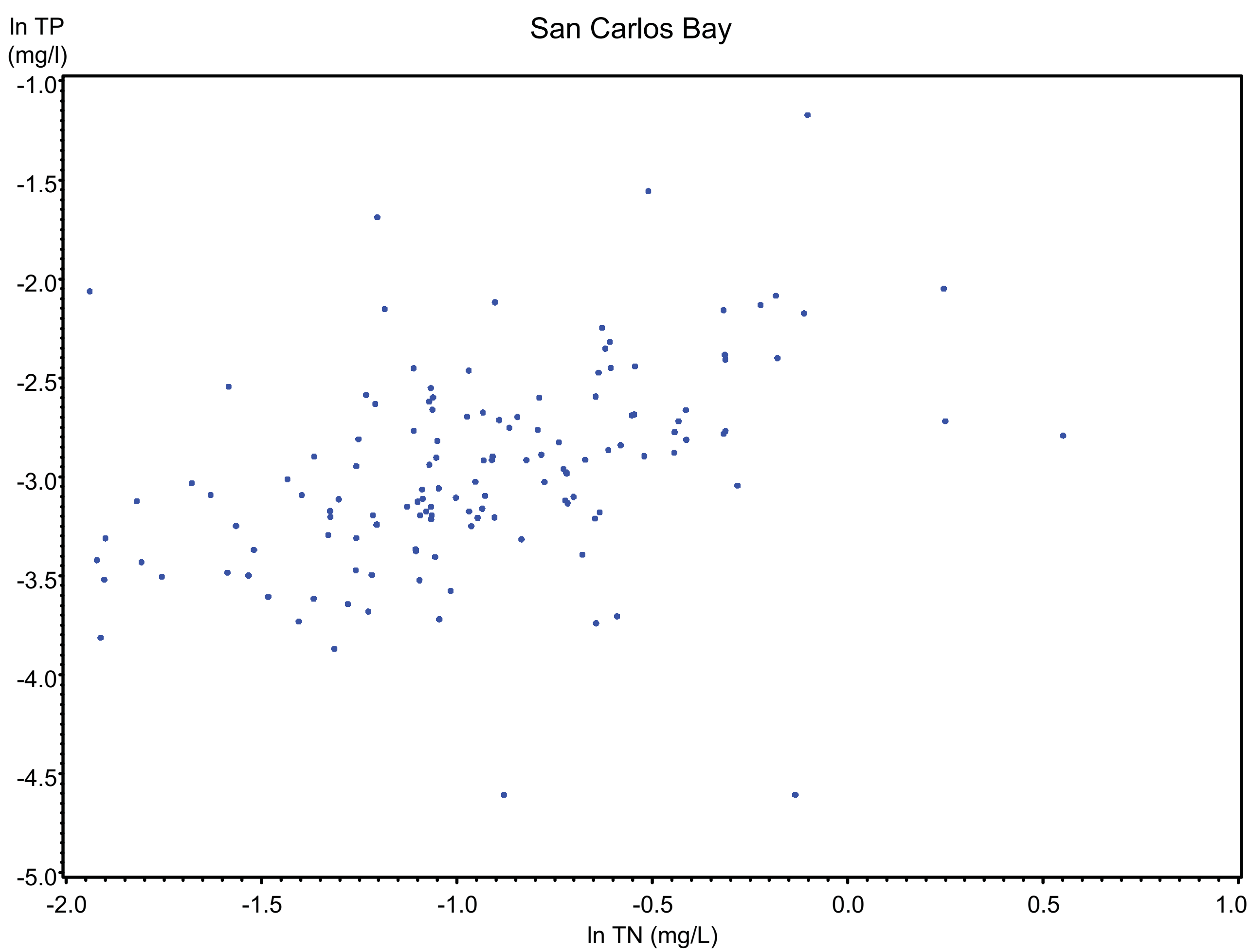

Tidal Caloosahatchee
ln TP (mg/l)
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
-2.5
-2.7
-2.9
-3.1
-3.3
-3.5
-3.7
-3.9
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
TN (mg/L)

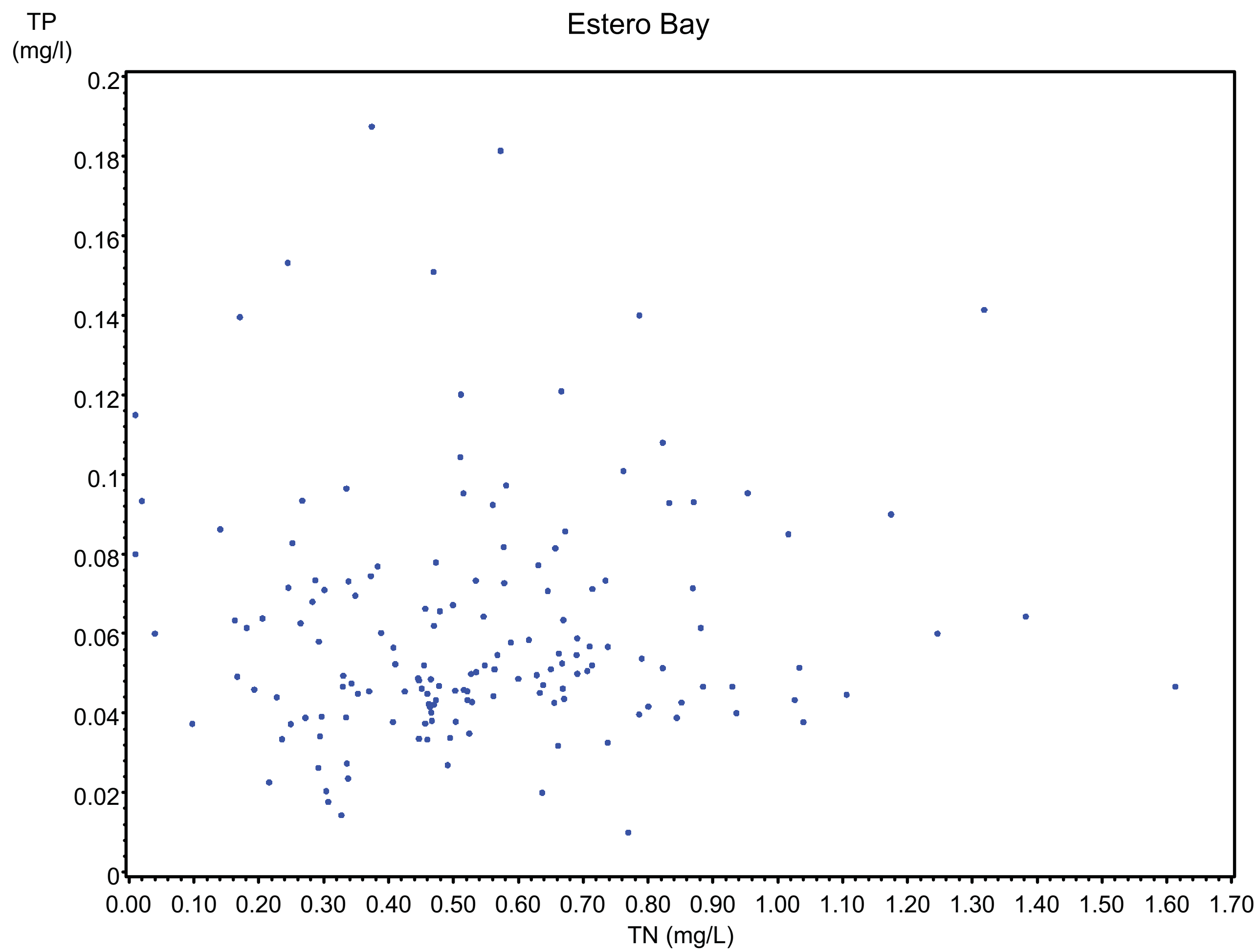

Tidal Caloosahatchee
ln TP (mg/l)
-1.3
-1.5
-1.7
-1.9
-2.1
-2.3
-2.5
-2.7
-2.9
-3.1
-3.3
-3.5
-3.7
-3.9
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
-0.2
0.1
0.4
0.7
ln TN (mg/L)

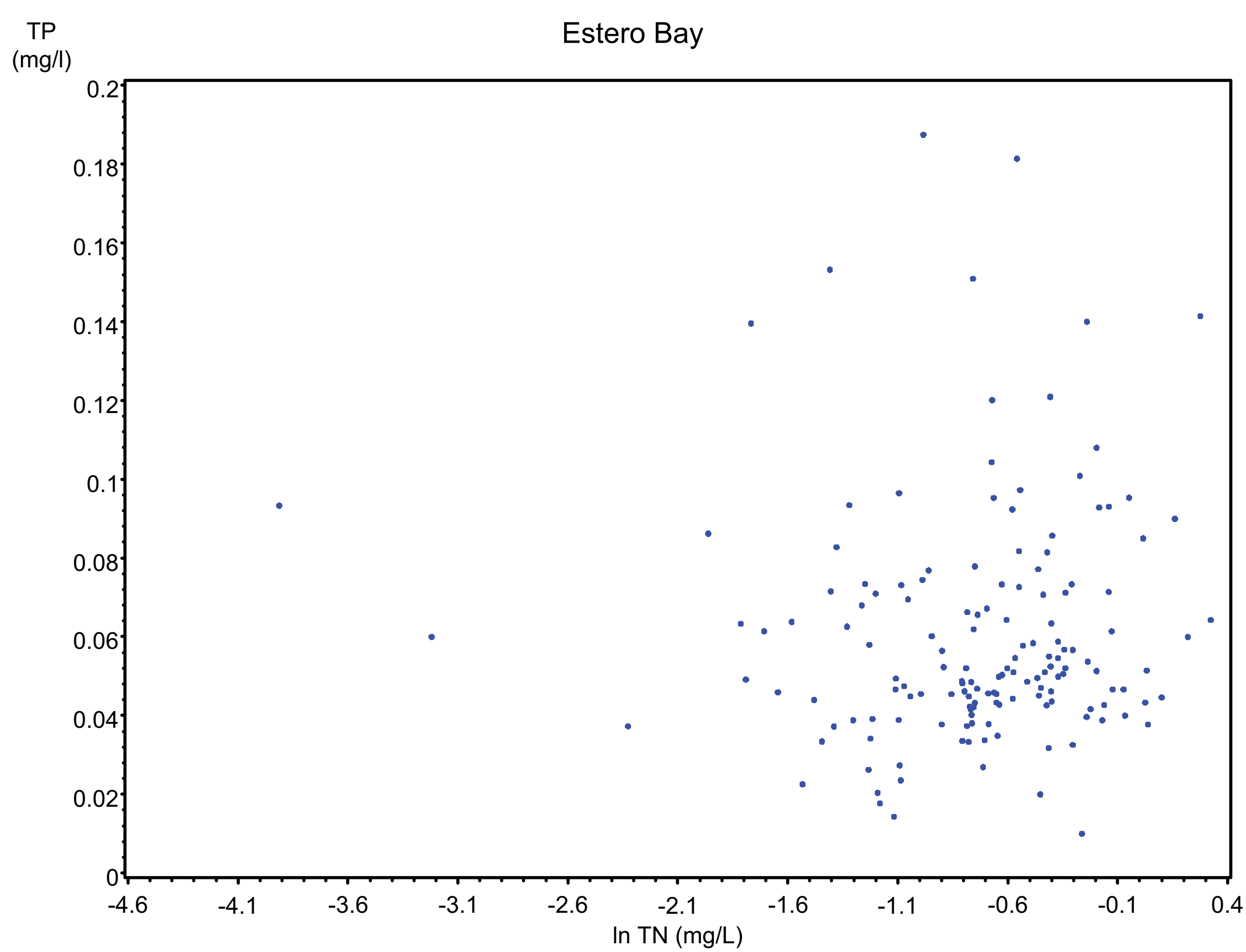

San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
TN (mg/L)

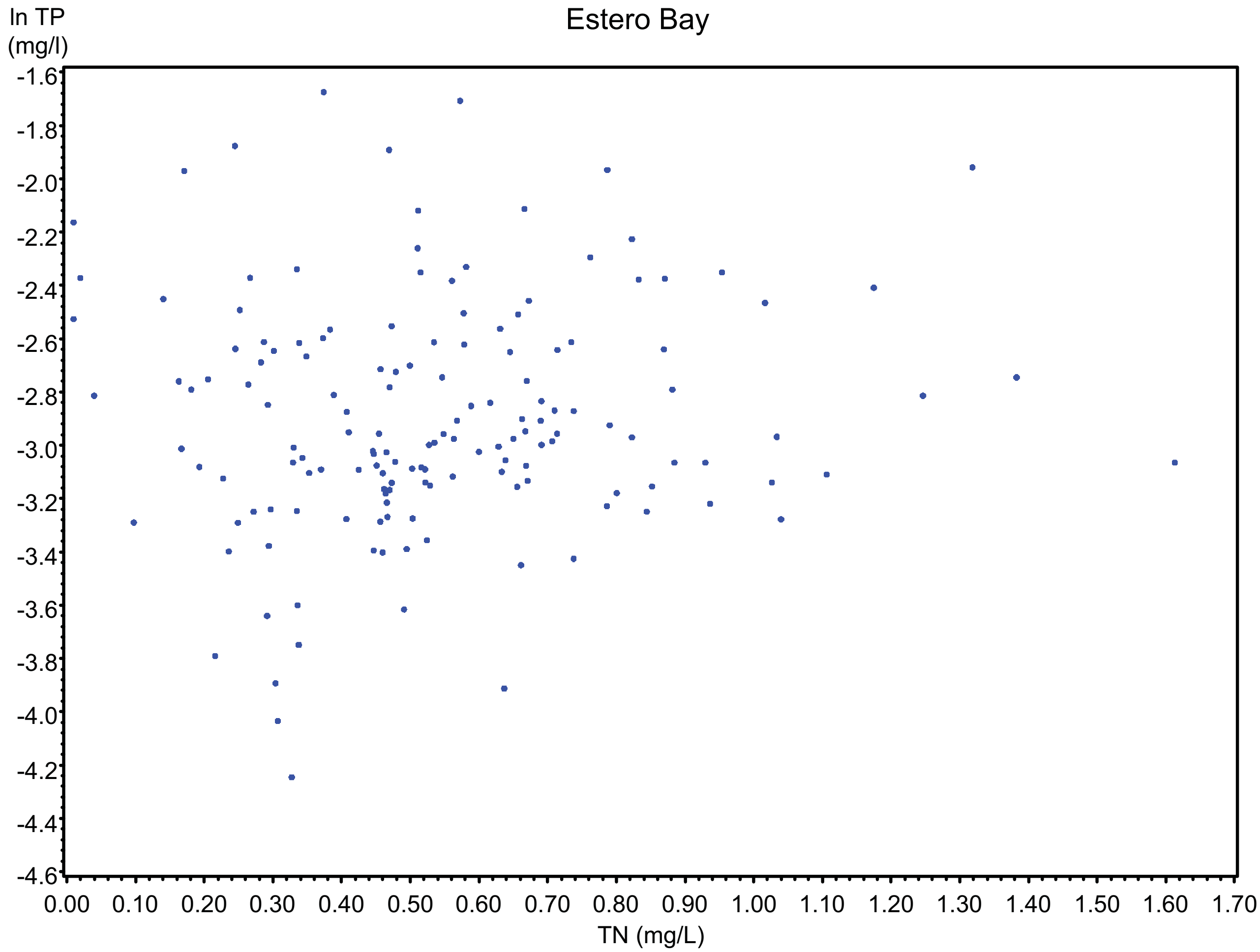

San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)

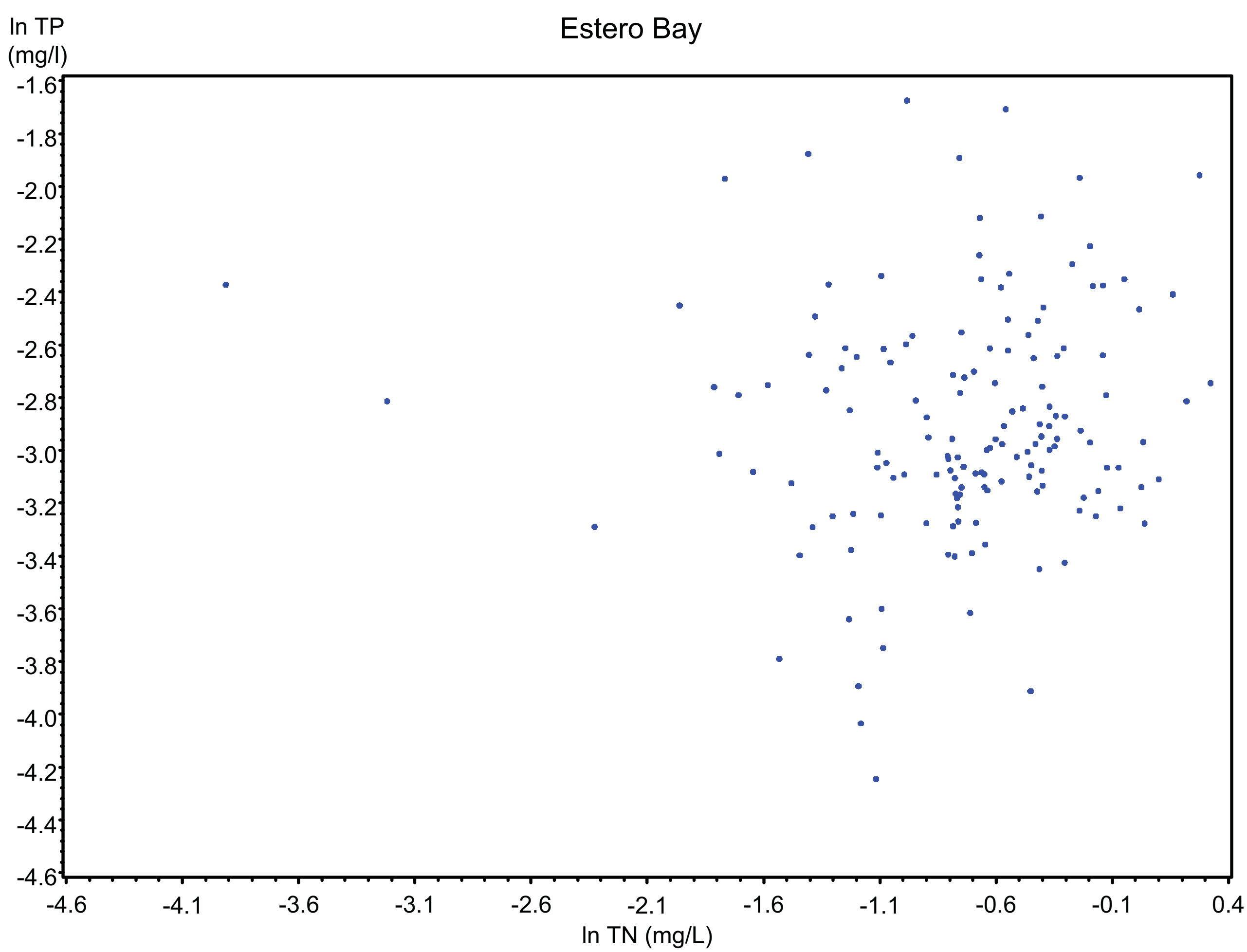

San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
TN (mg/L)


San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
ln TN (mg/L)

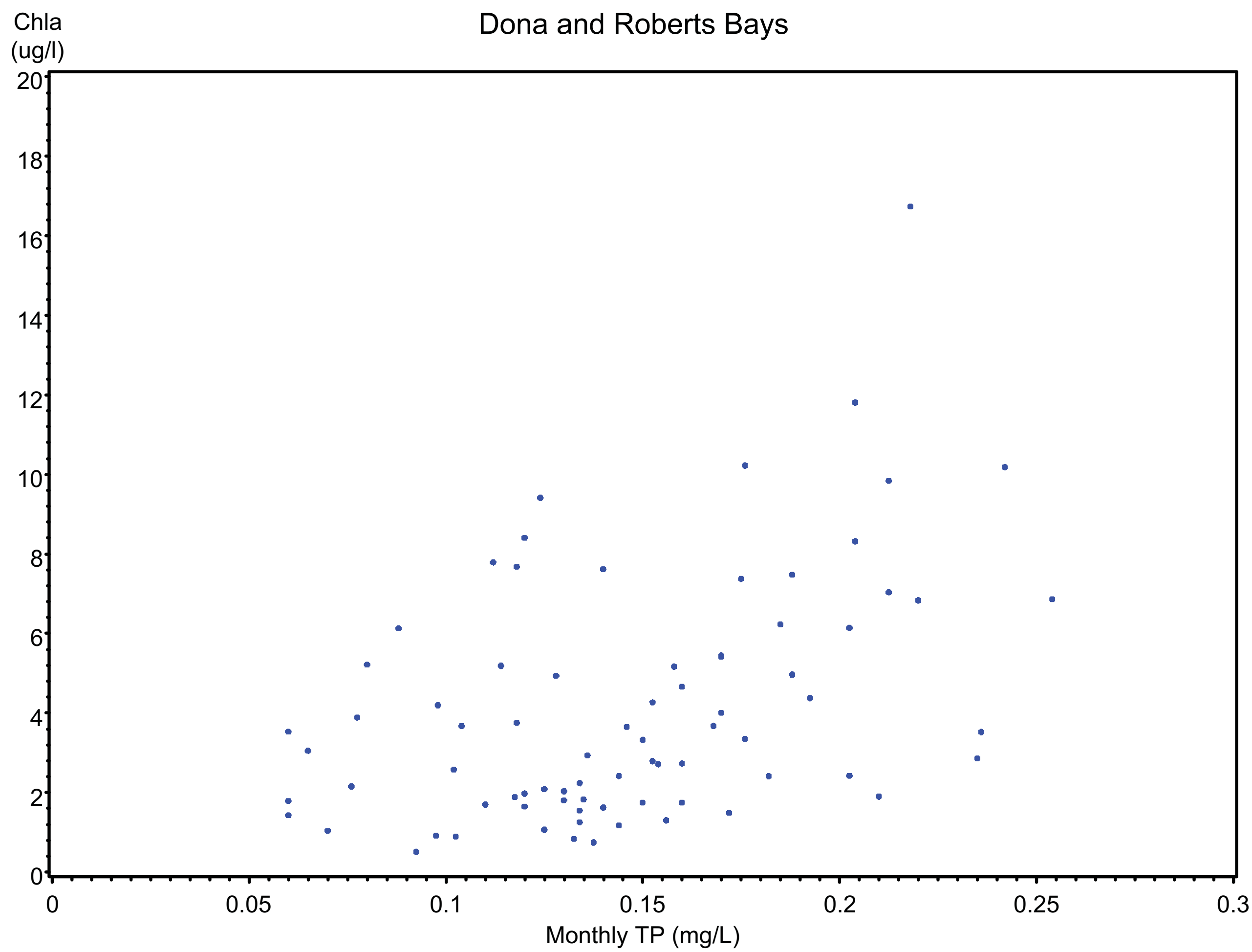

Estero Bay
TP
(mg/l)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70
TN (mg/L)

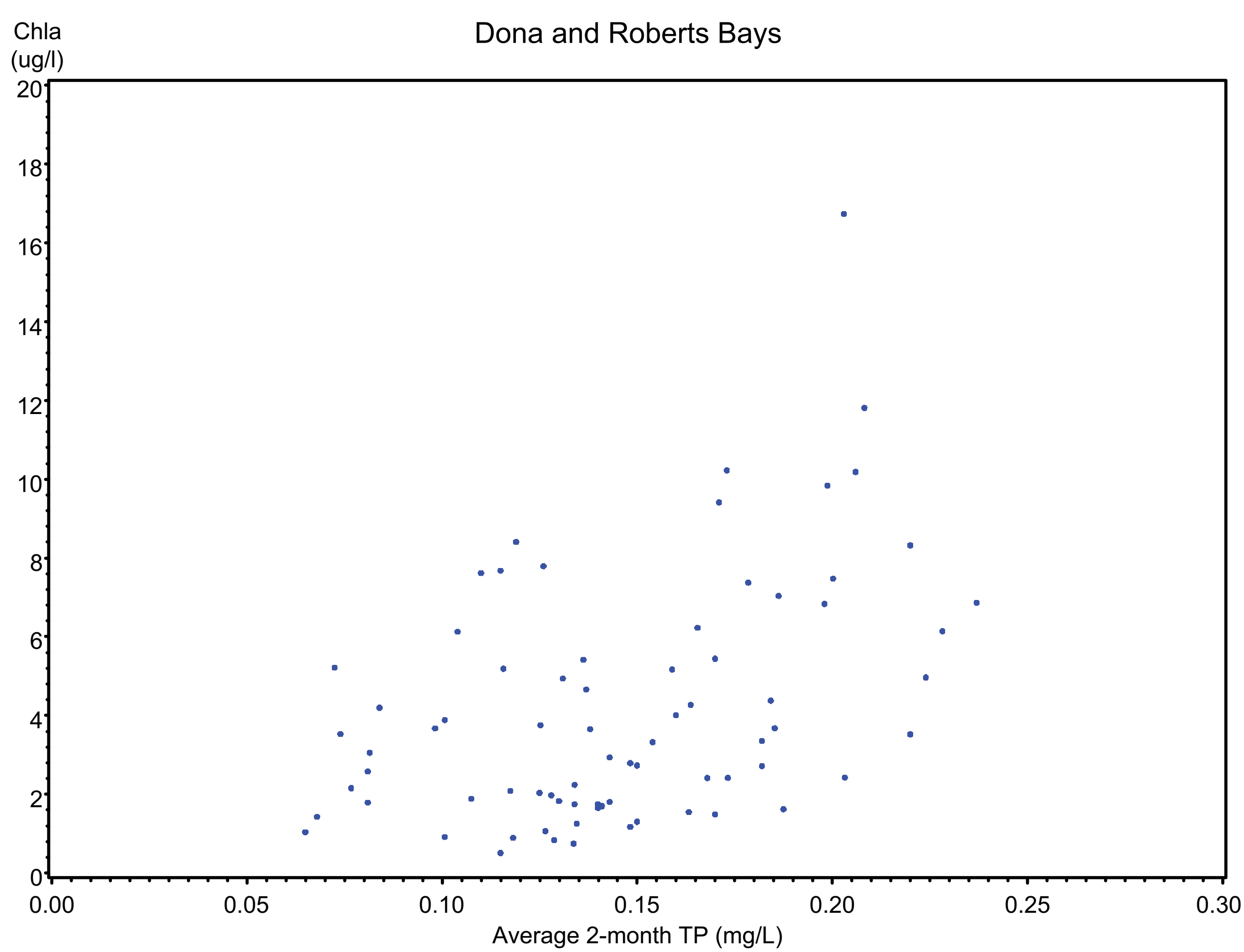

Estero Bay
TP
(mg/l)
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
-4.6 -4.1 -3.6 -3.1 -2.6 -2.1 -1.6 -1.1 -0.6 -0.1 0.4
ln TN (mg/L)

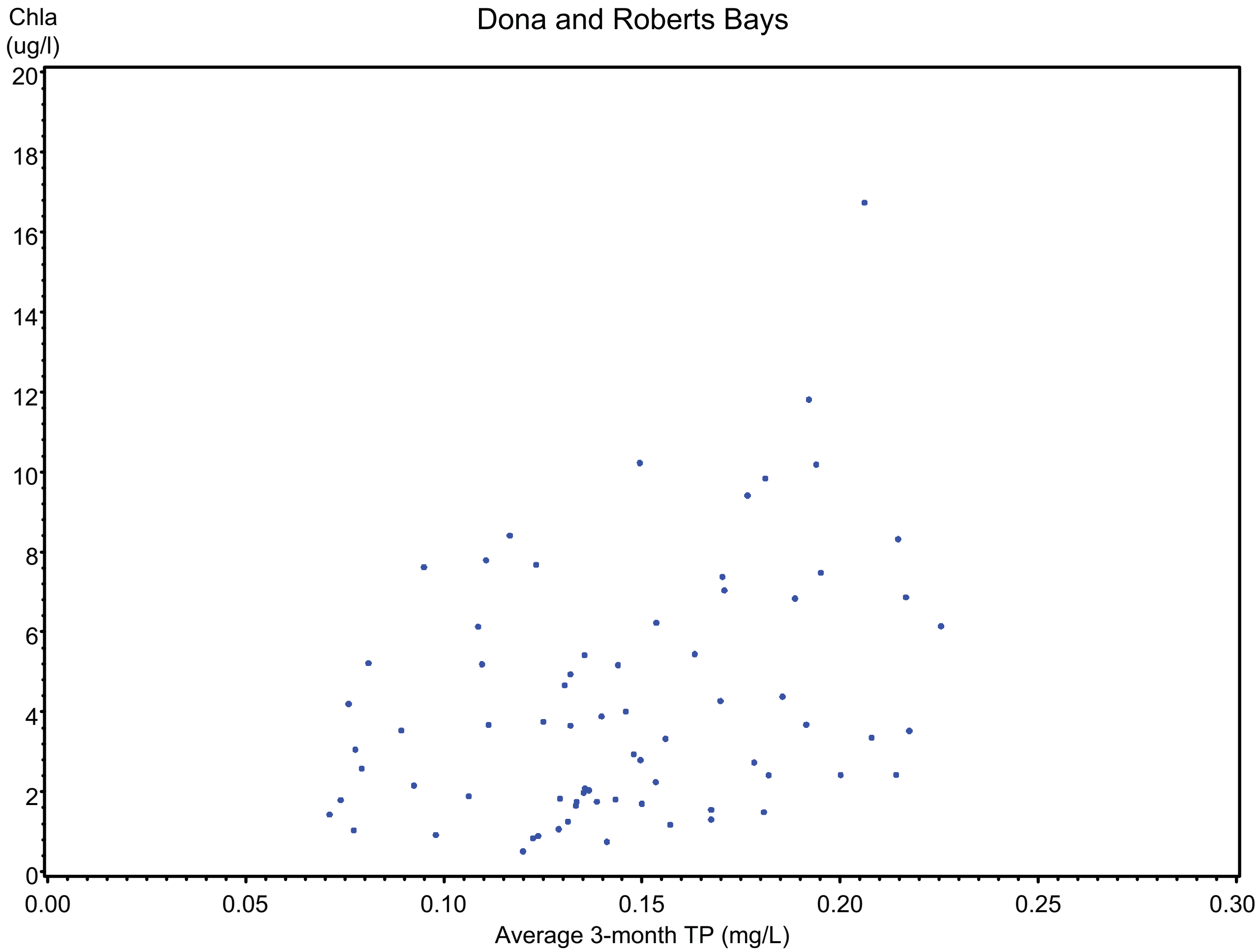

Estero Bay
ln TP
(mg/l)
-1.6
-1.8
-2.0
-2.2
-2.4
-2.6
-2.8
-3.0
-3.2
-3.4
-3.6
-3.8
-4.0
-4.2
-4.4
-4.6
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70
TN (mg/L)

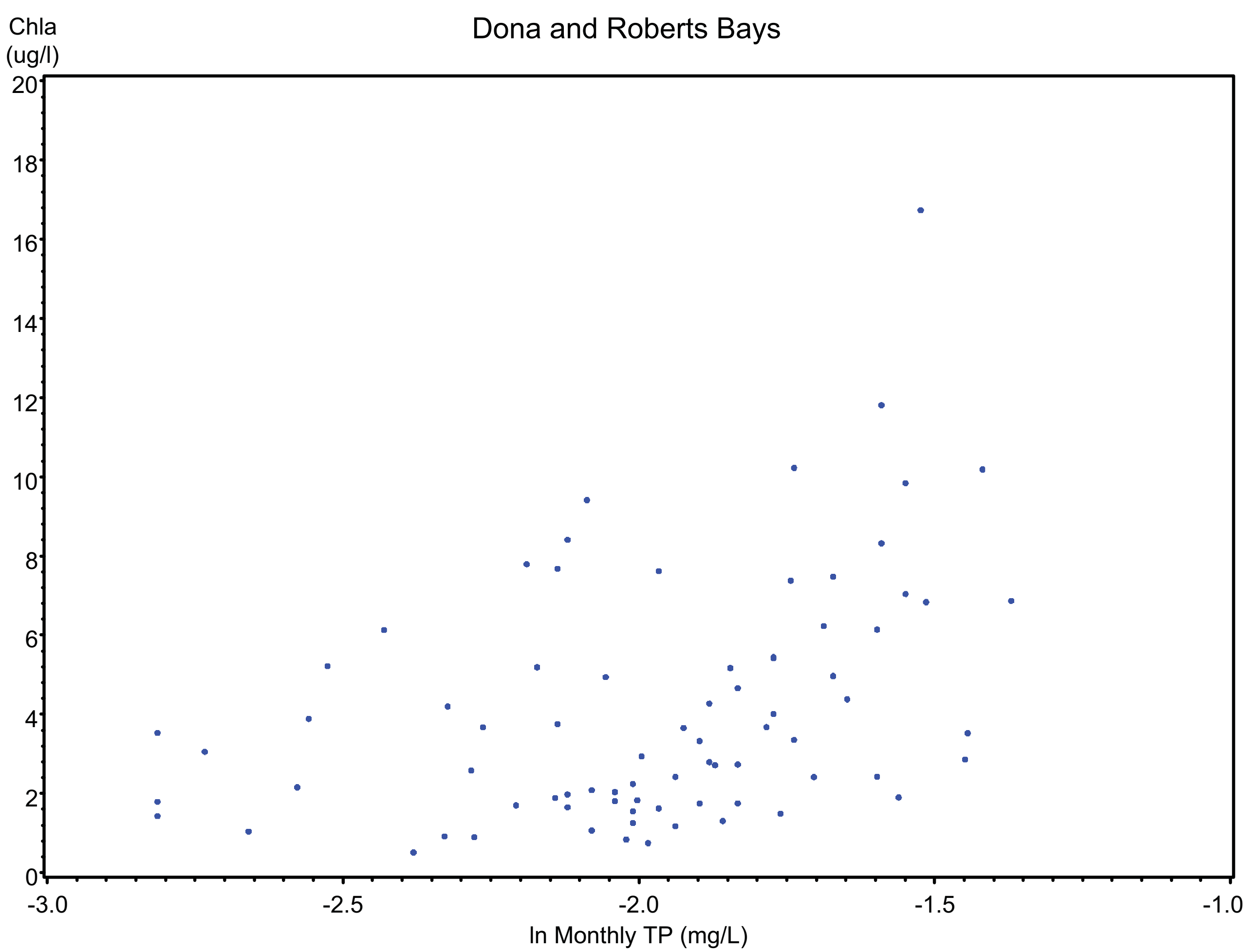

Estero Bay
ln TP
(mg/l)
-1.6
-1.8
-2.0
-2.2
-2.4
-2.6
-2.8
-3.0
-3.2
-3.4
-3.6
-3.8
-4.0
-4.2
-4.4
-4.6
-4.6 -4.1 -3.6 -3.1 -2.6 -2.1 -1.6 -1.1 -0.6 -0.1 0.4
ln TN (mg/L)

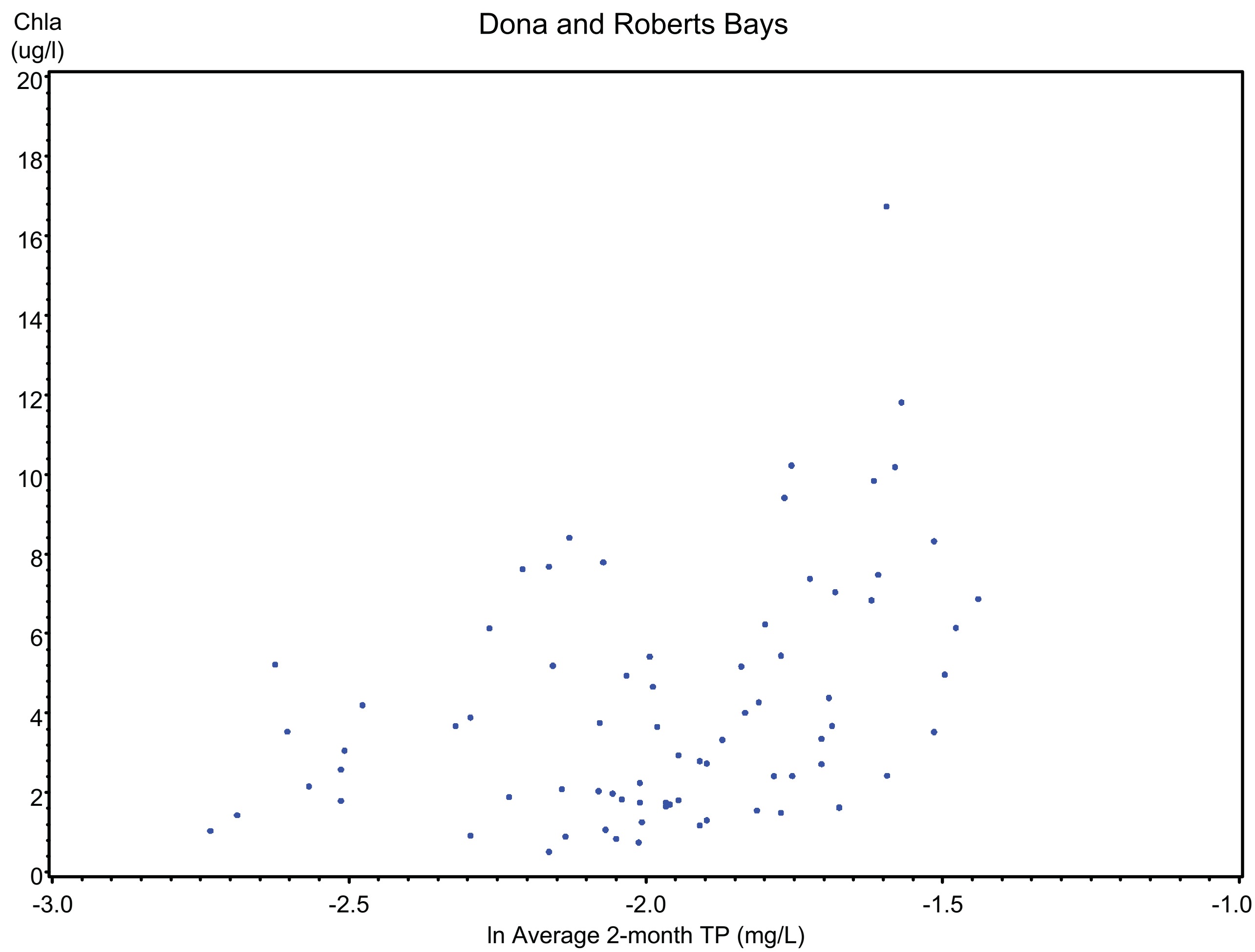
Attachment 2
TP concentration as a function of chlorophyll *a* concentration

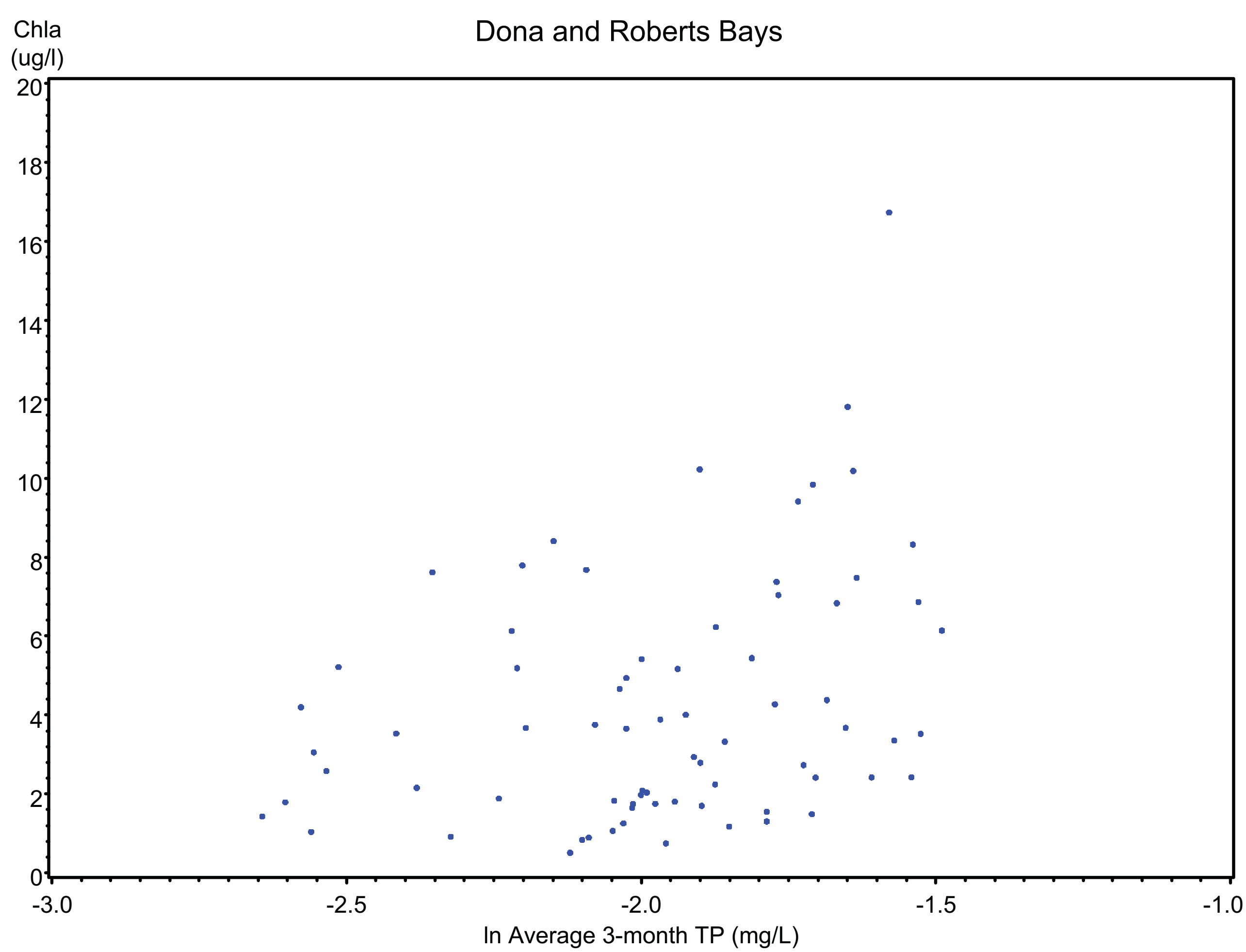

Dona and Roberts Bays
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
0.05
0.1
0.15
0.2
0.25
0.3
Monthly TP (mg/L)

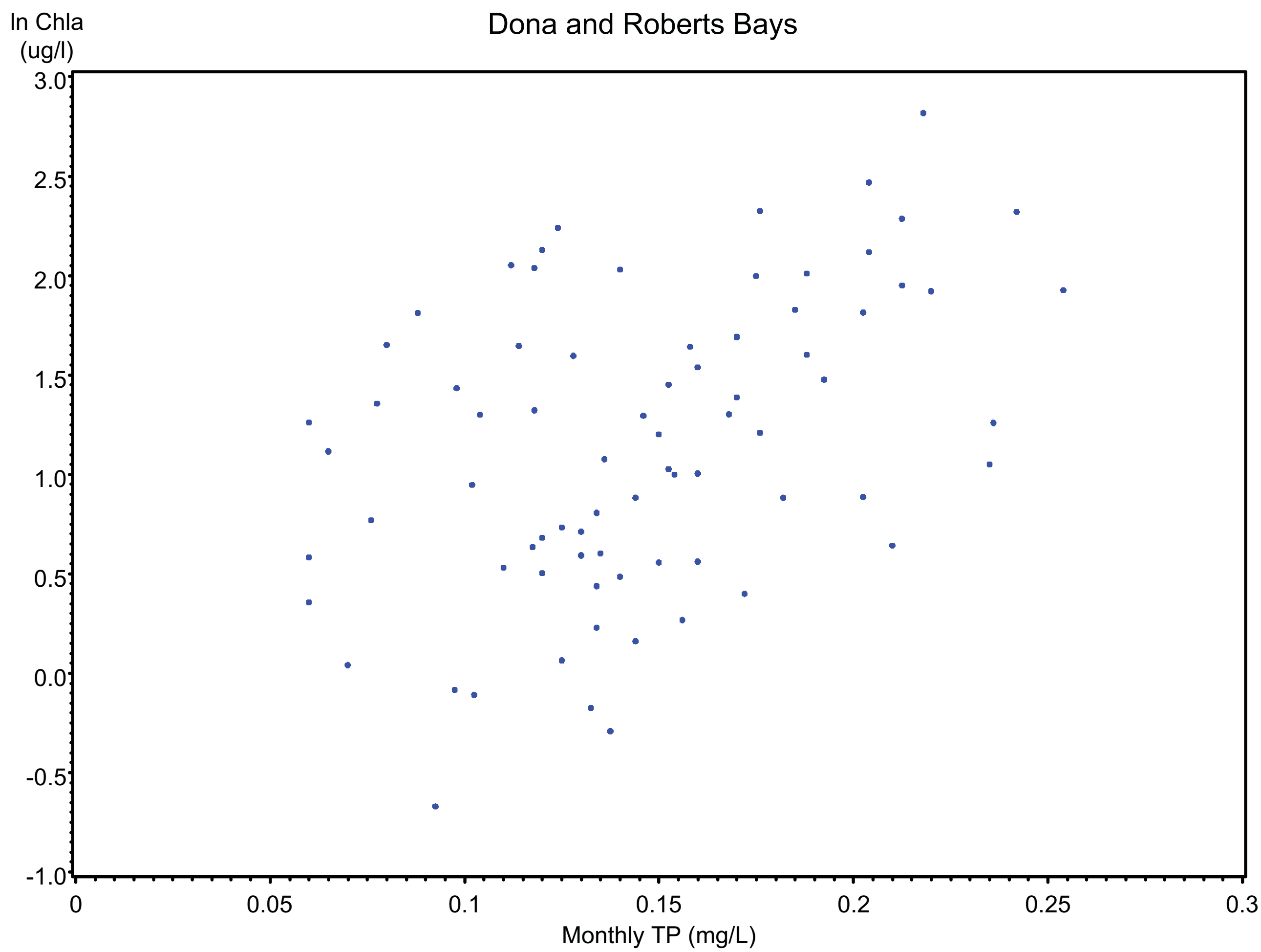

Dona and Roberts Bays
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 2-month TP (mg/L)

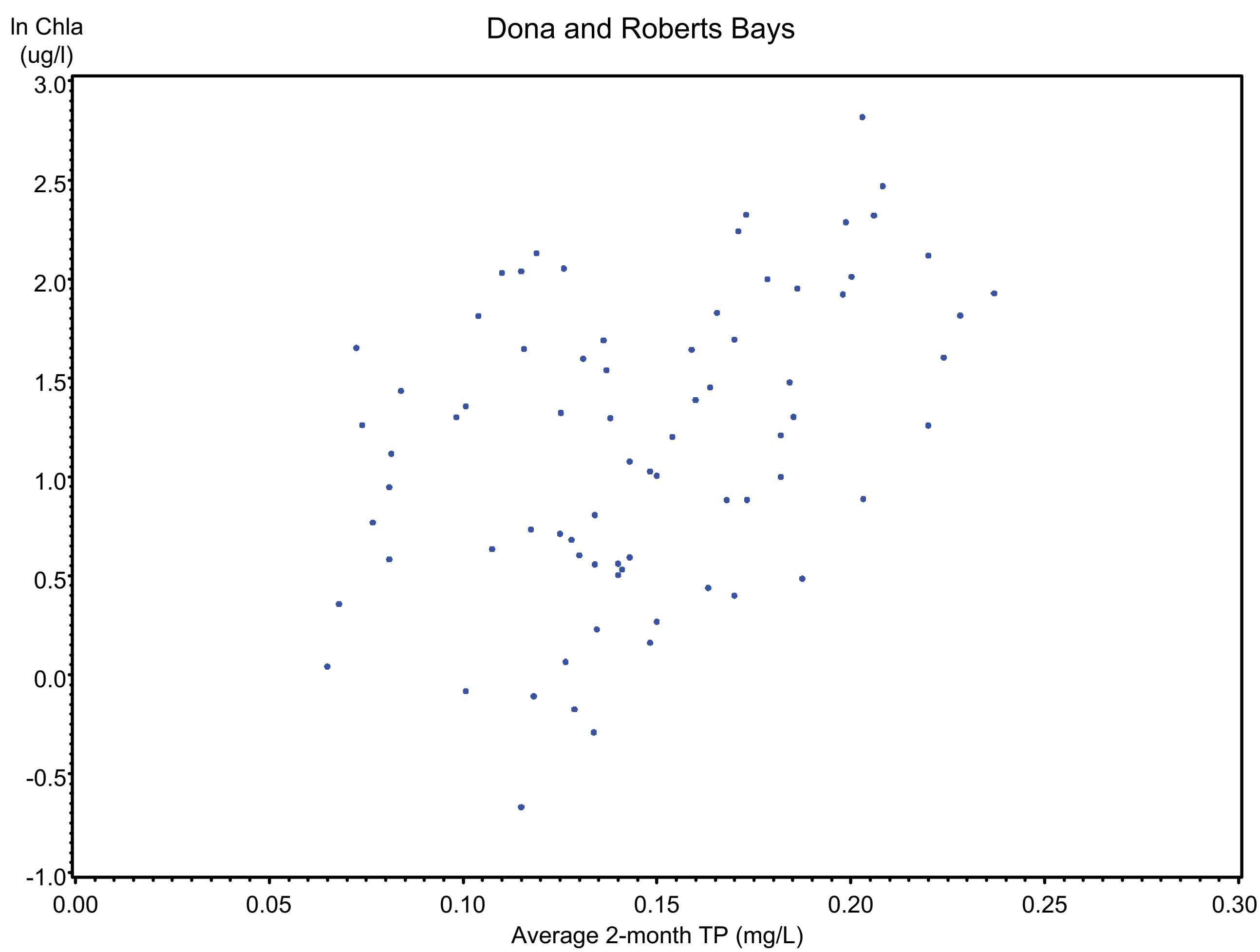

Chla
(ug/l)
Dona and Roberts Bays
0
2
4
6
8
10
12
14
16
18
20
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)

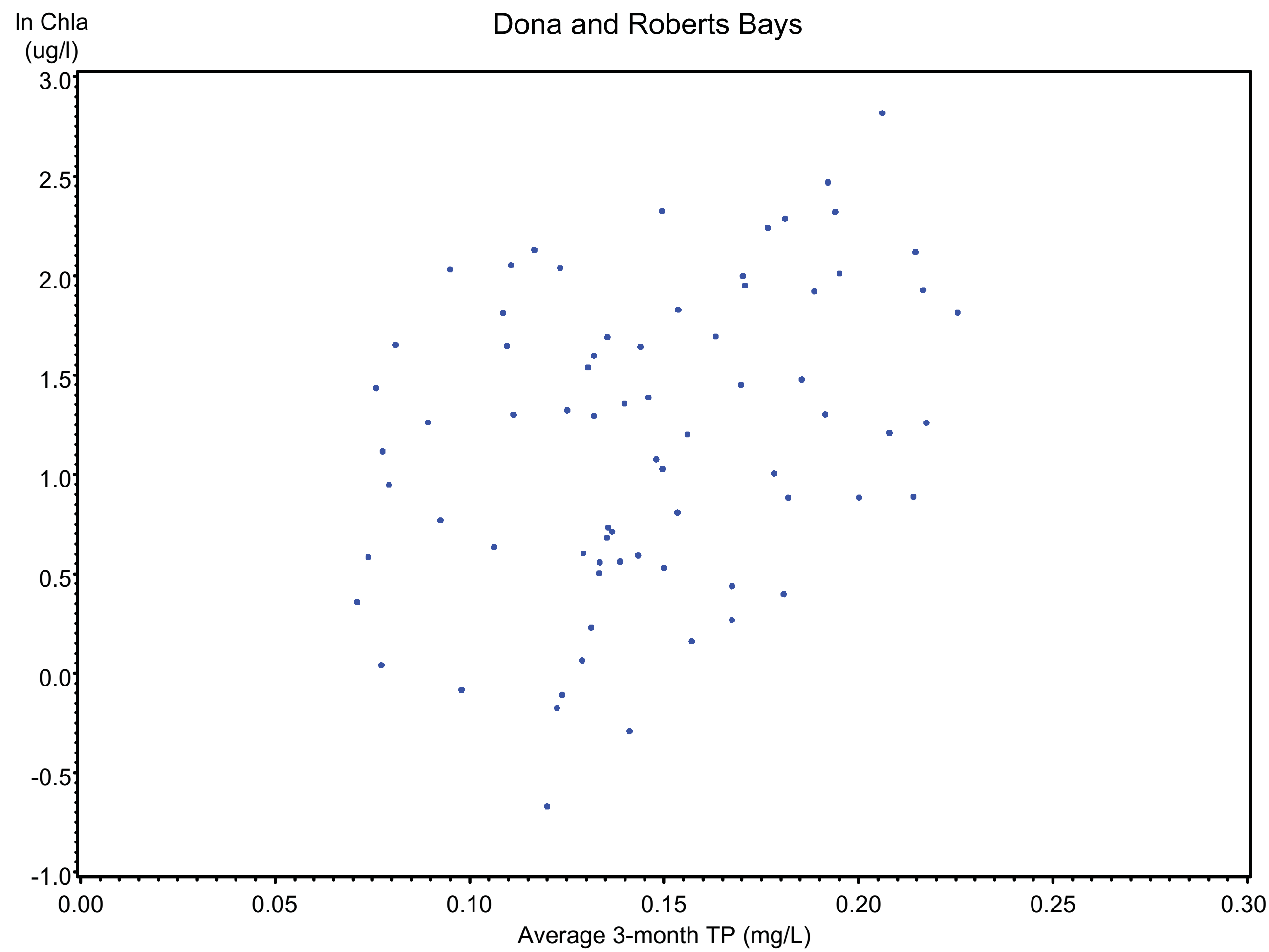

Chla
(ug/l)
Dona and Roberts Bays
0
2
4
6
8
10
12
14
16
18
20
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

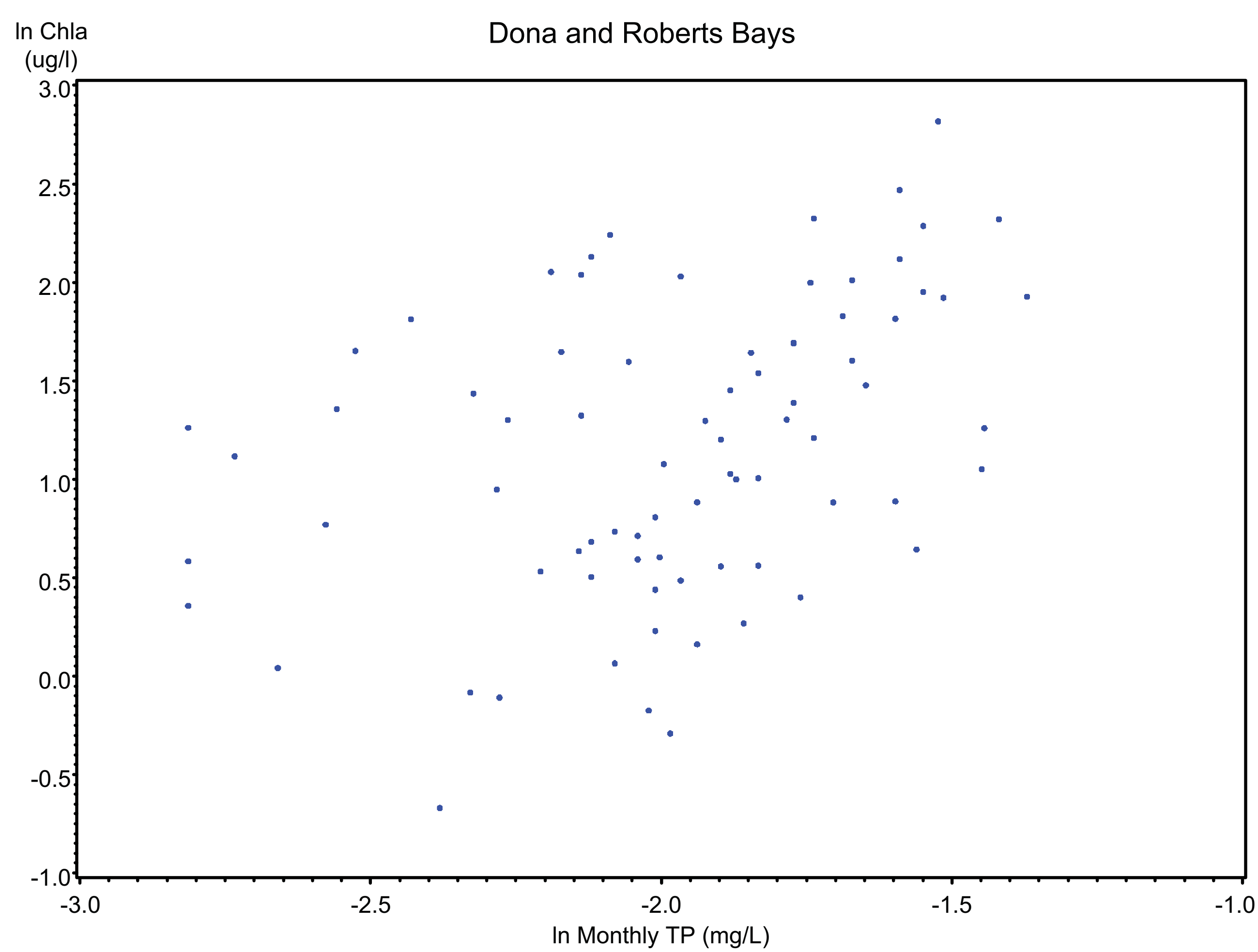

Dona and Roberts Bays
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

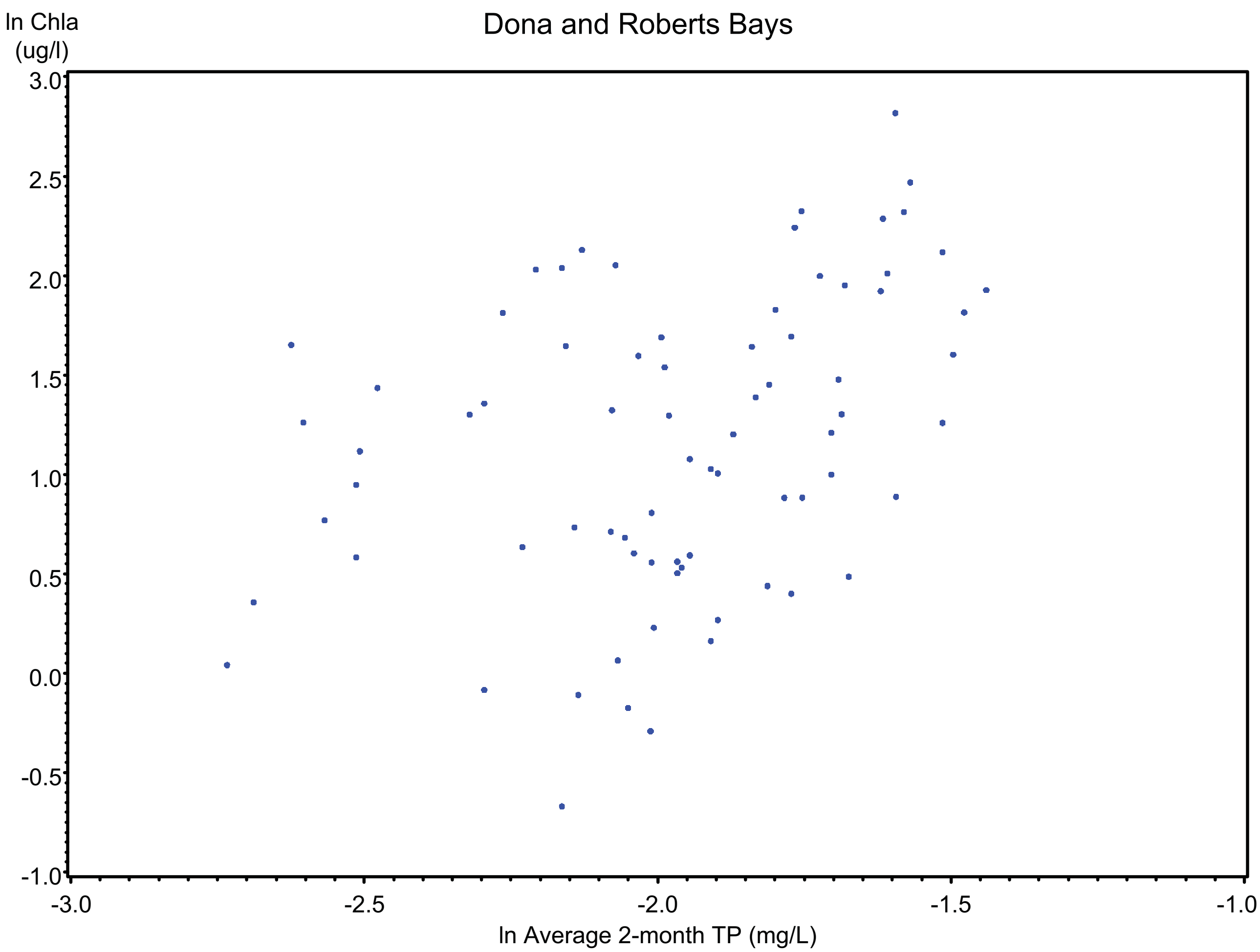

Dona and Roberts Bays
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)


Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
0.05
0.1
0.15
0.2
0.25
0.3
Monthly TP (mg/L)

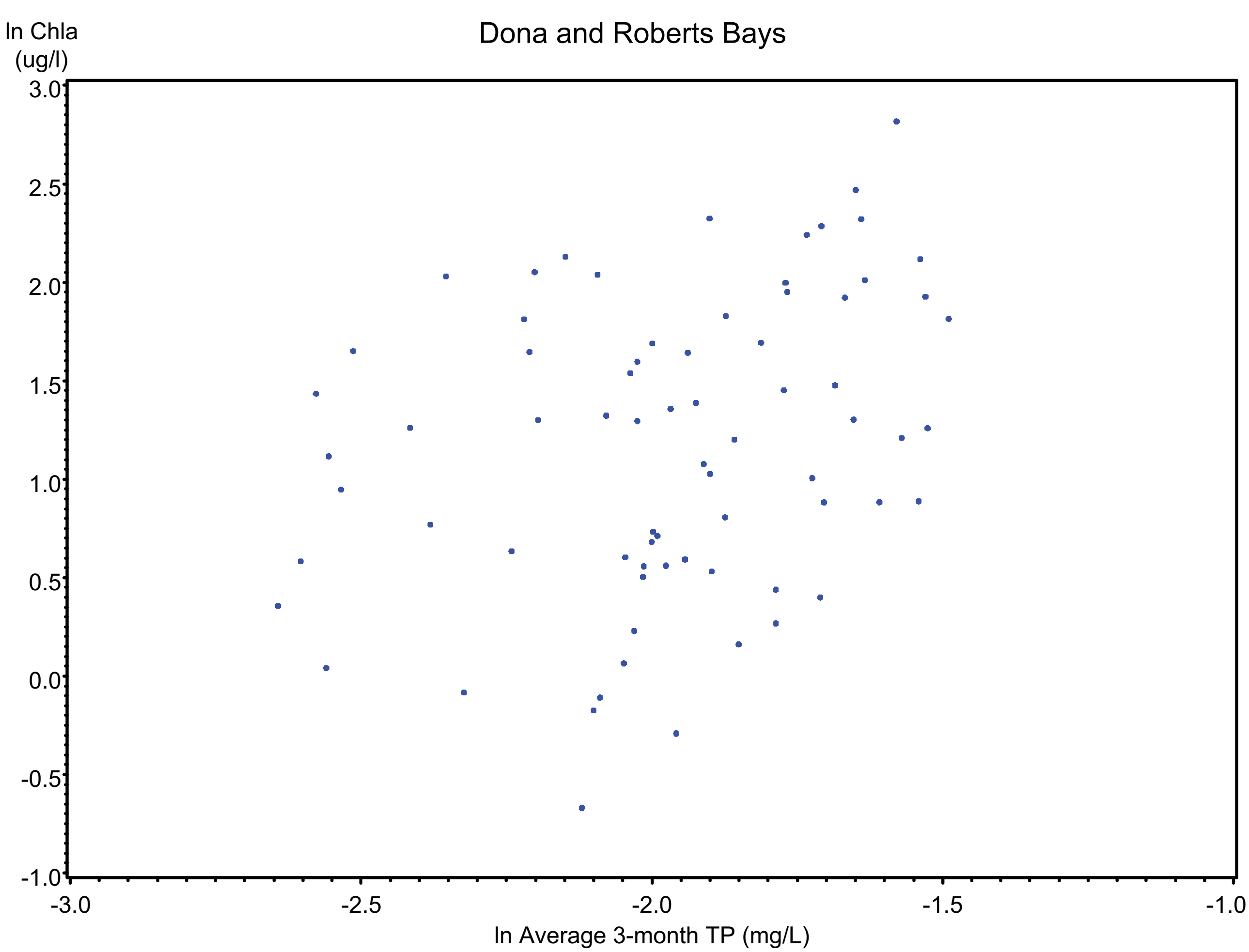

Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 2-month TP (mg/L)


Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)

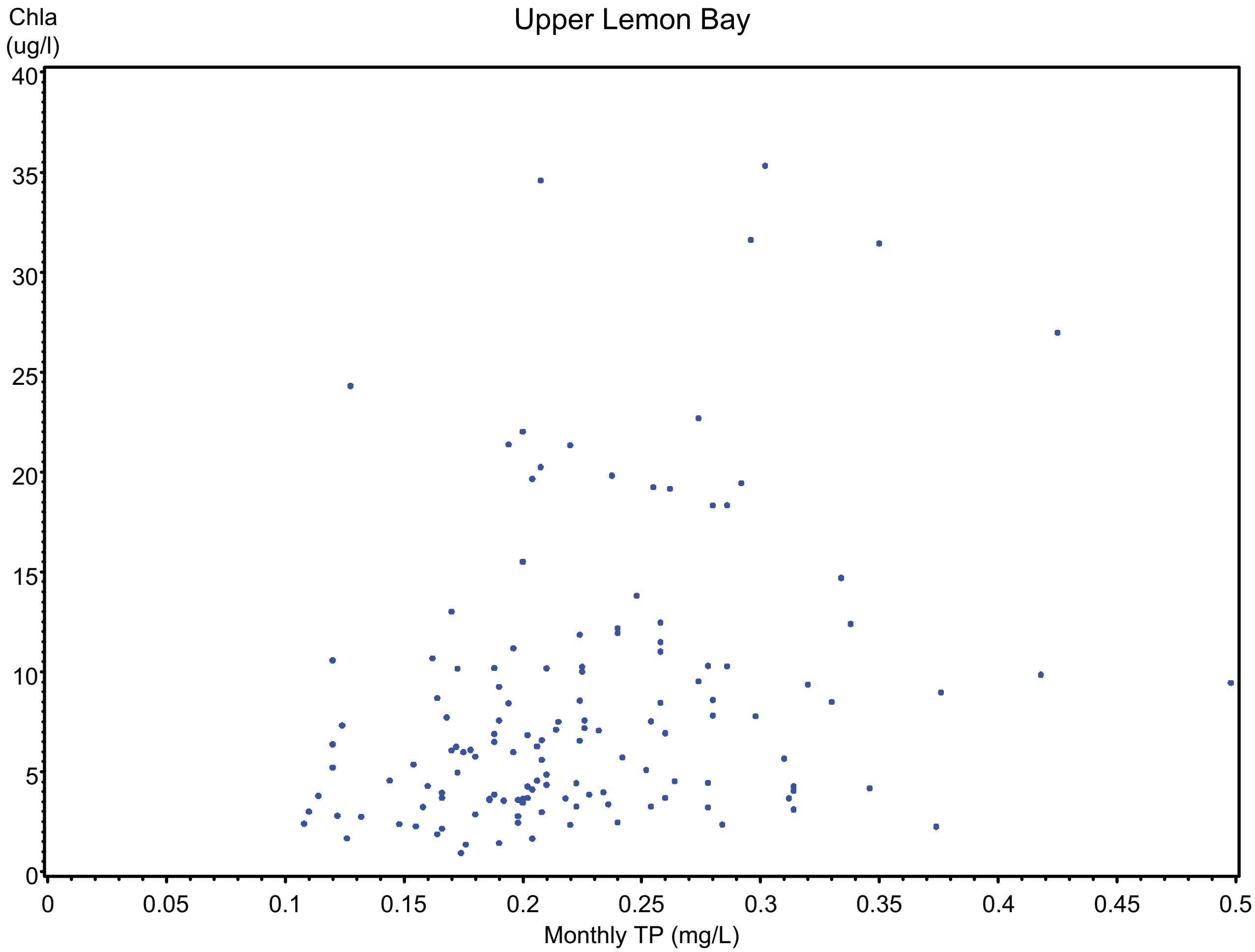

Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

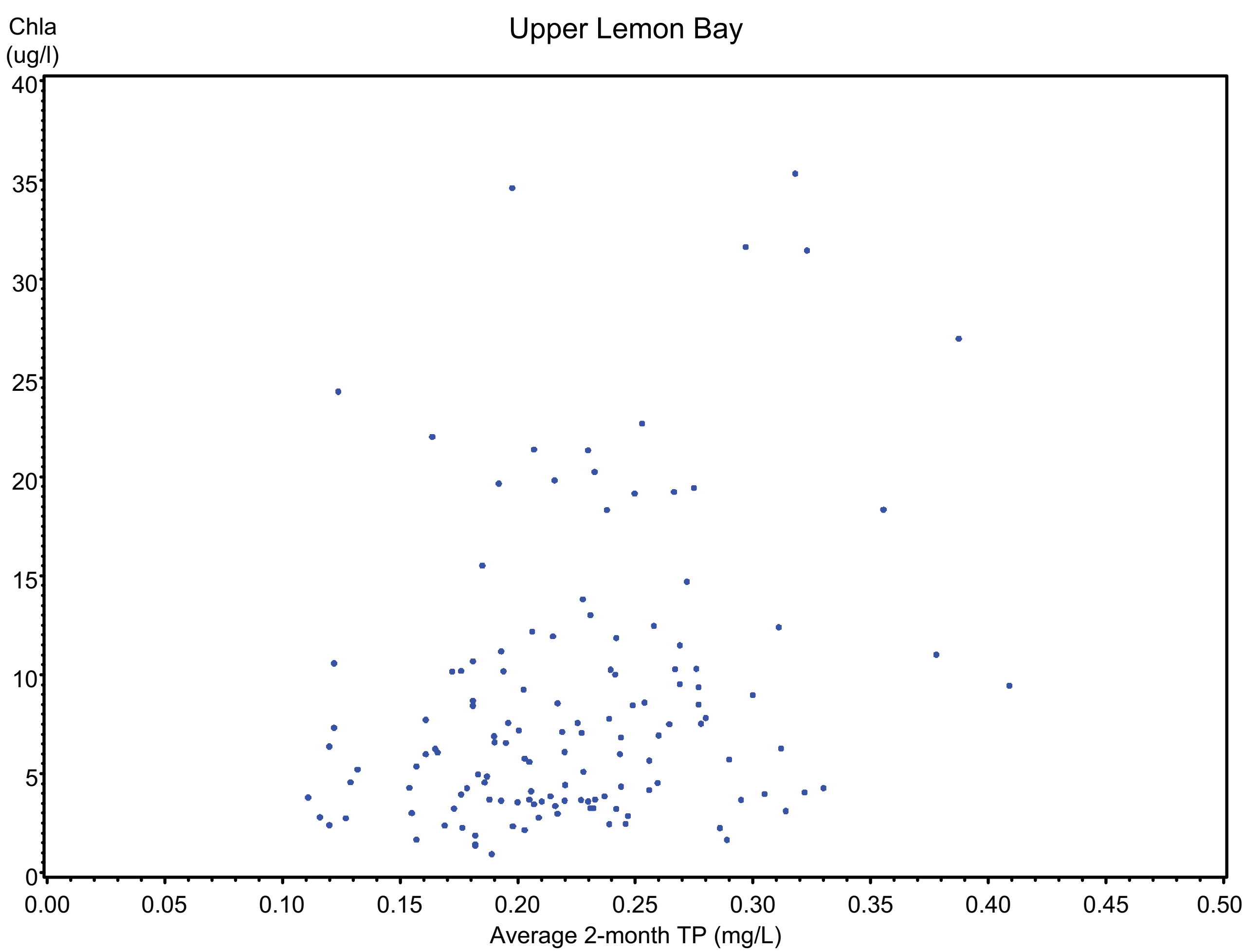


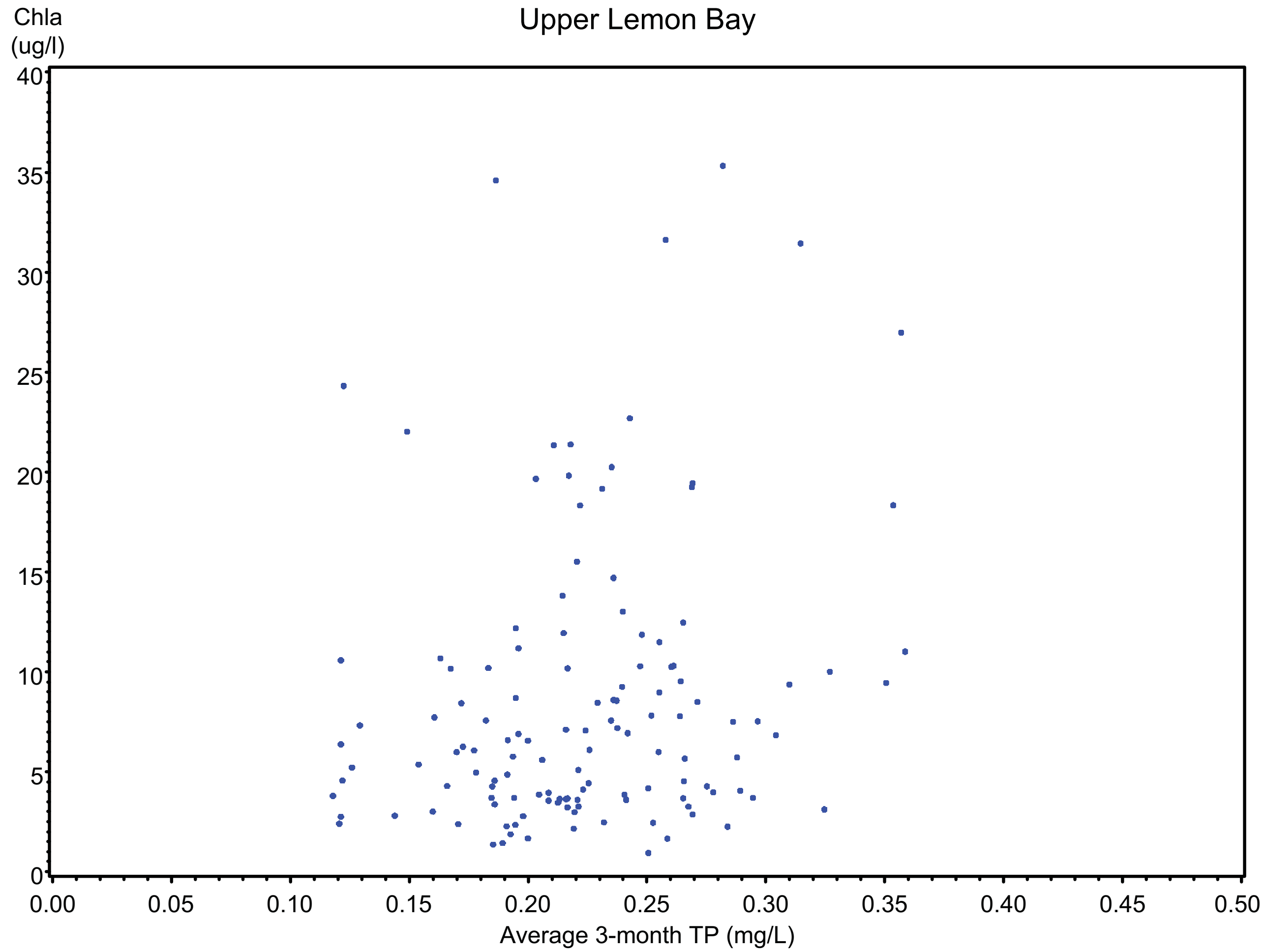
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

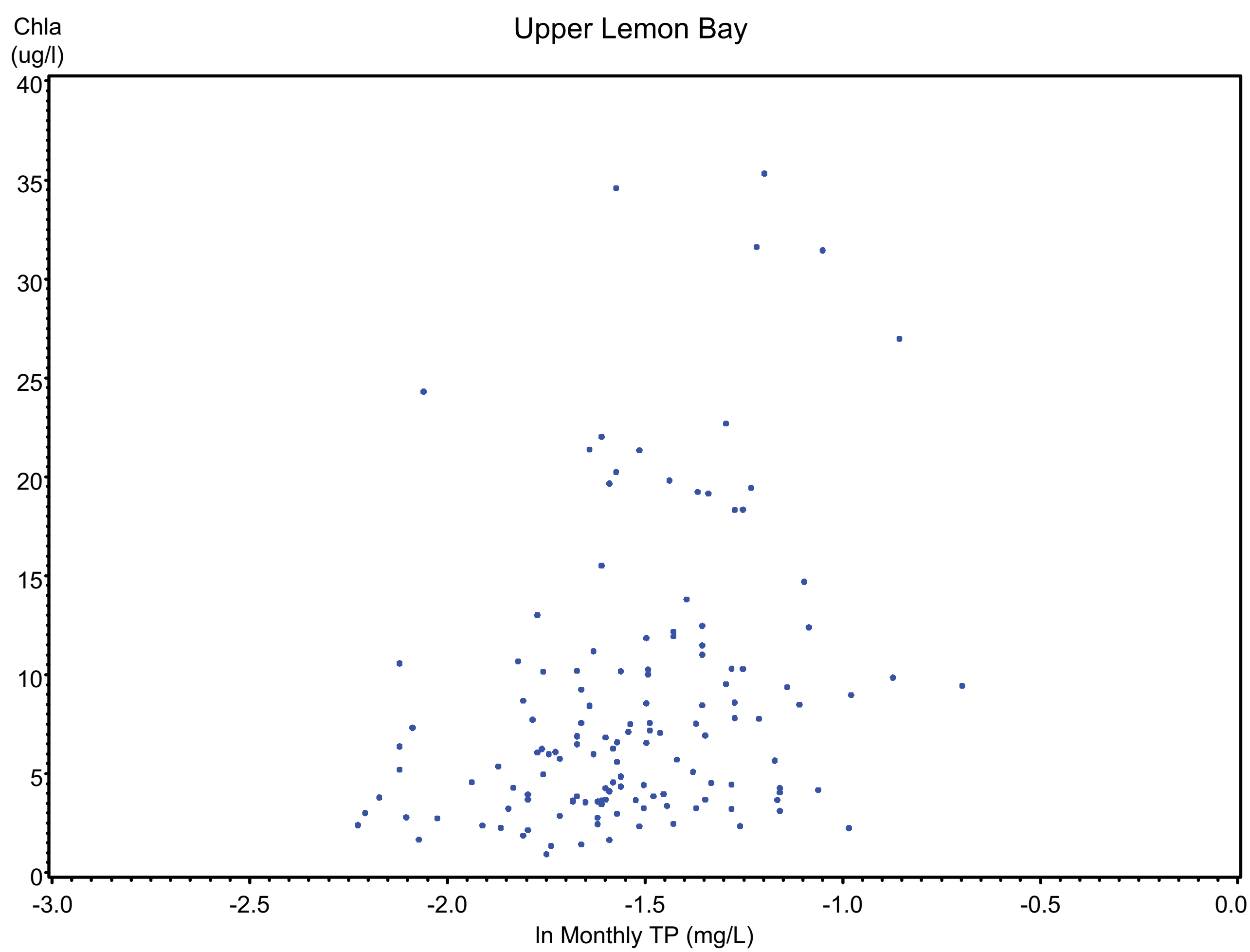


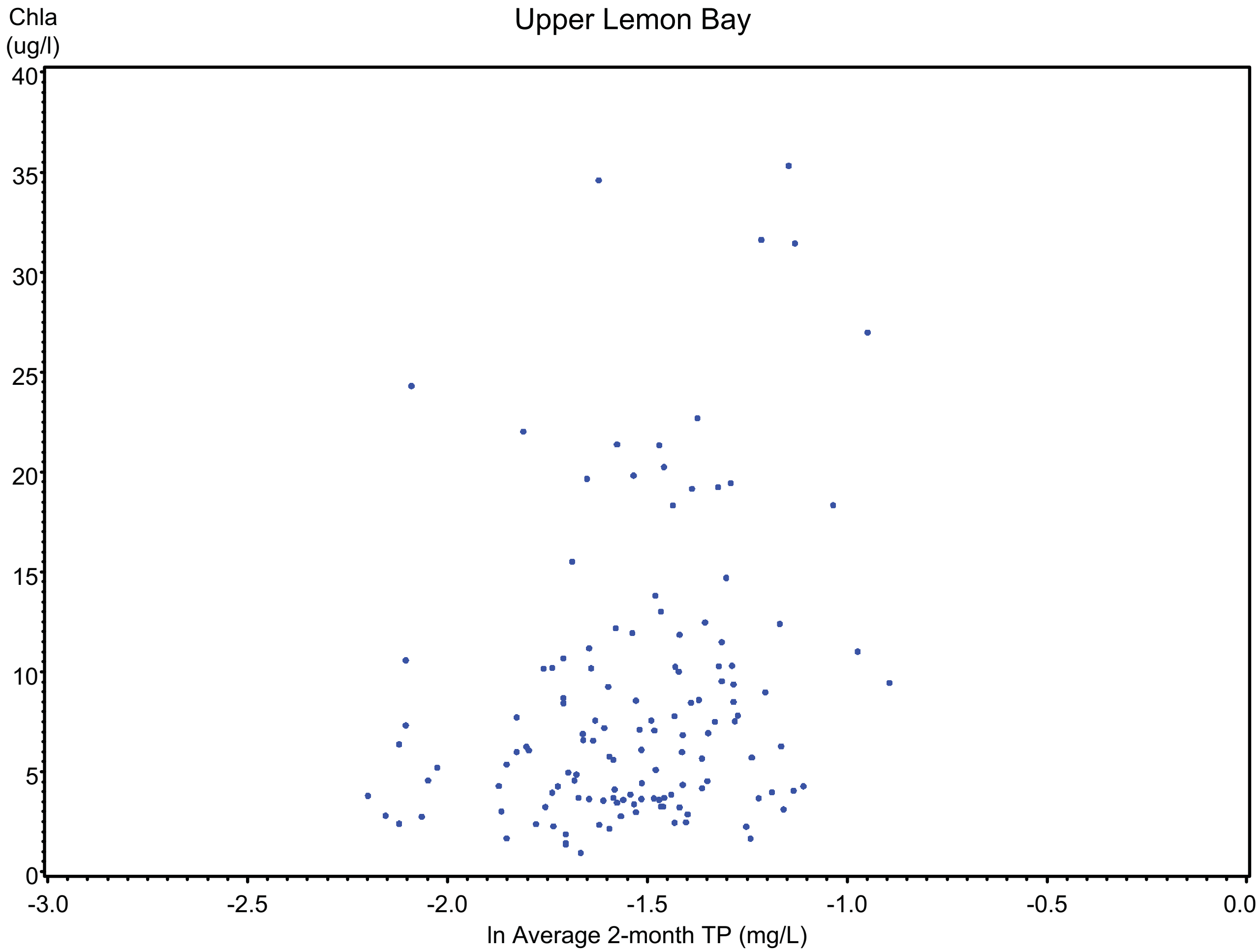
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)

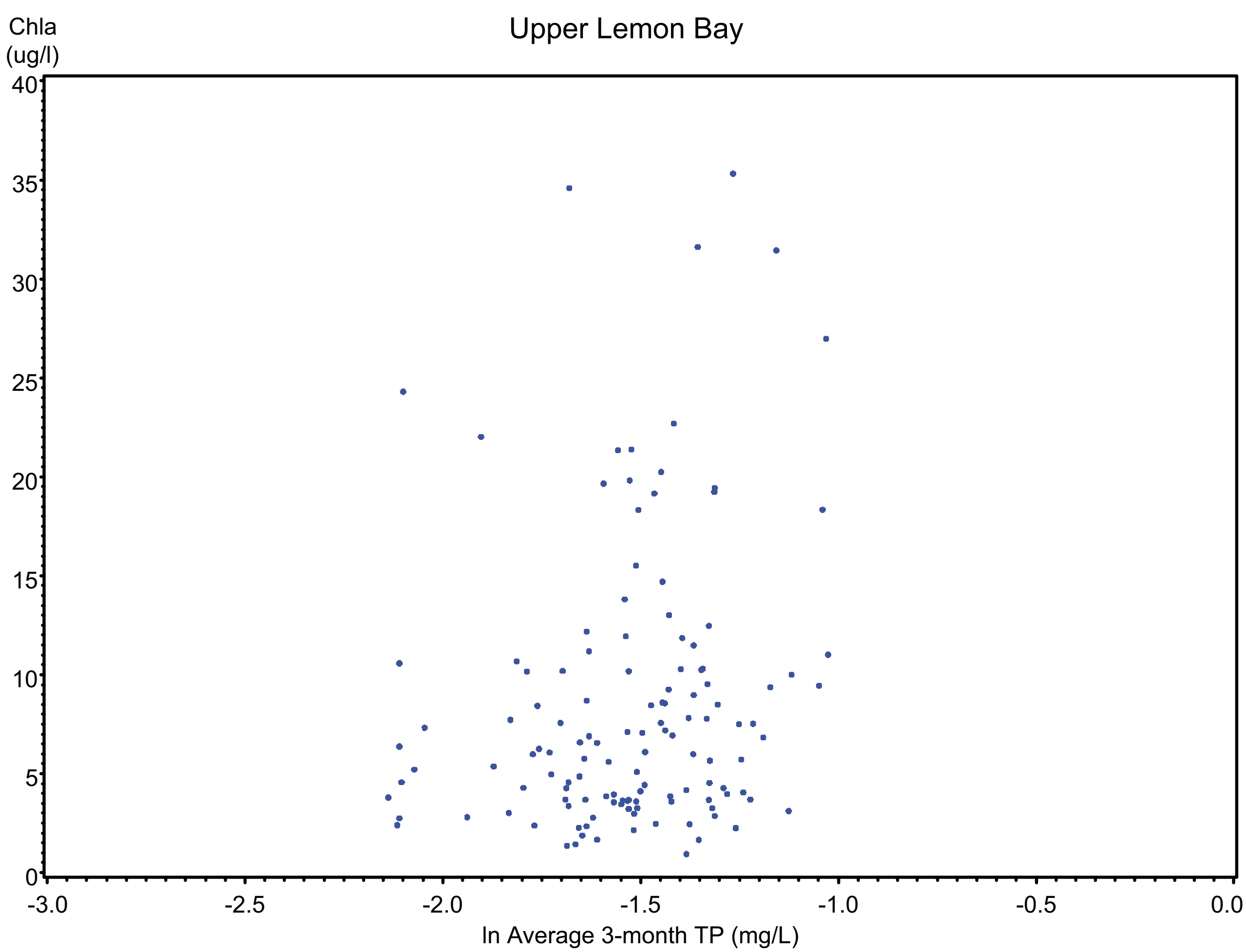

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Monthly TP (mg/L)

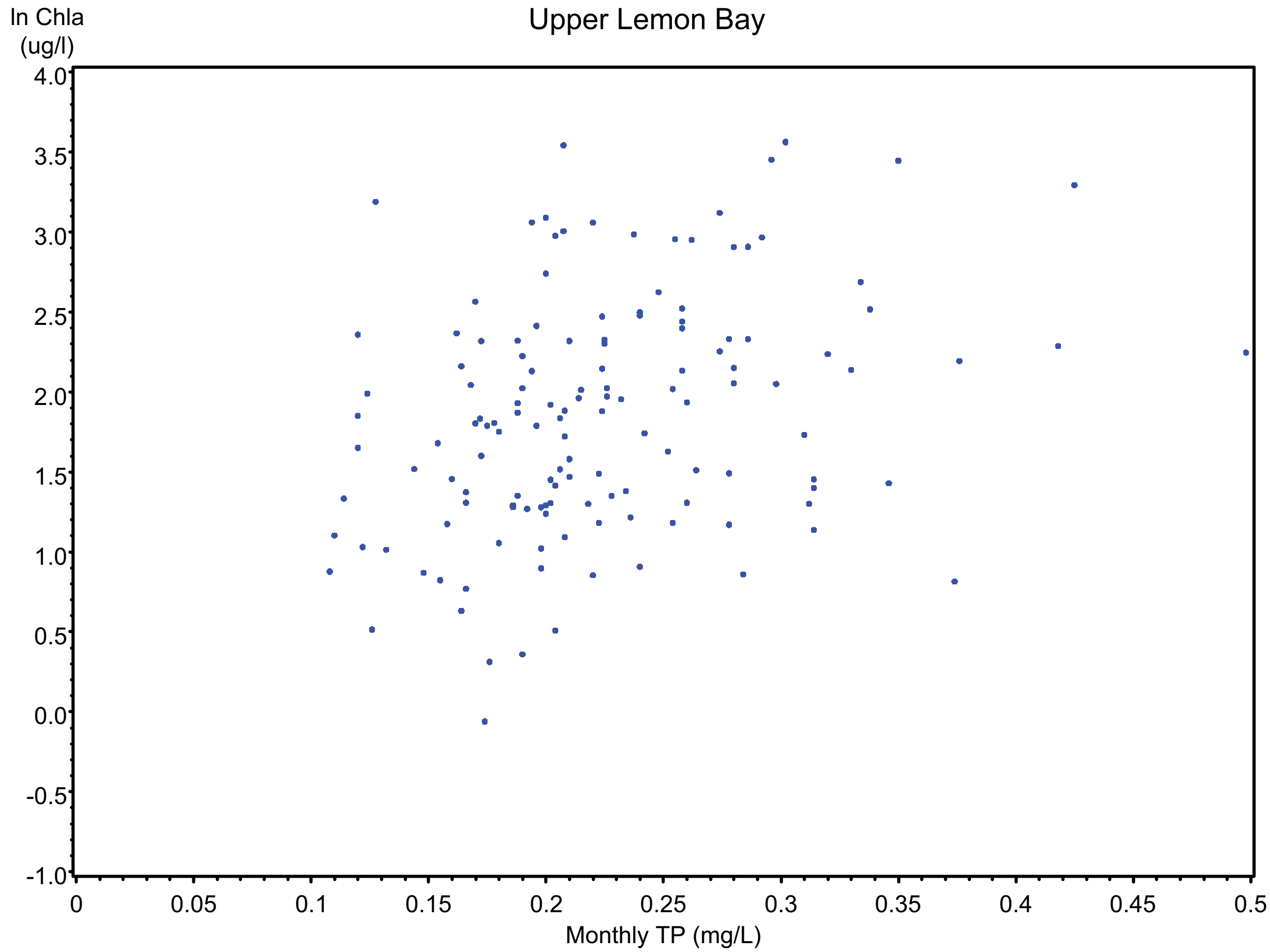

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 2-month TP (mg/L)


Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 3-month TP (mg/L)

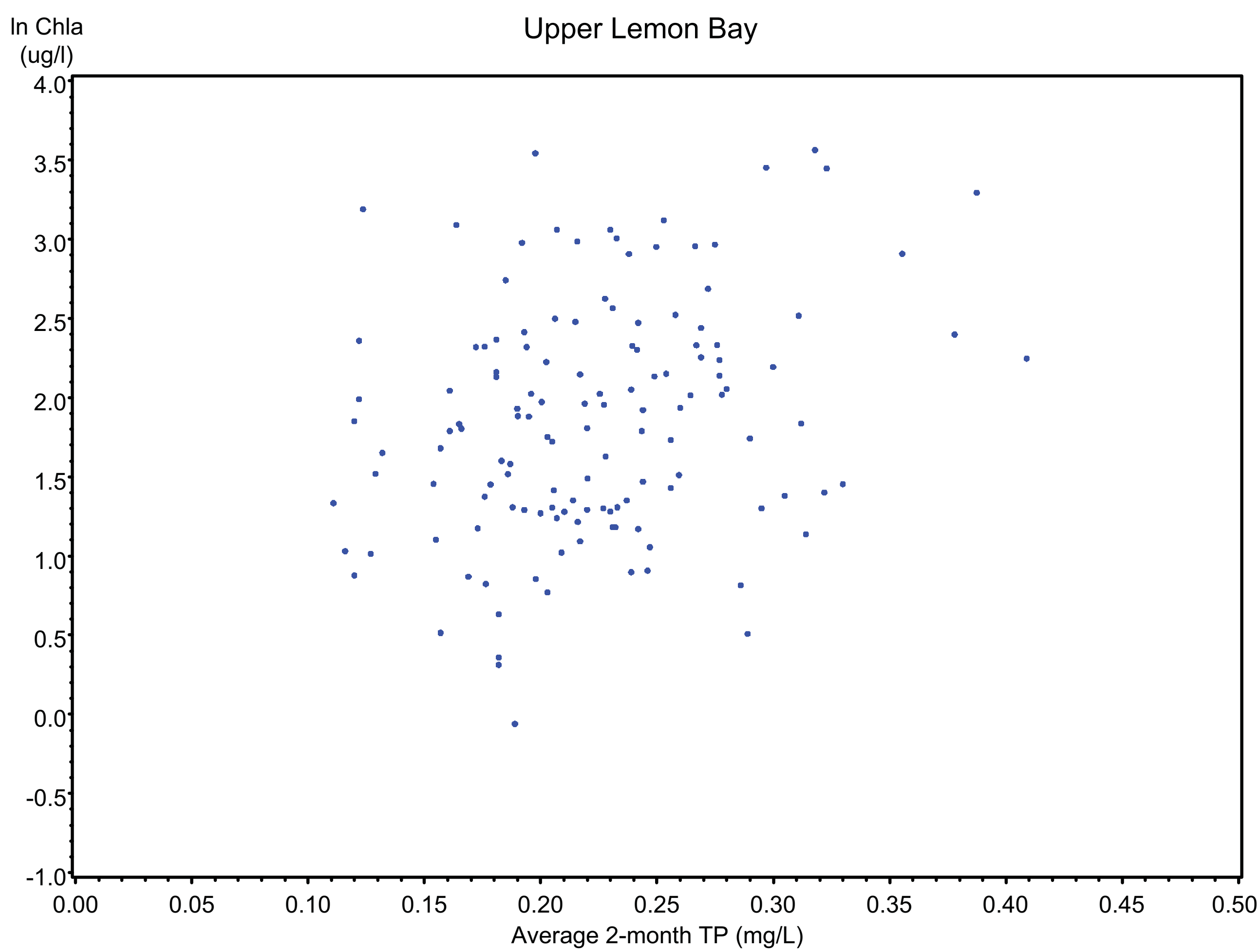

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)


Upper Lemon Bay
Chla (ug/l)
0
5
10
15
20
25
30
35
40
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)

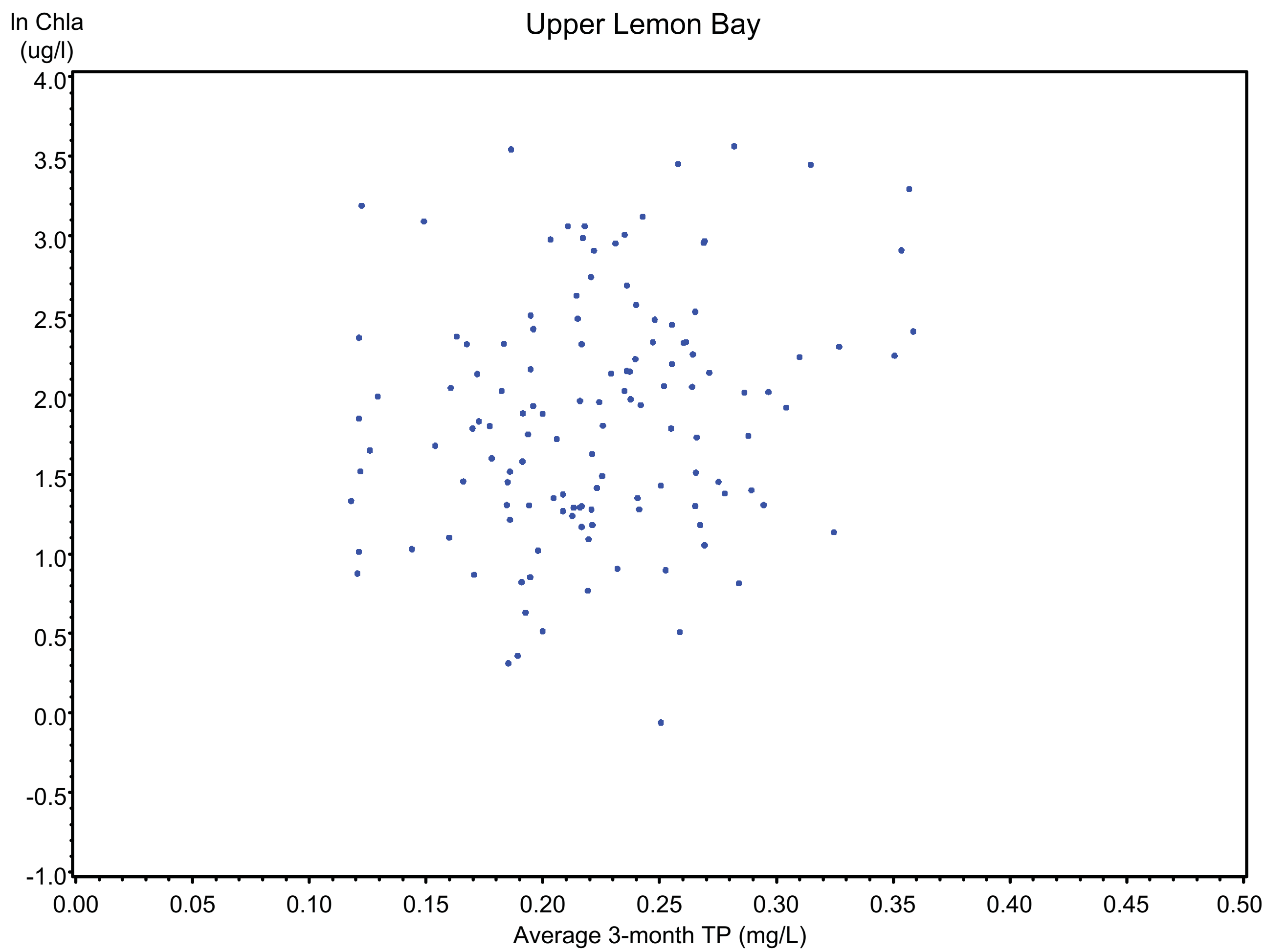

Upper Lemon Bay
Chla (ug/l)
0
5
10
15
20
25
30
35
40
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)



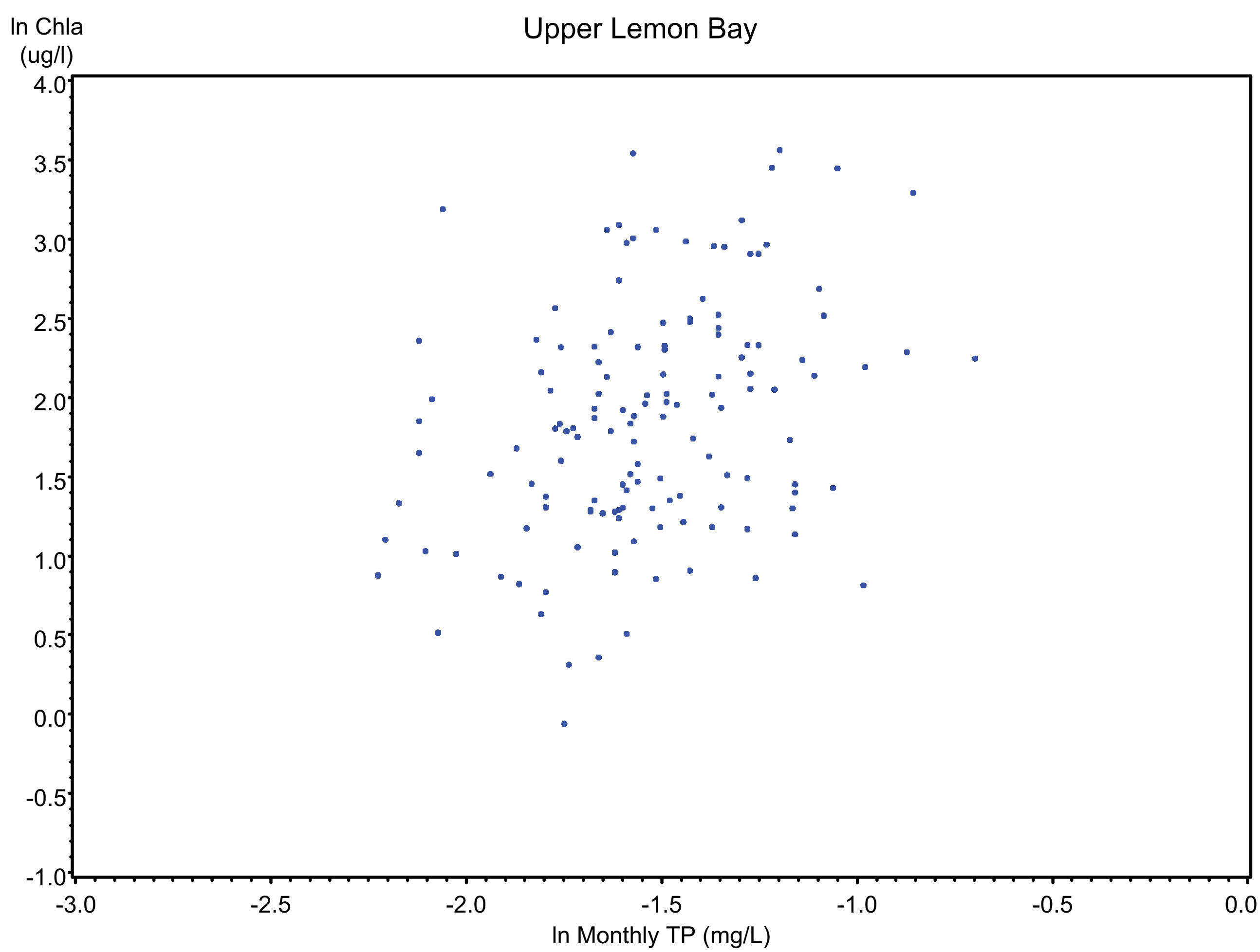
Upper Lemon Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Monthly TP (mg/L)



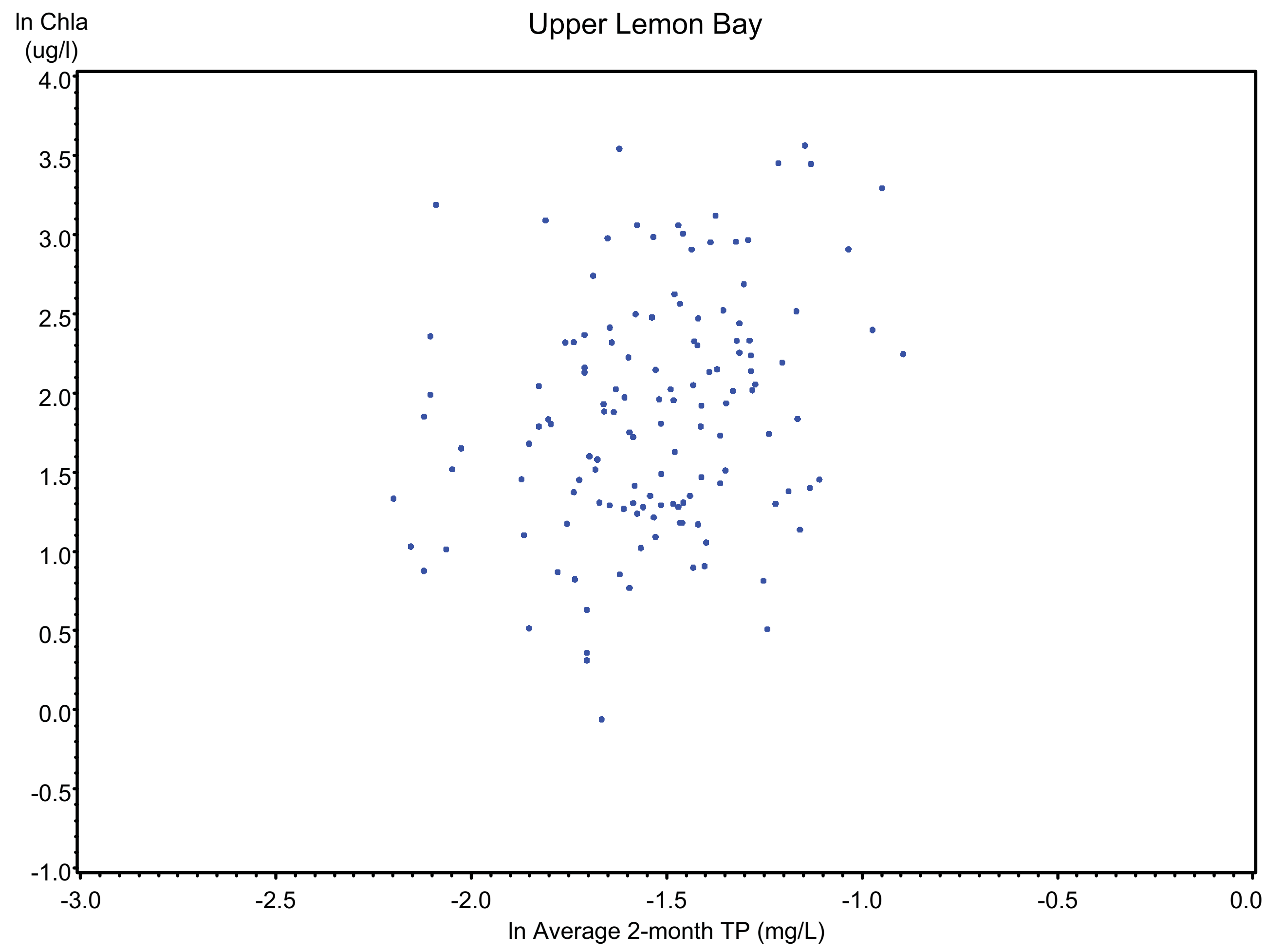
Upper Lemon Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 2-month TP (mg/L)

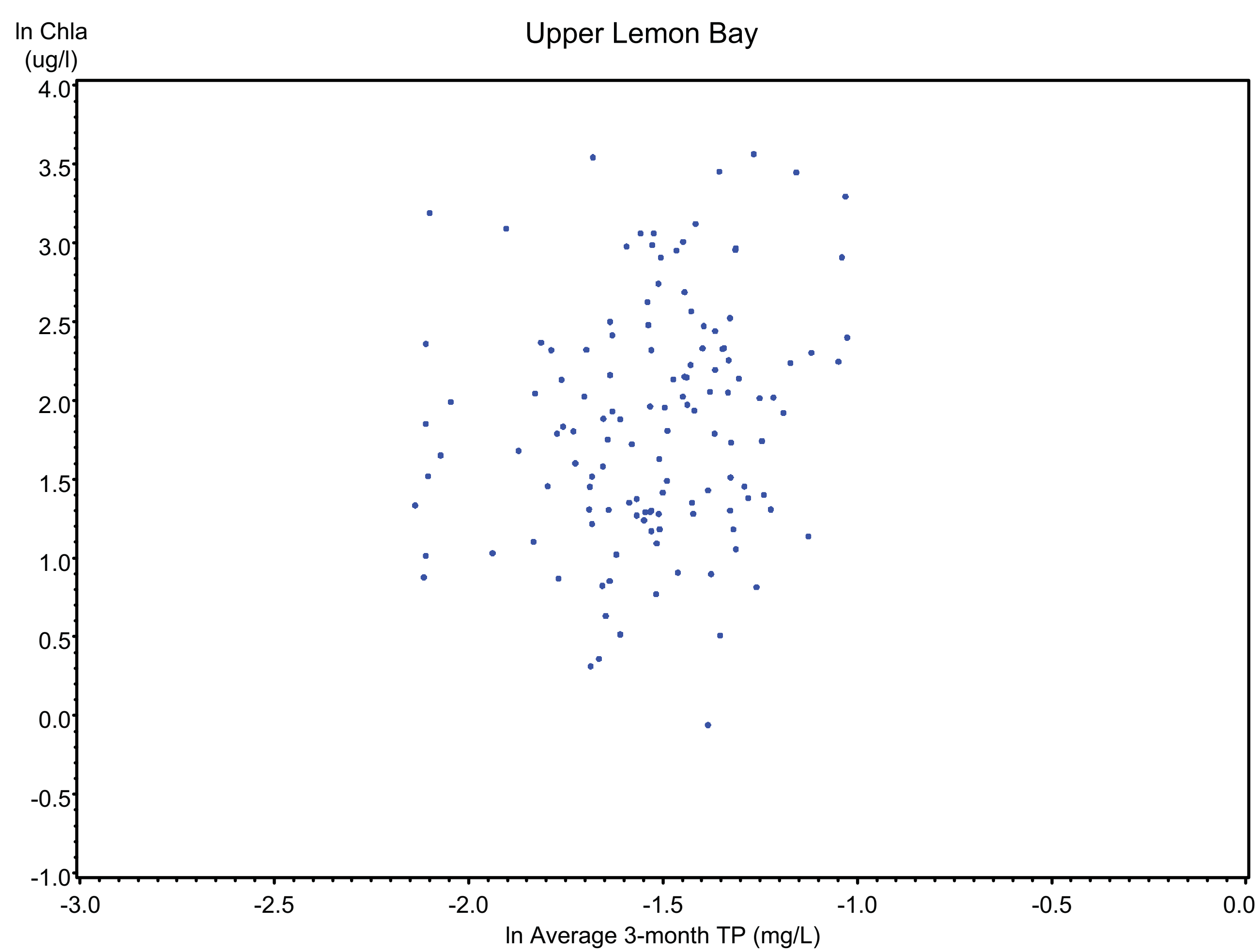


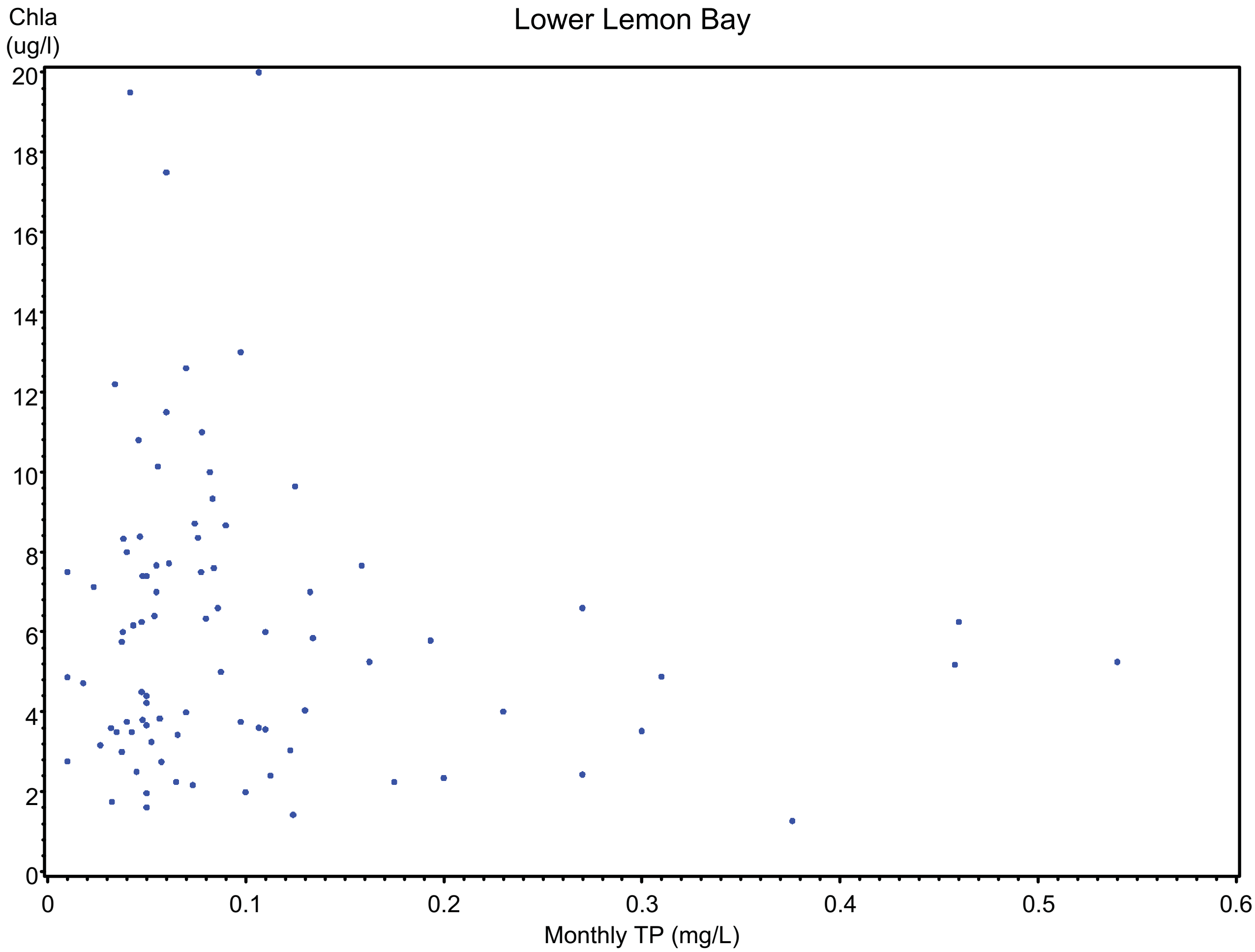
Upper Lemon Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 3-month TP (mg/L)

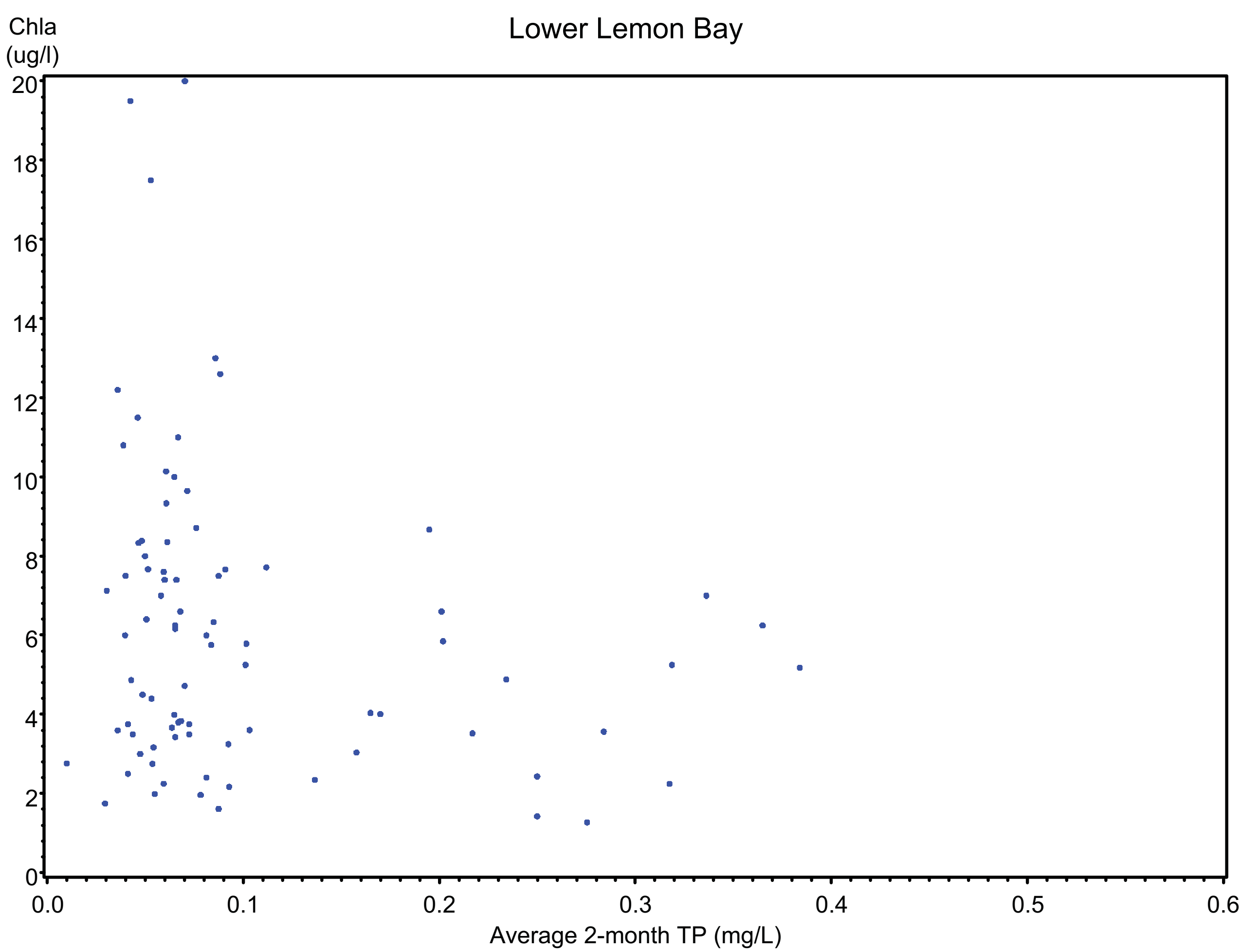


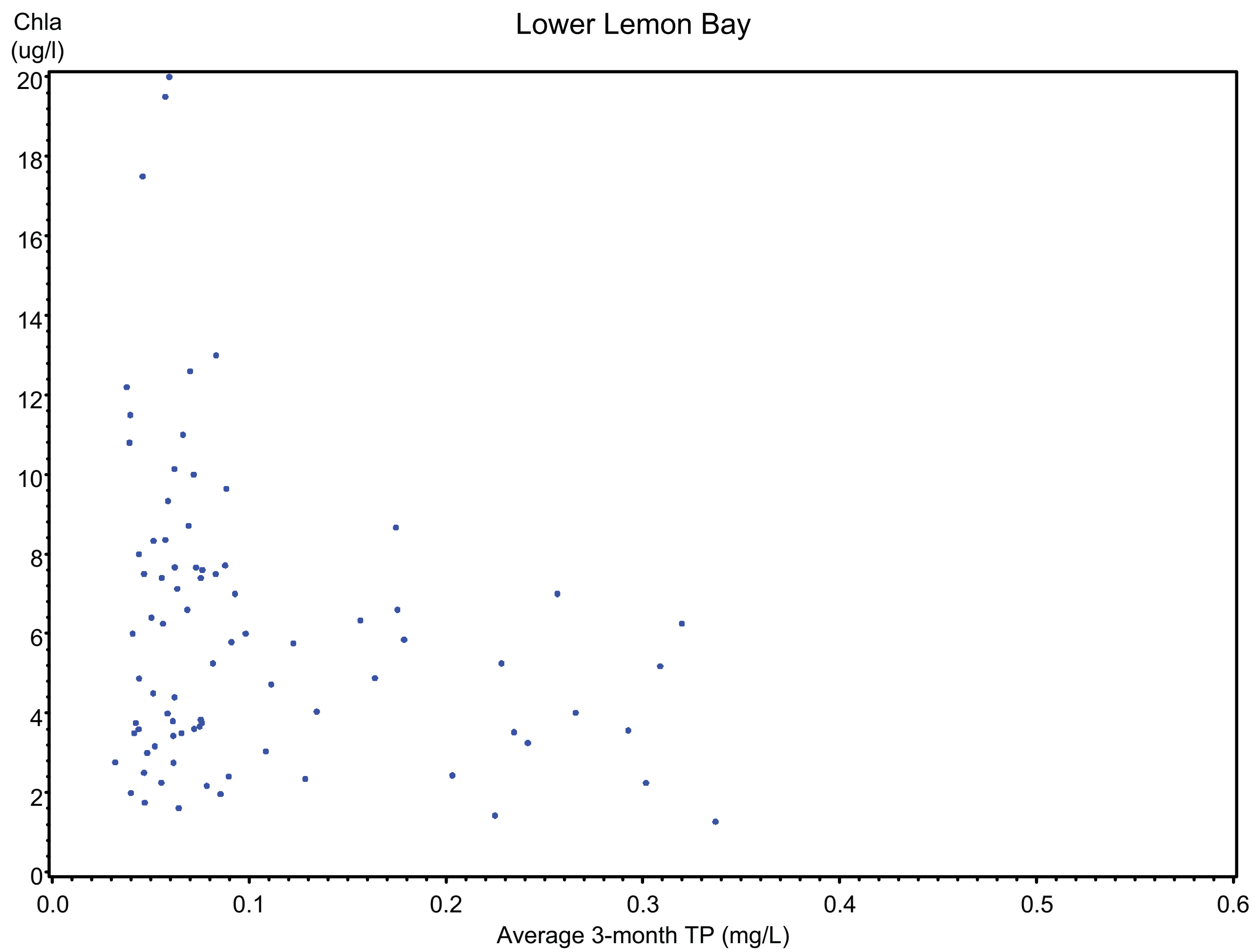
Upper Lemon Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)

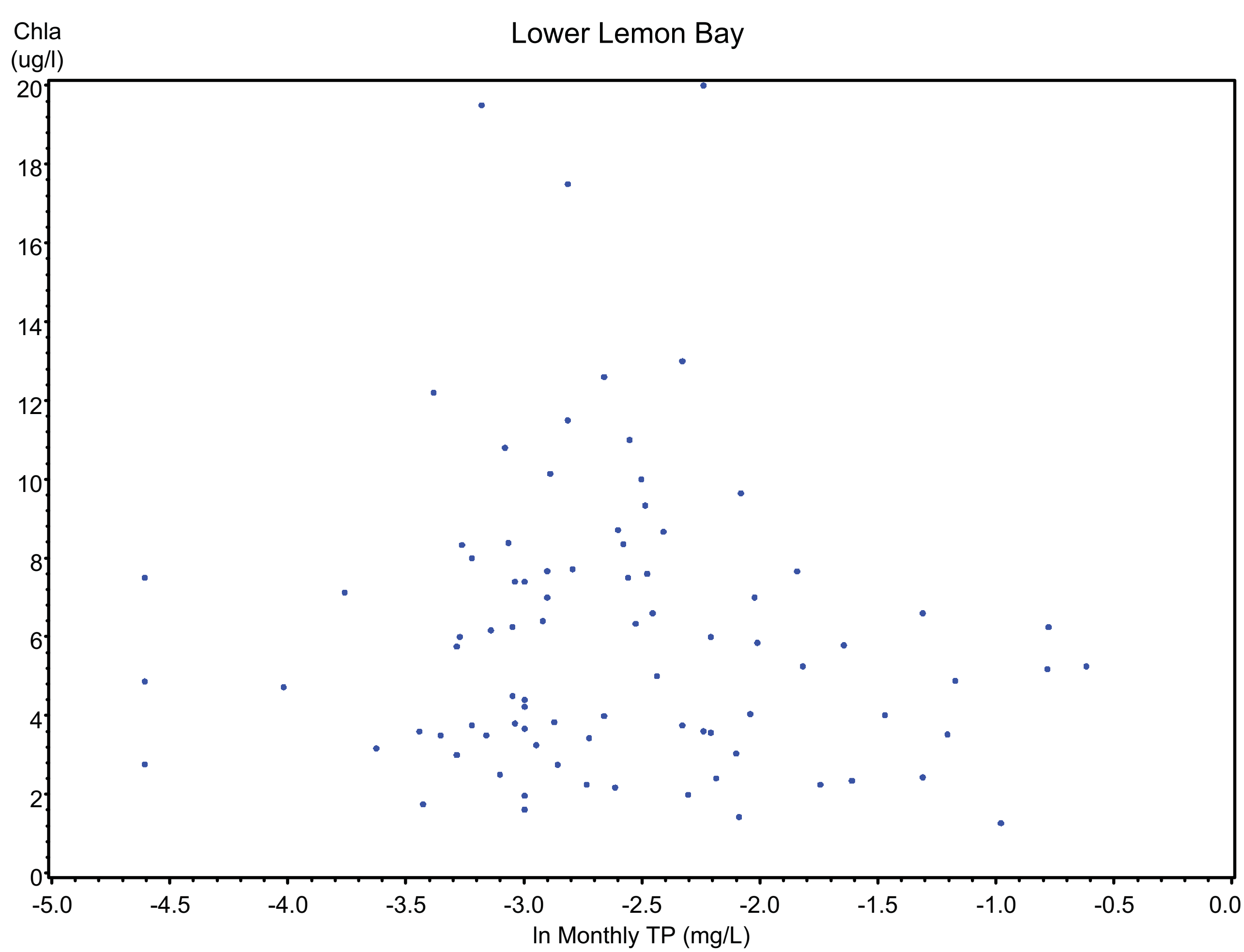

Upper Lemon Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)

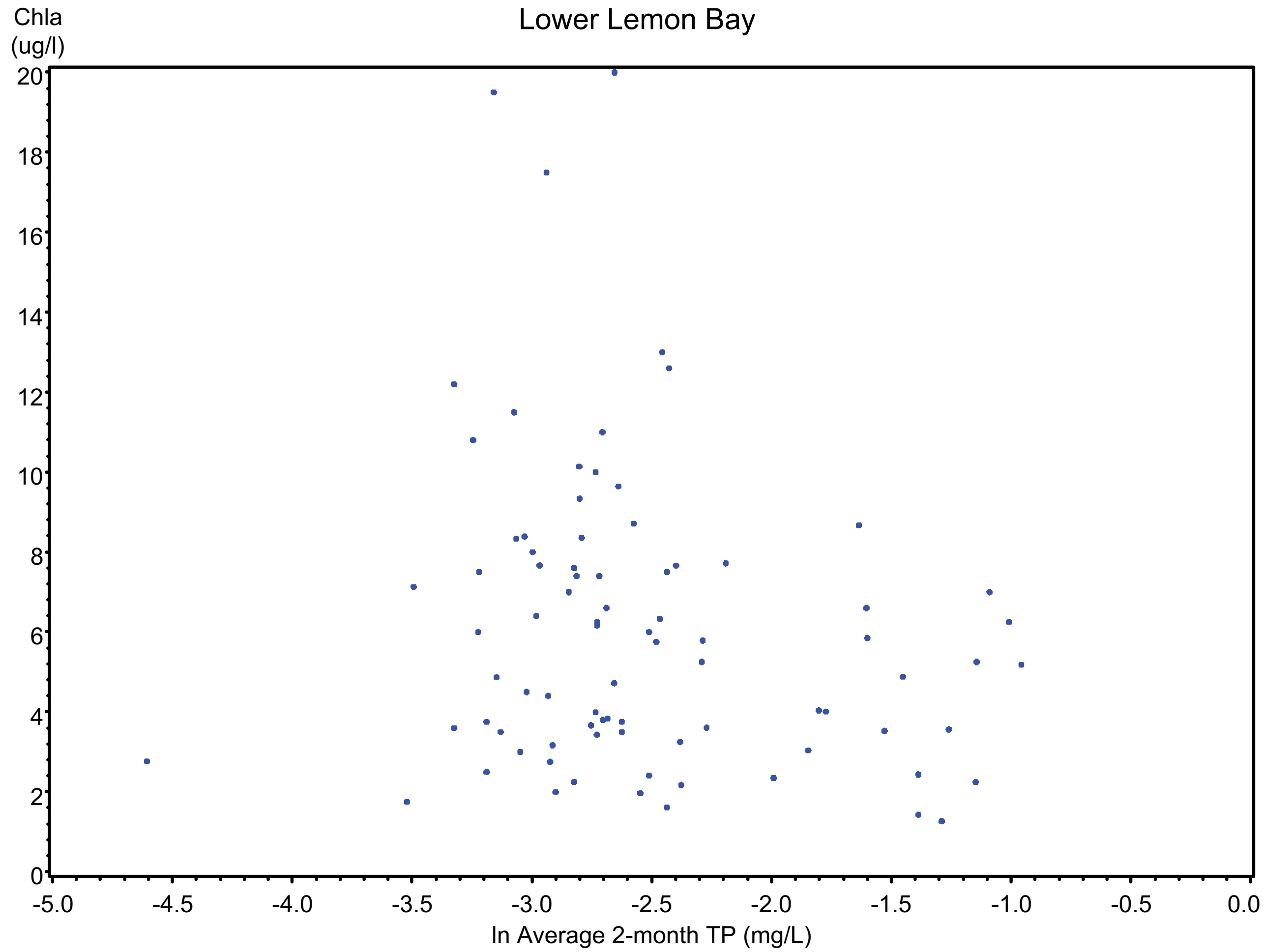

Upper Lemon Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)

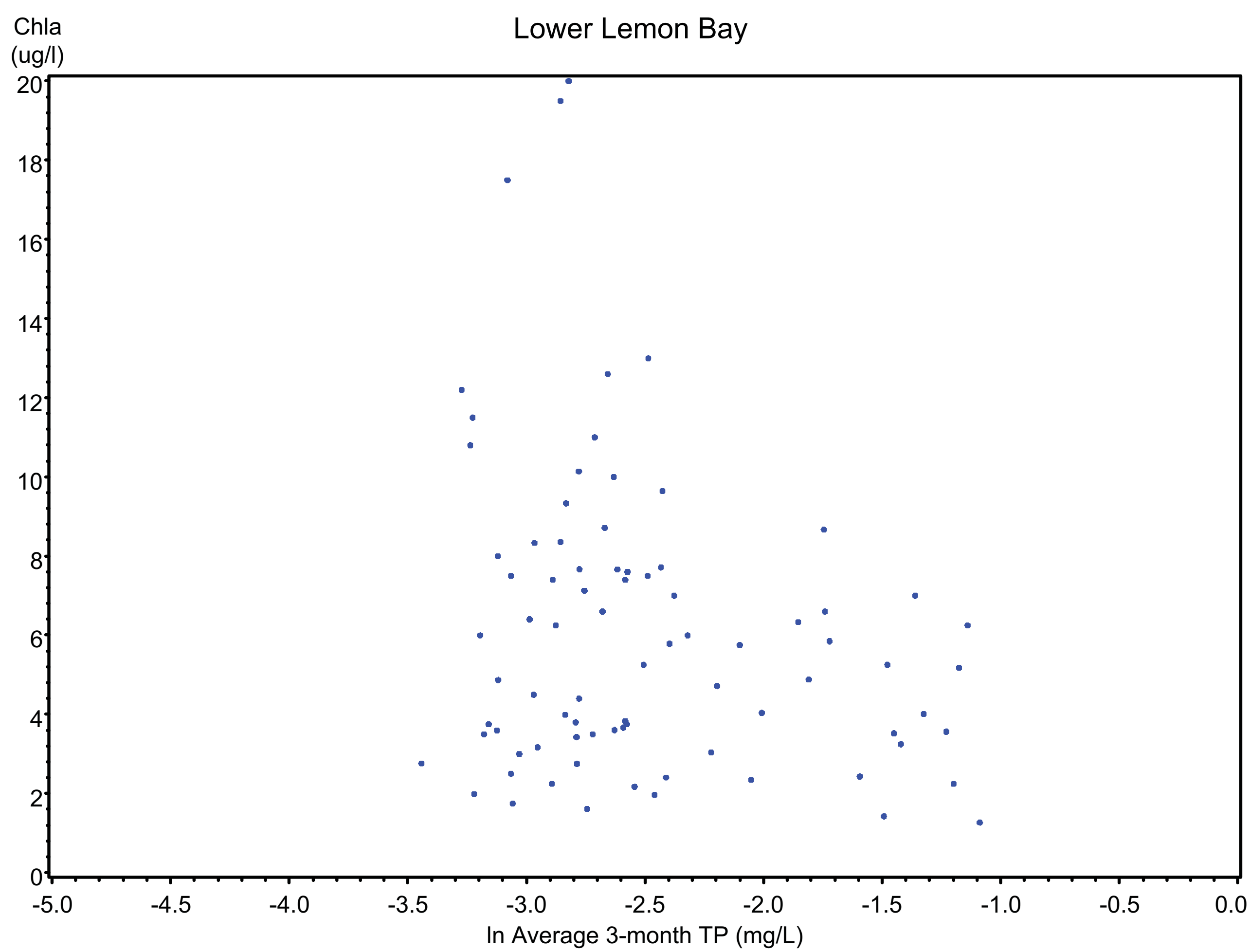

Lower Lemon Bay
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
0.1
0.2
0.3
0.4
0.5
0.6
Monthly TP (mg/L)

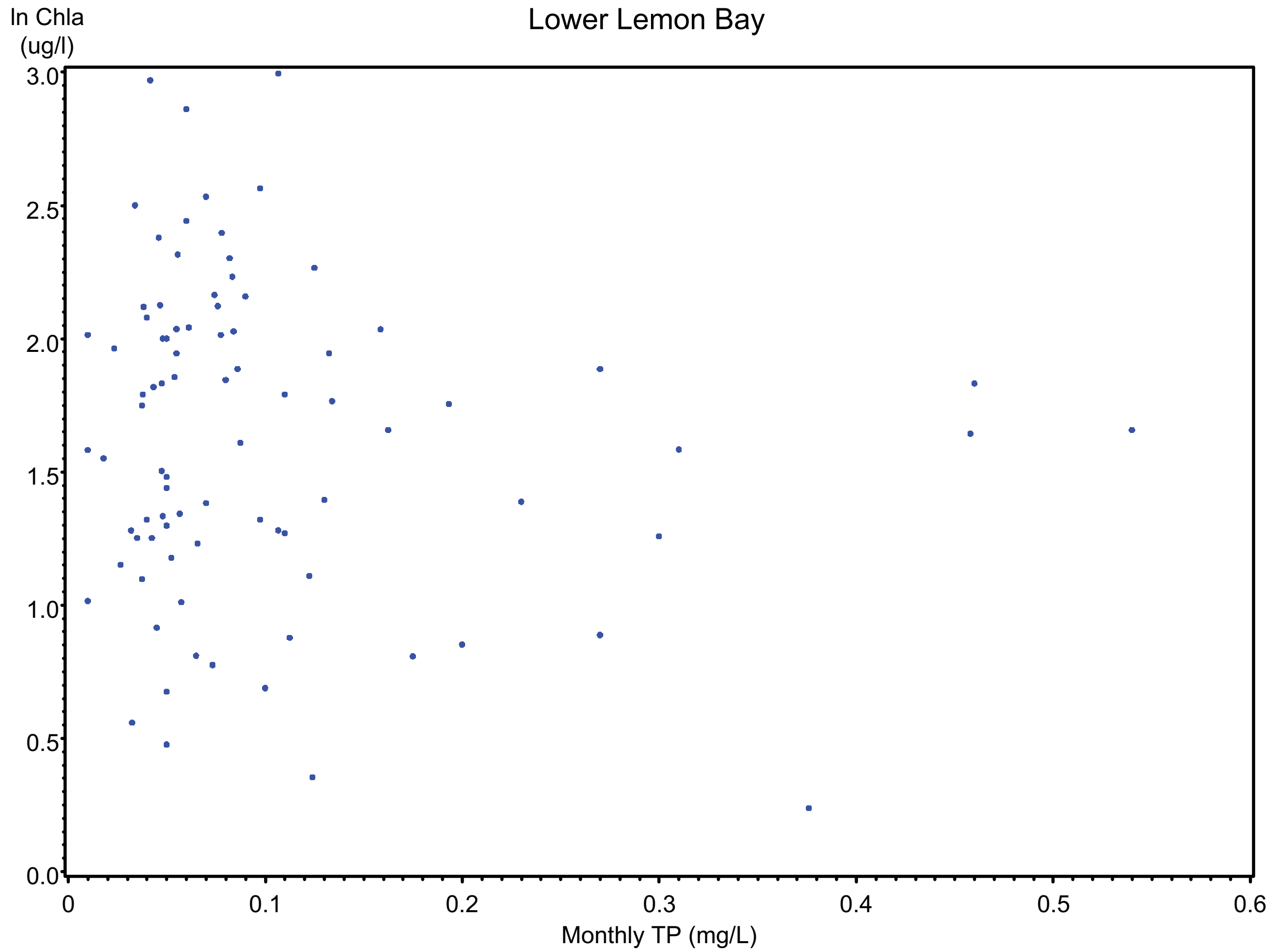

Lower Lemon Bay
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Average 2-month TP (mg/L)


Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Average 3-month TP (mg/L)

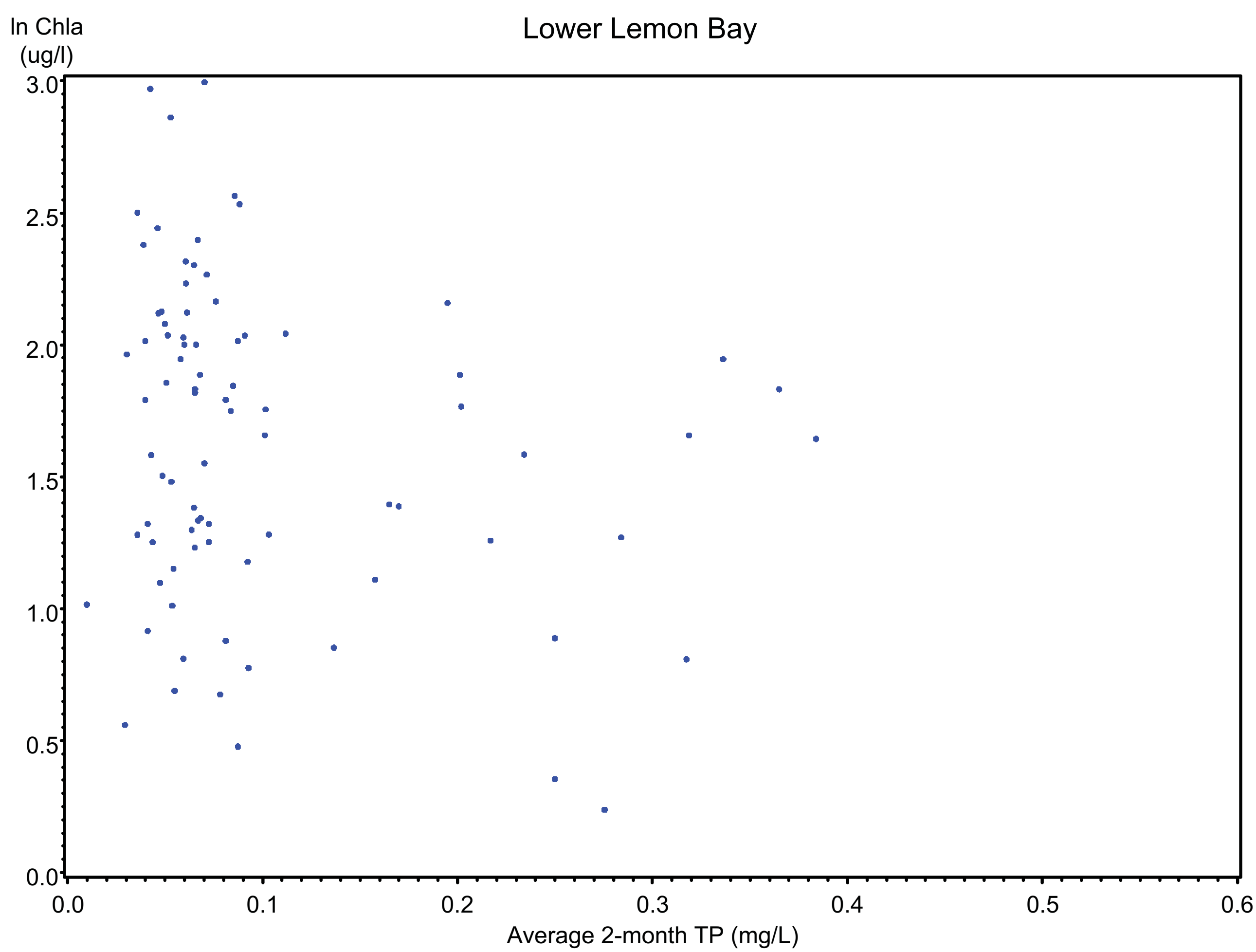

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)


Chla
(ug/l)
Lower Lemon Bay
0
2
4
6
8
10
12
14
16
18
20
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)

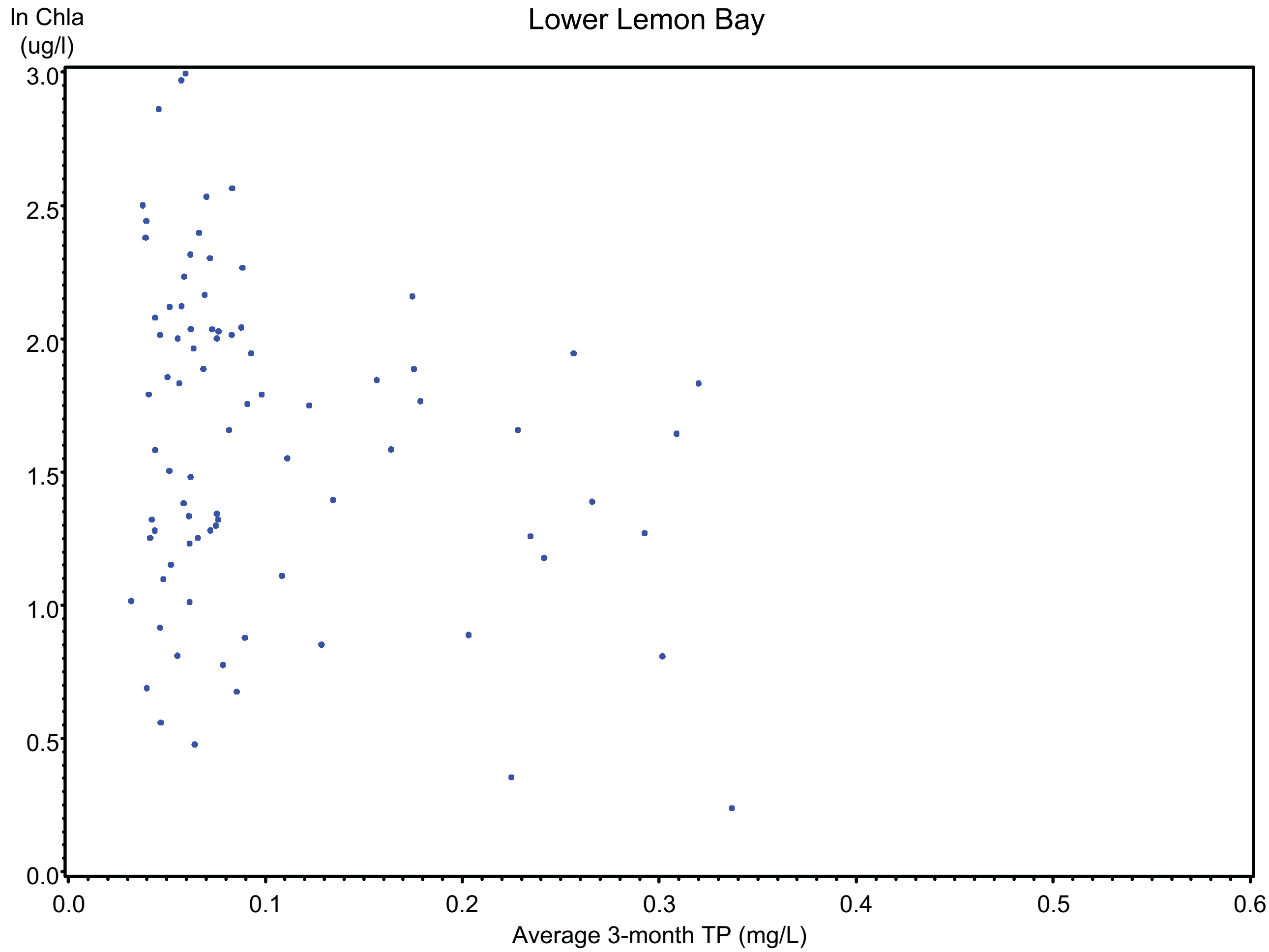

Chla
(ug/l)
Lower Lemon Bay
0
2
4
6
8
10
12
14
16
18
20
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)

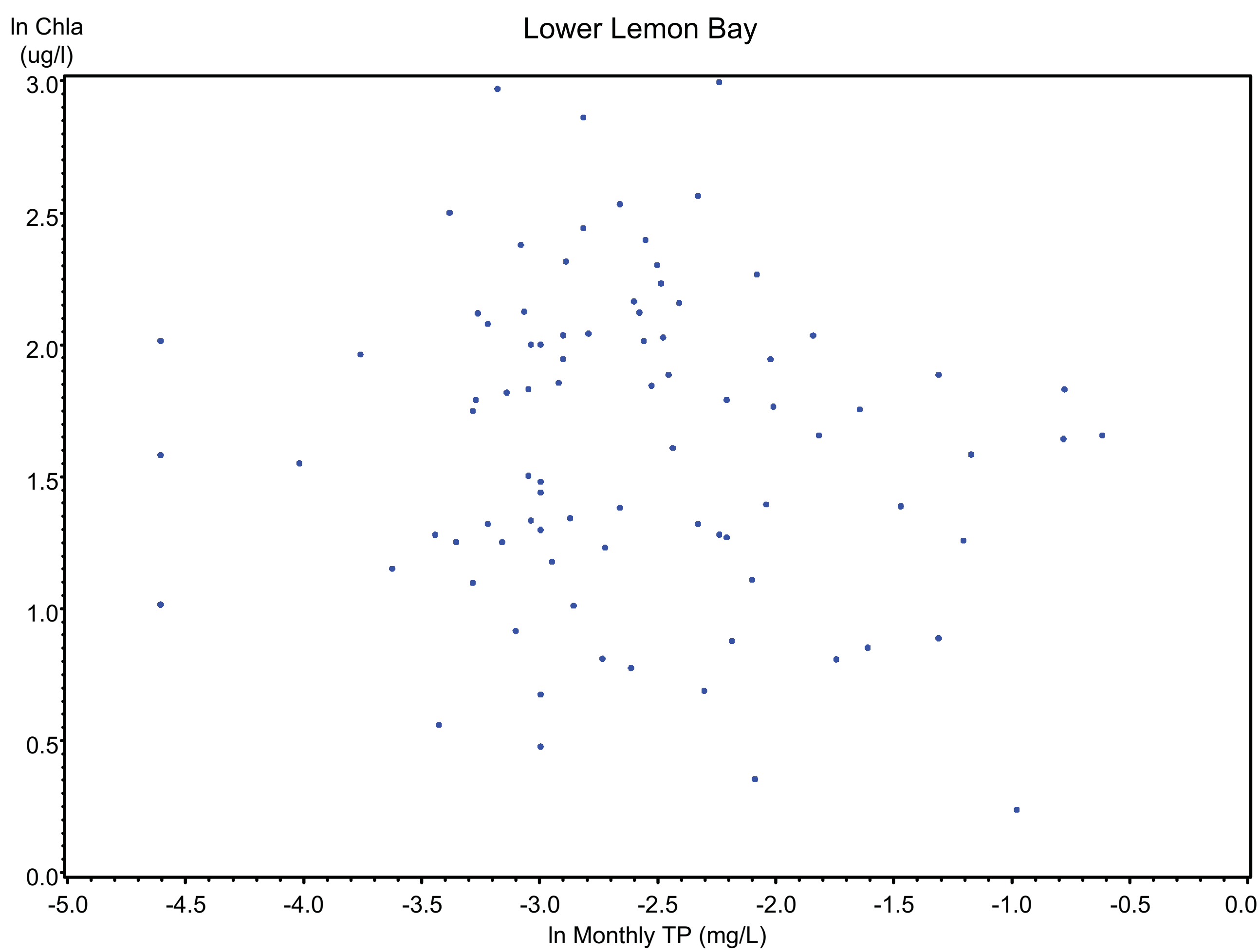


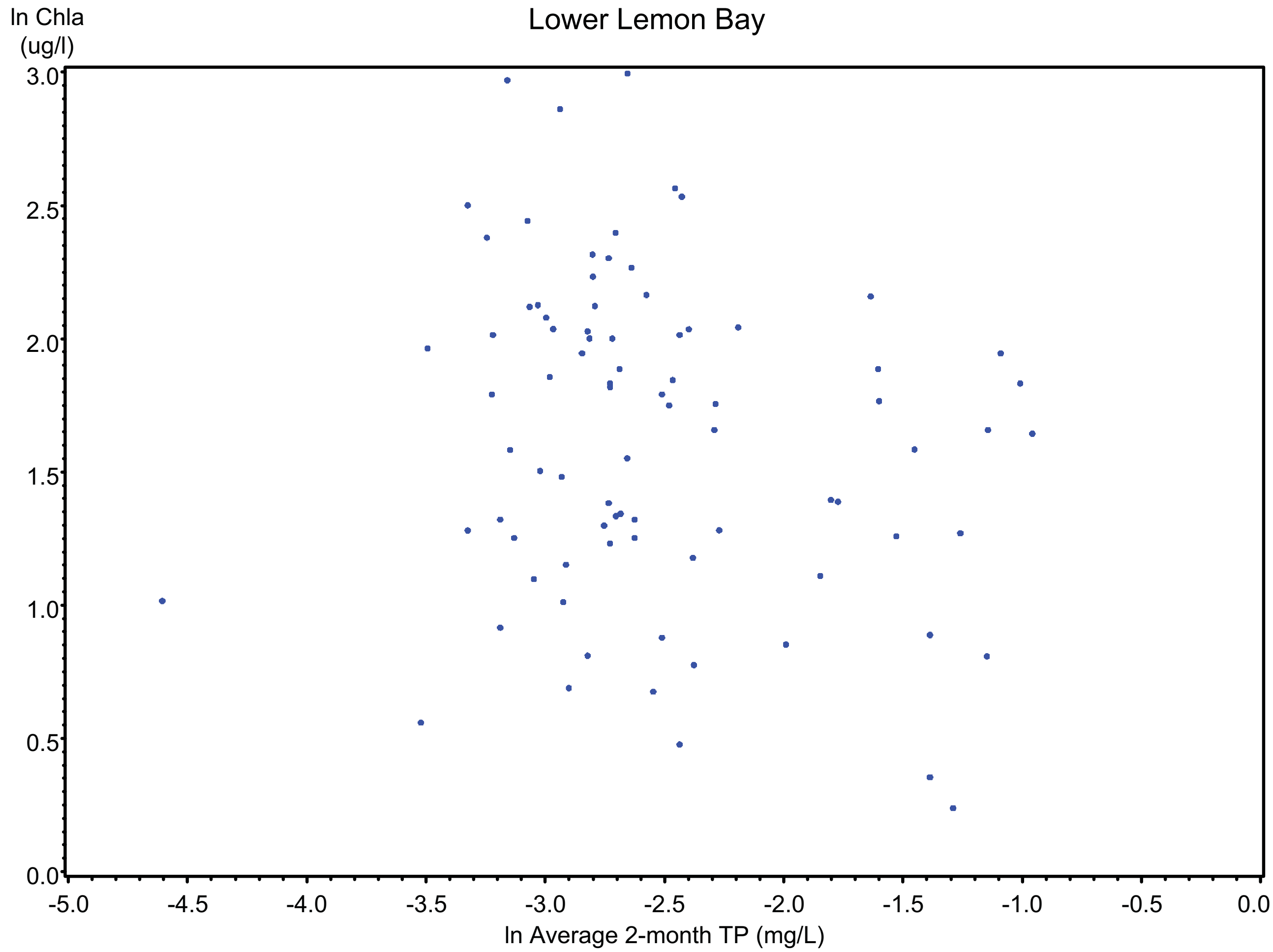
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.1
0.2
0.3
0.4
0.5
0.6
Monthly TP (mg/L)

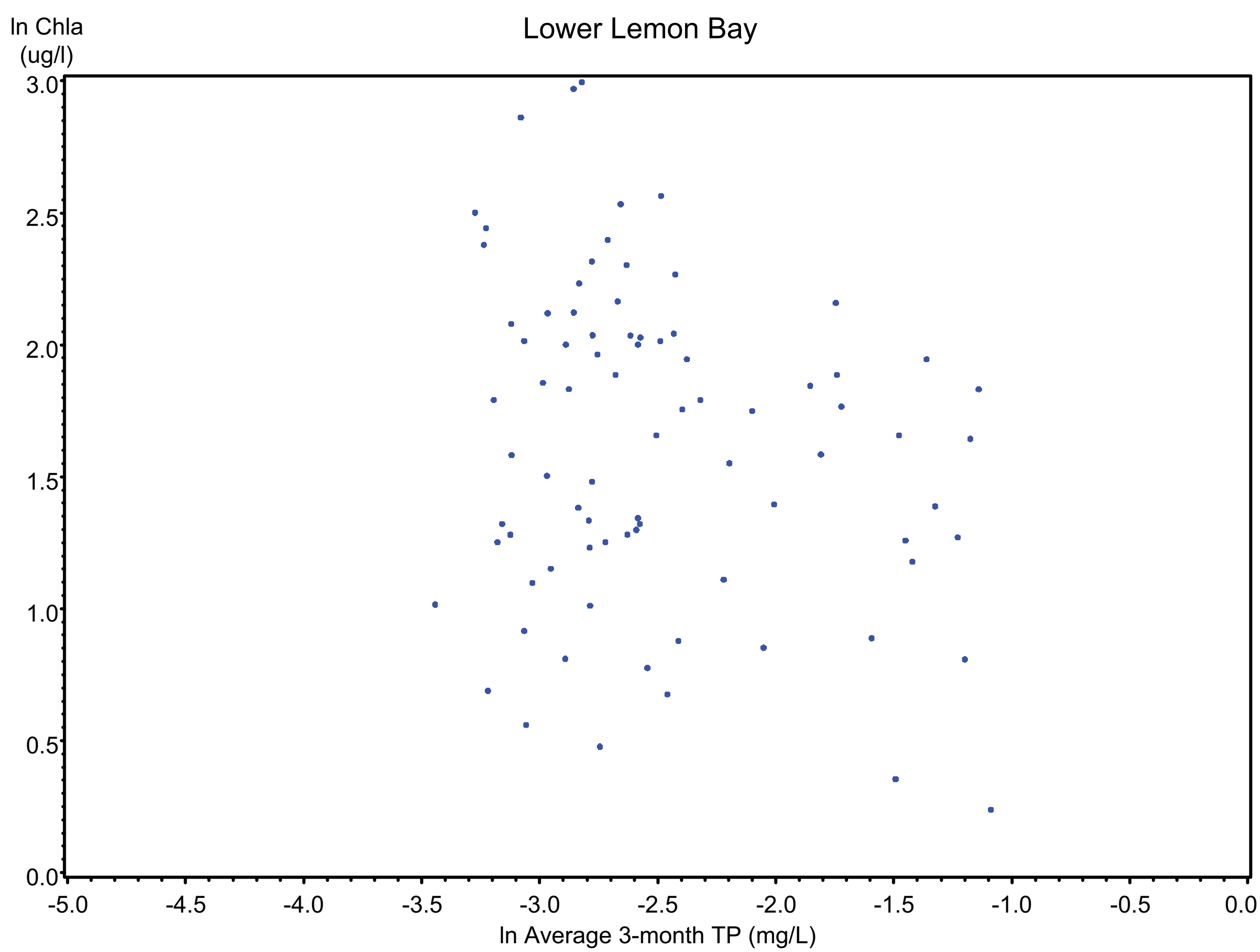


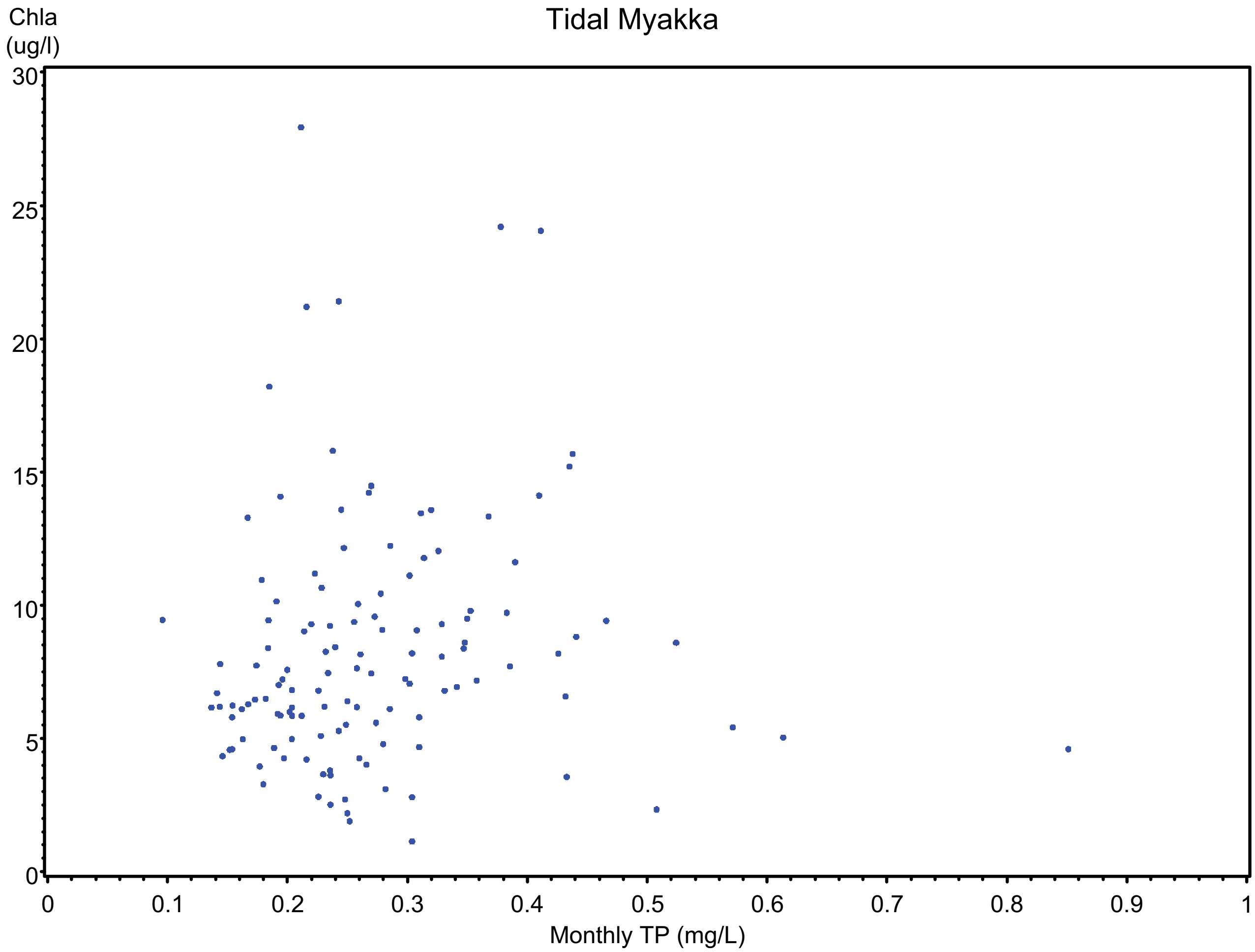
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Average 2-month TP (mg/L)

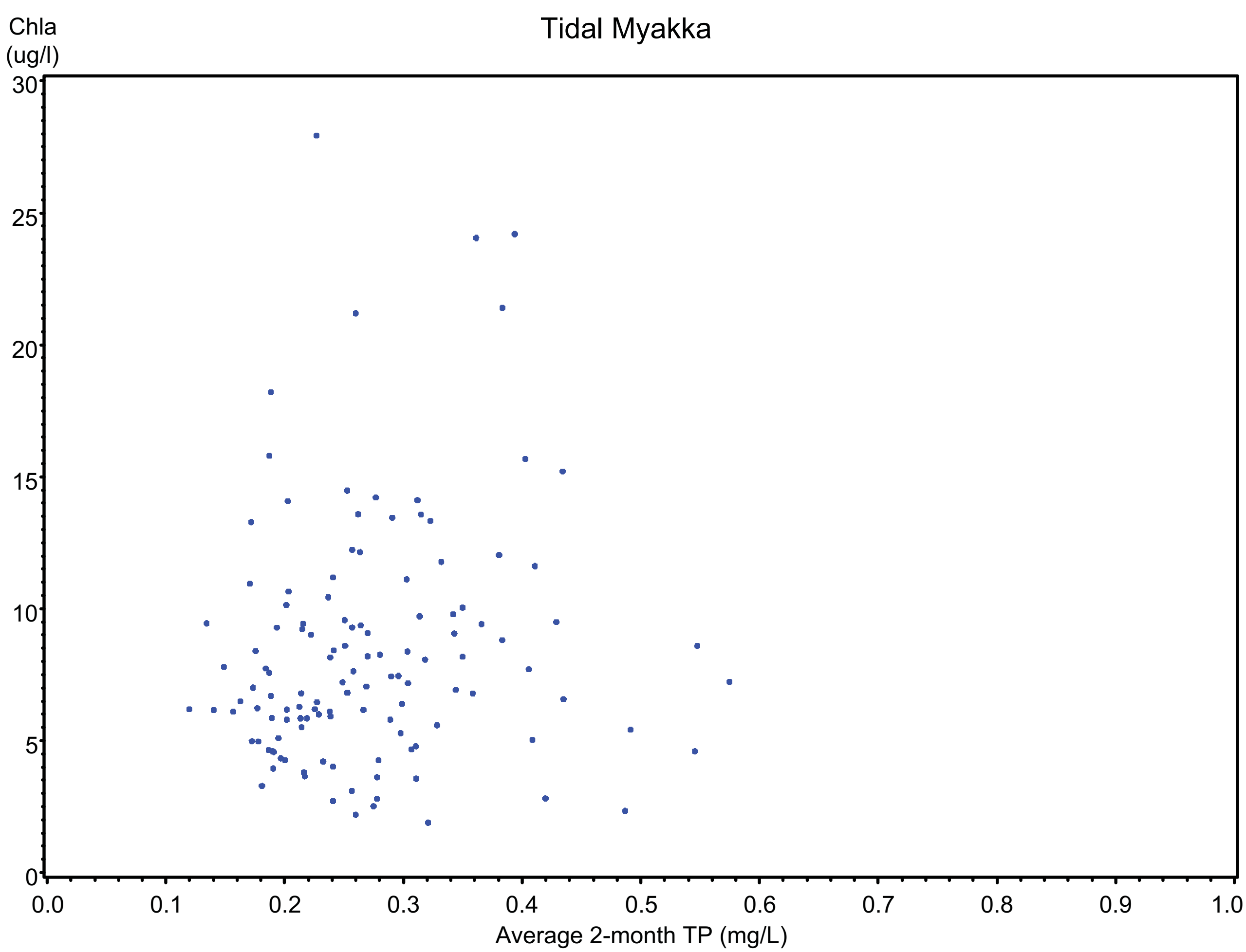

Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Average 3-month TP (mg/L)

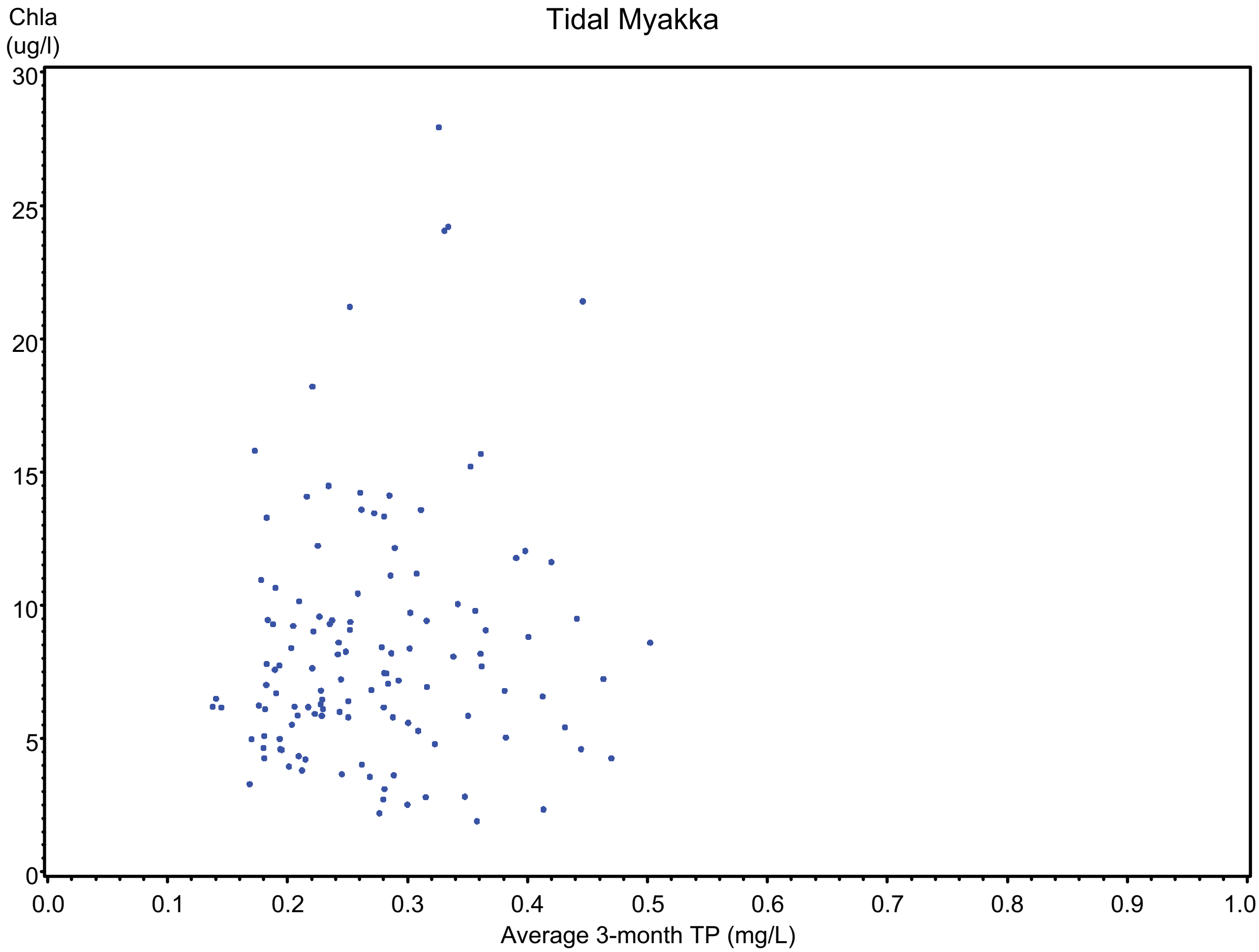

Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)


Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)

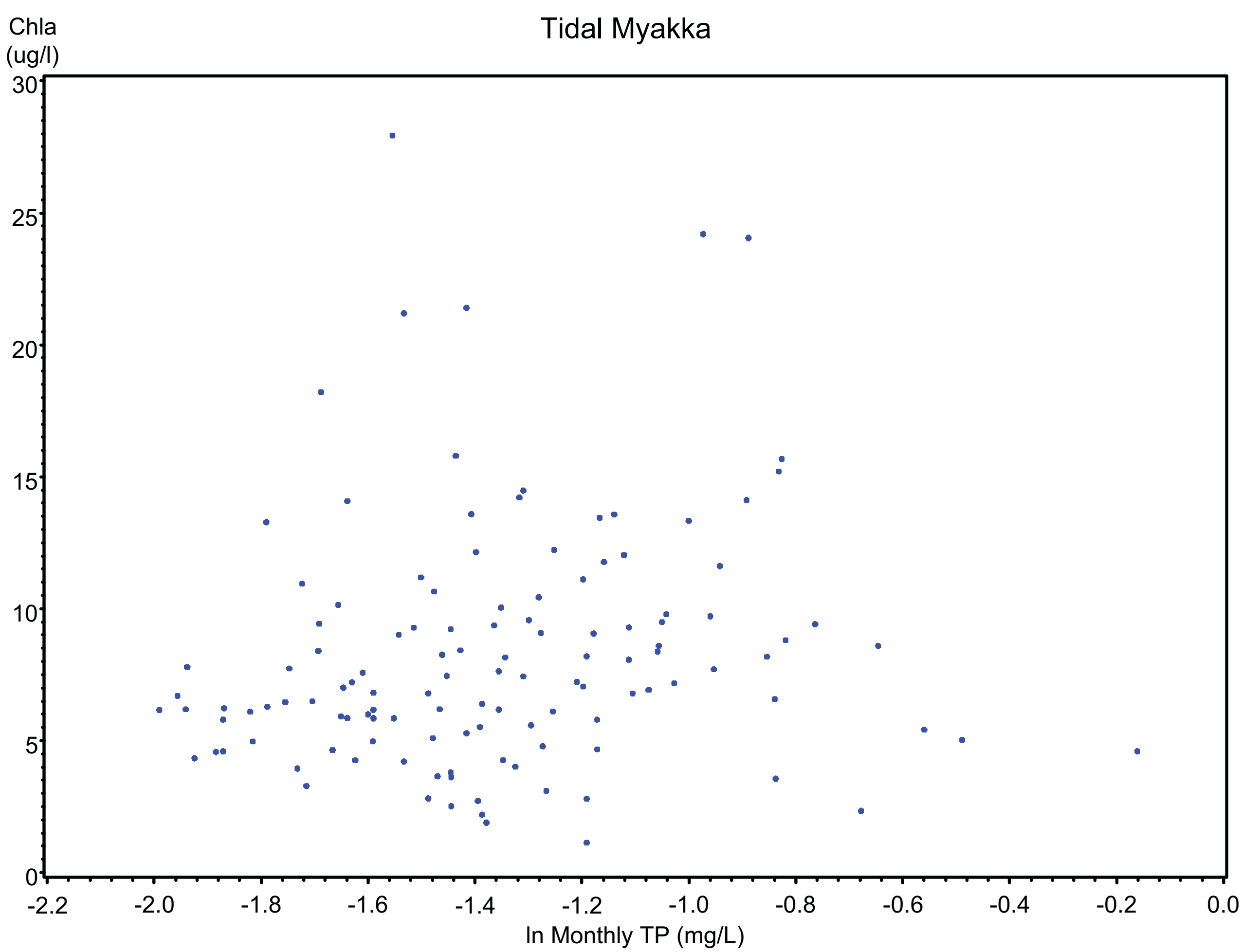

Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)


Chla
(ug/l)
Tidal Myakka
30
25
20
15
10
5
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Monthly TP (mg/L)

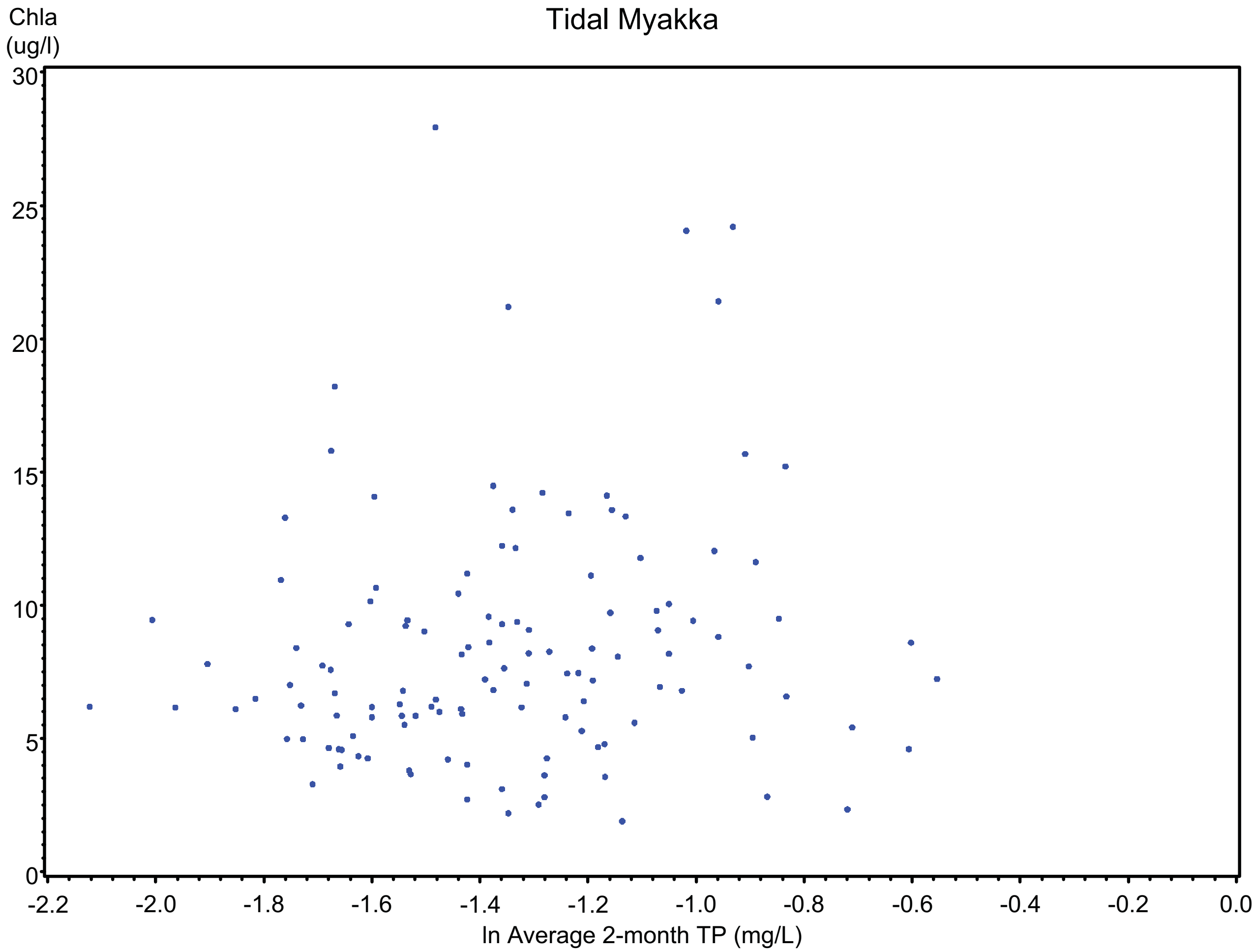

Chla
(ug/l)
Tidal Myakka
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Average 2-month TP (mg/L)

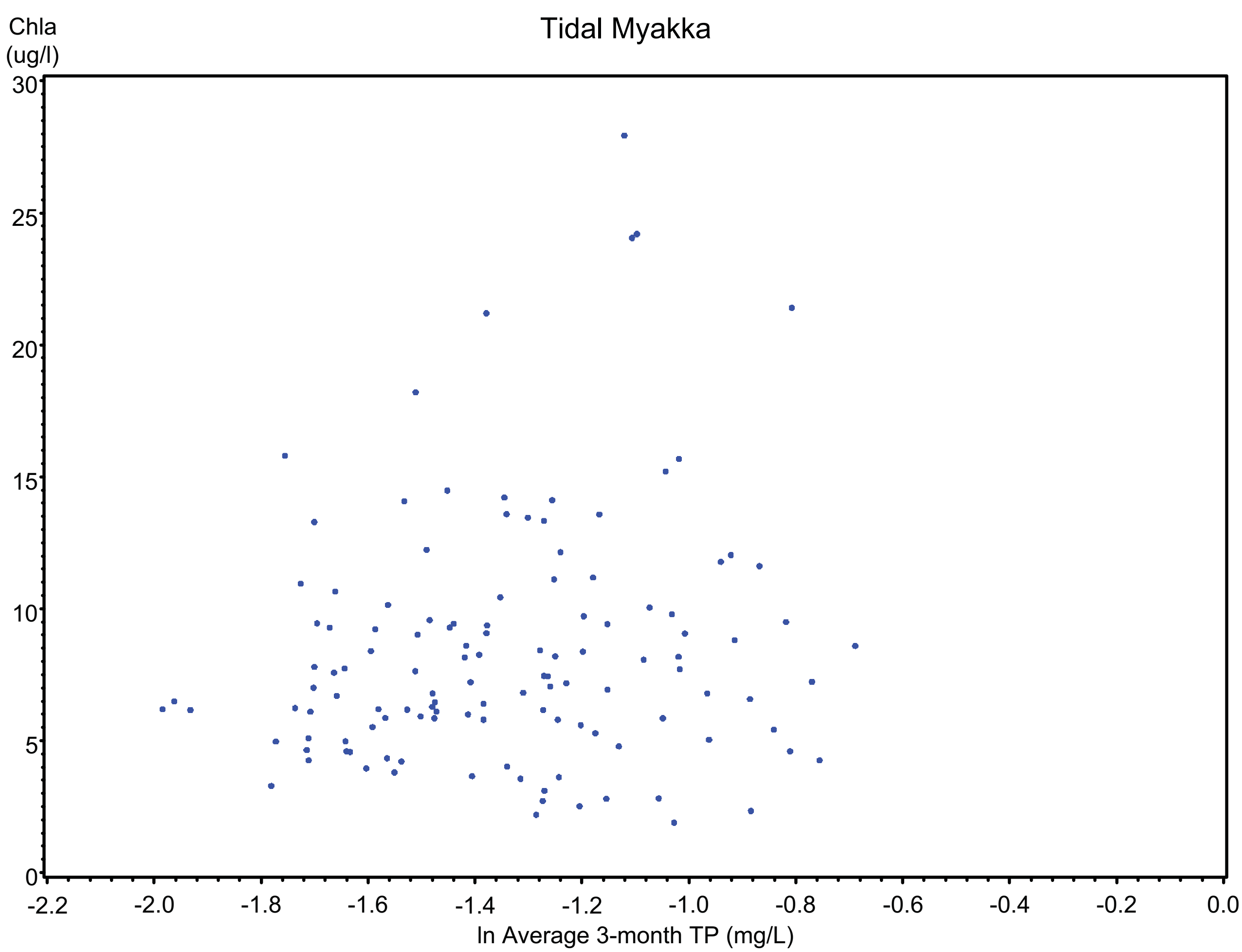


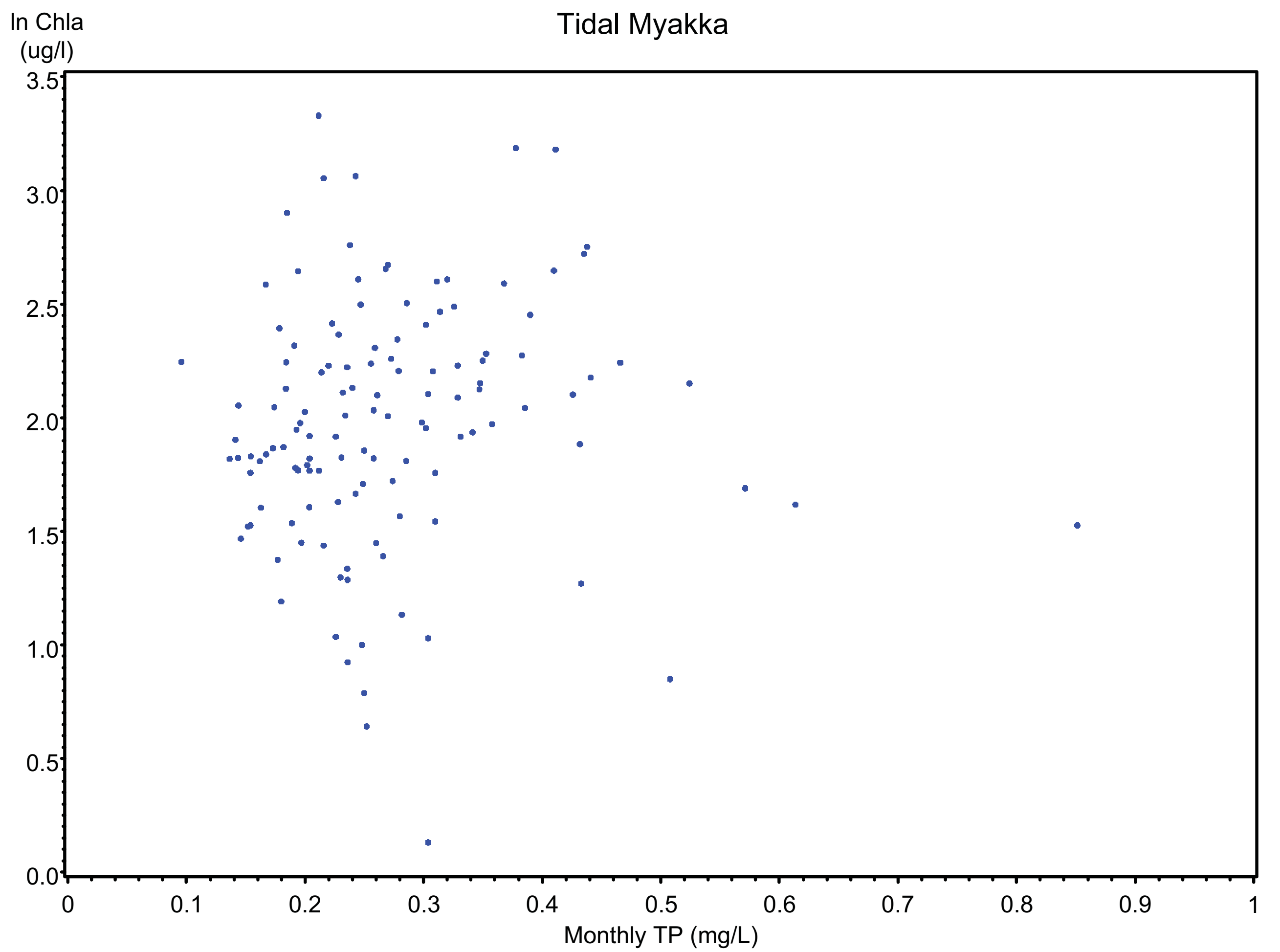
Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Average 3-month TP (mg/L)

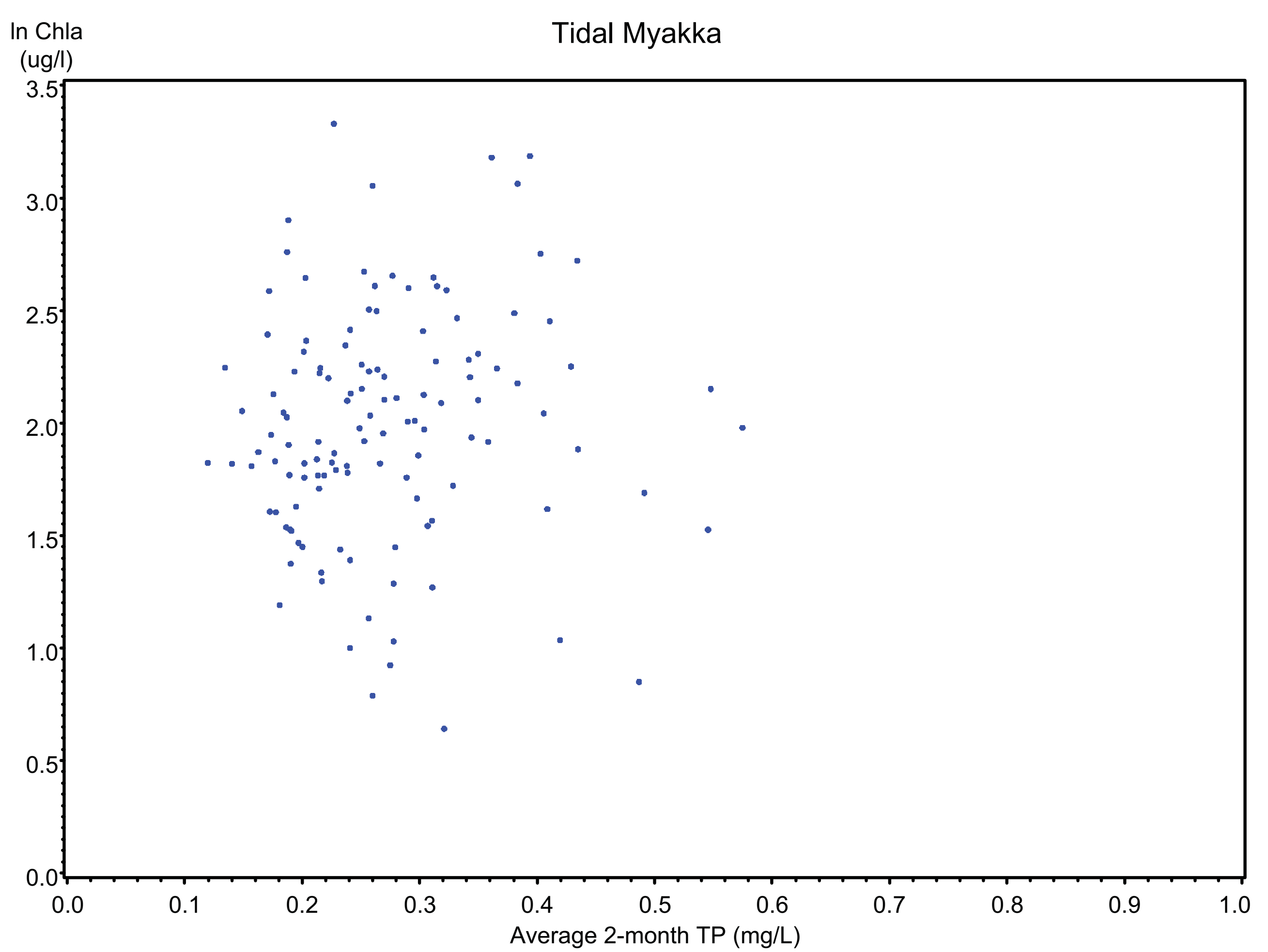


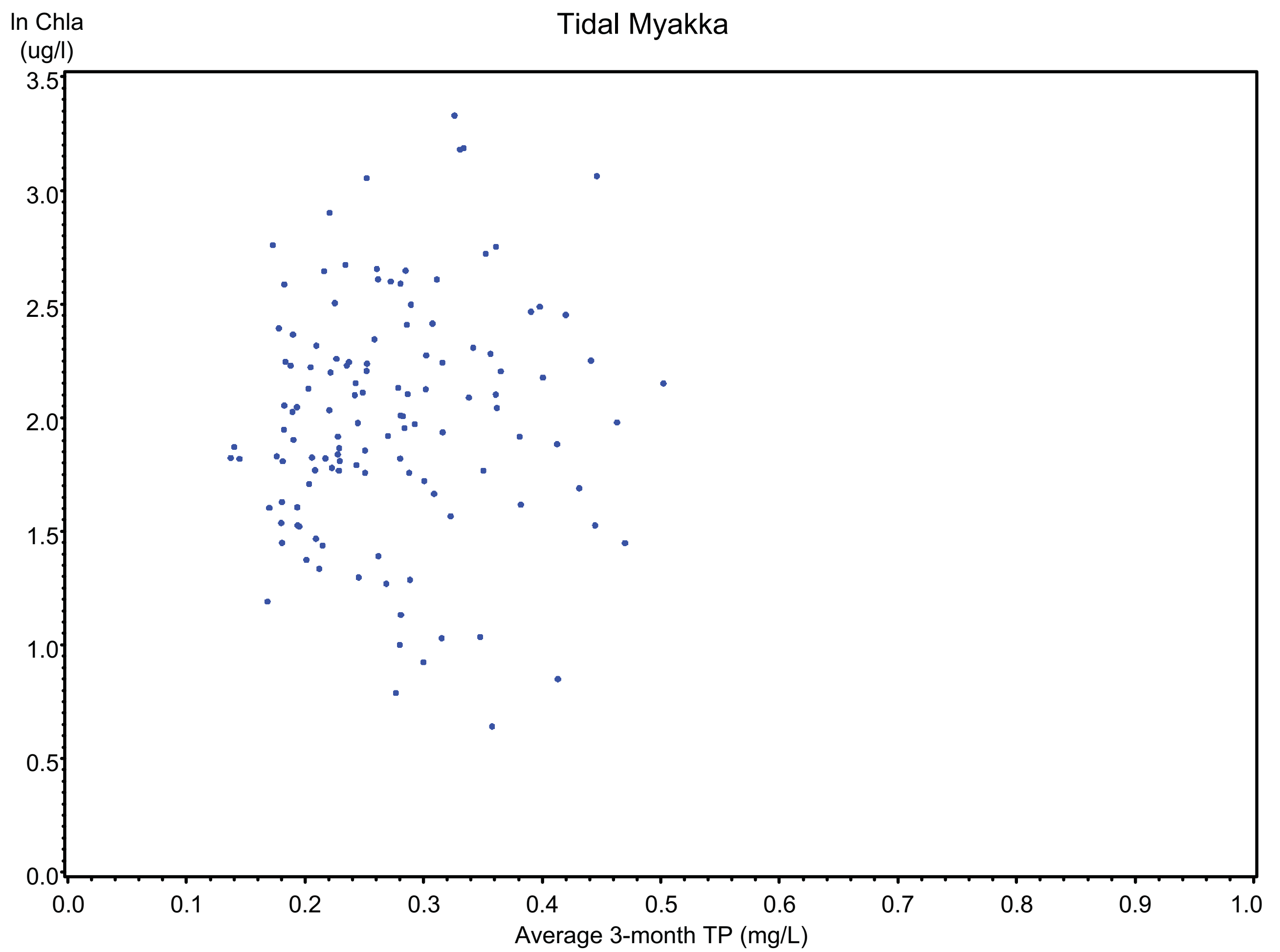
Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Monthly TP (mg/L)

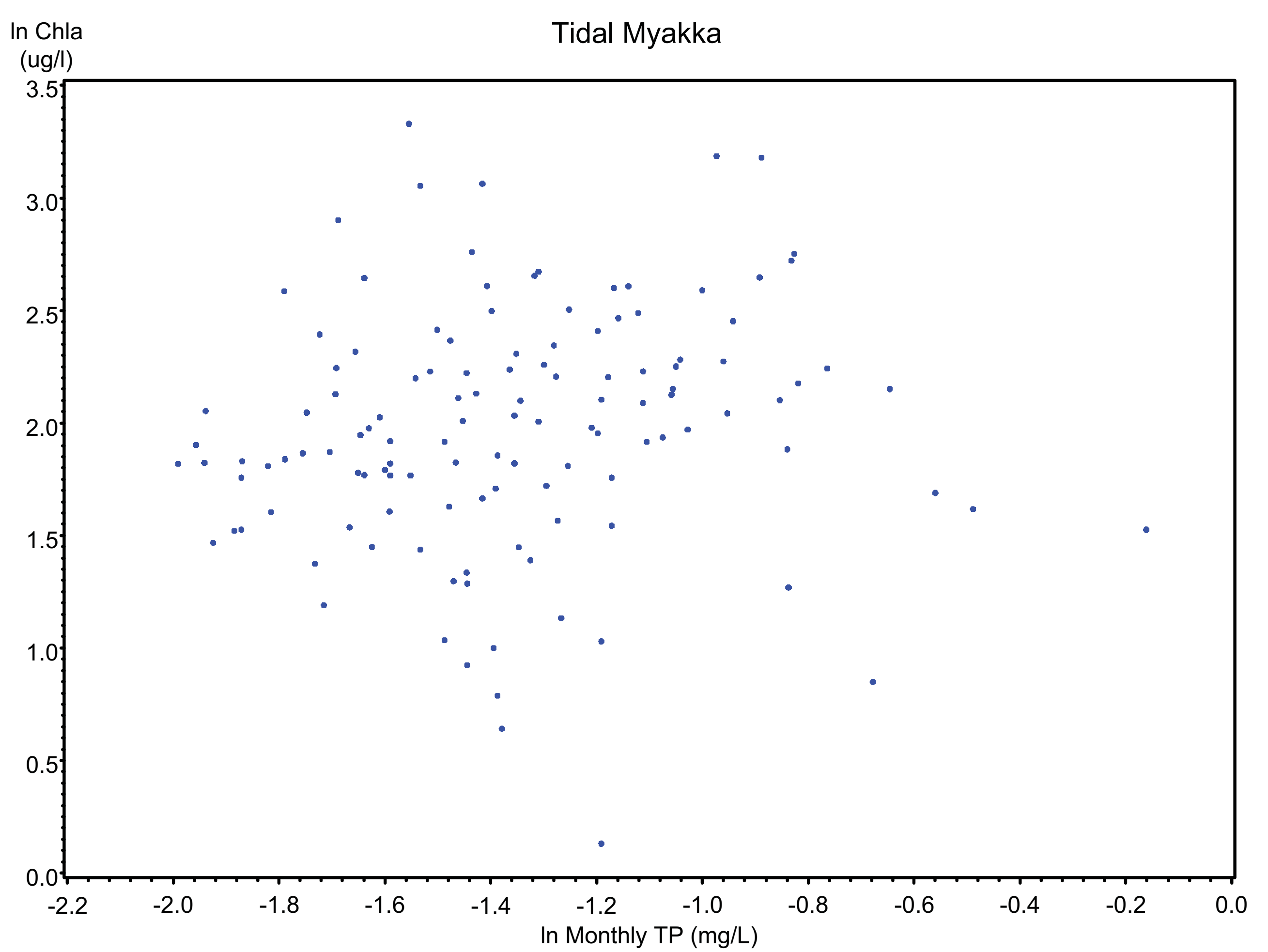

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Average 2-month TP (mg/L)

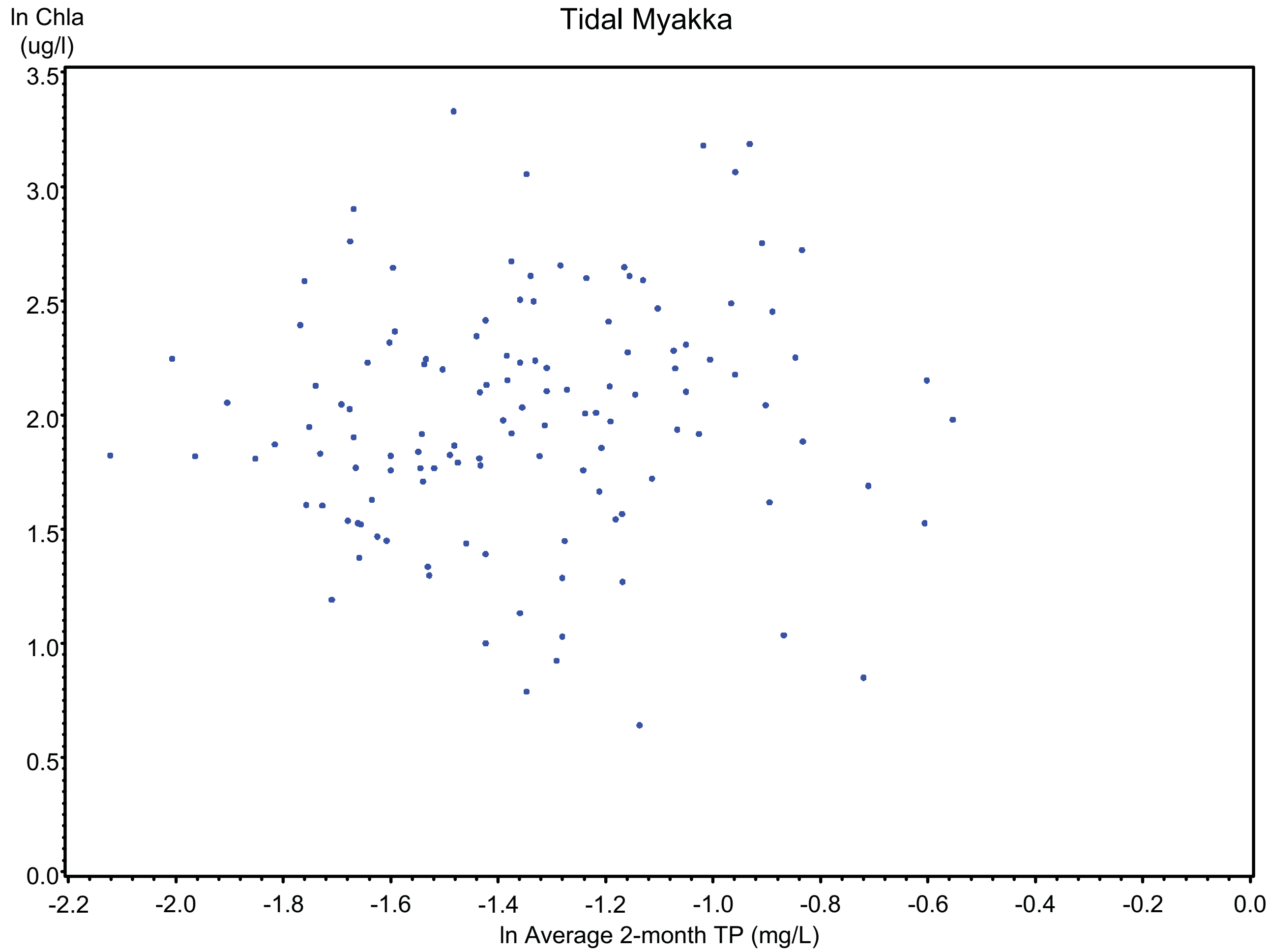

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Average 3-month TP (mg/L)

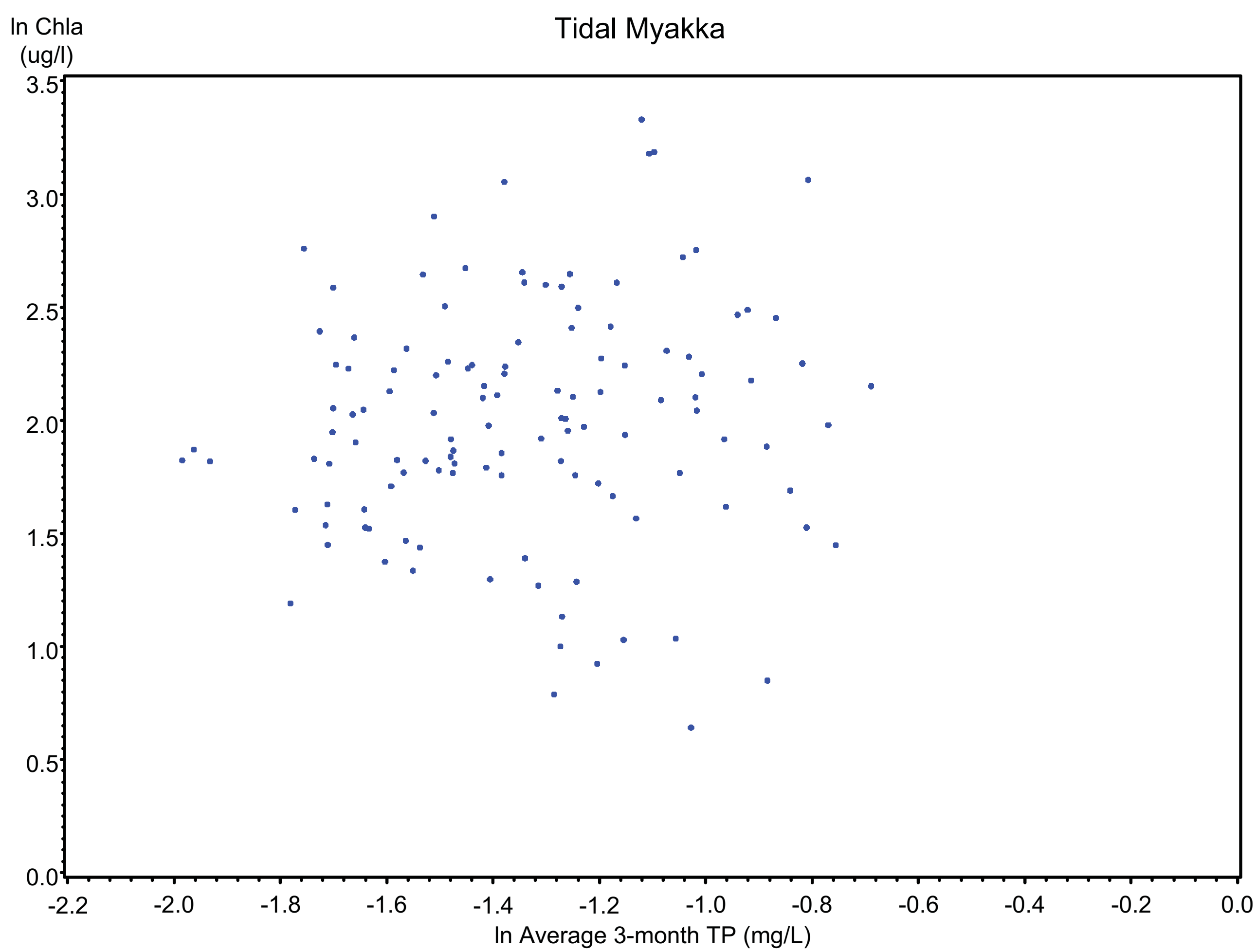

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
Monthly TP (mg/L)

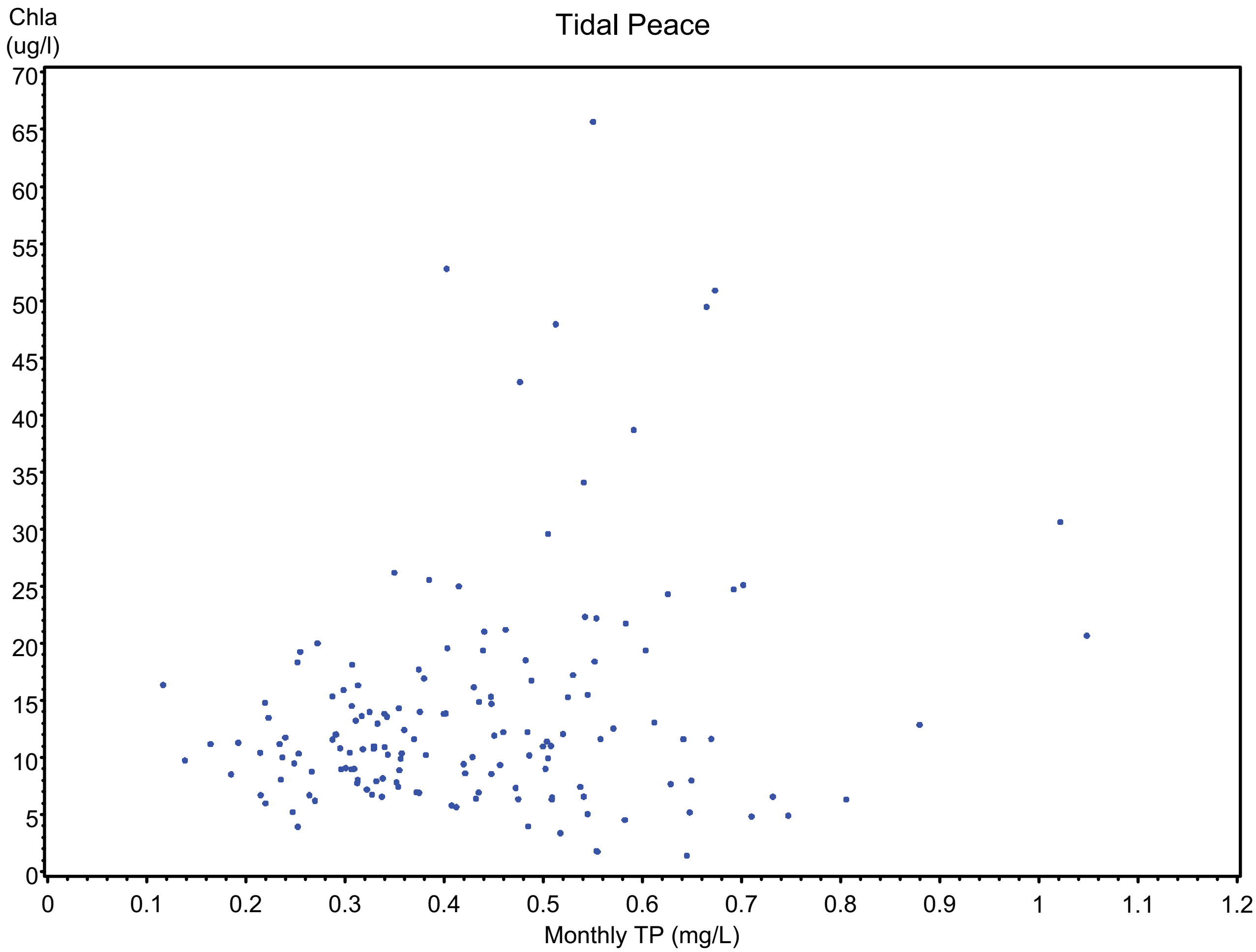

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Average 2-month TP (mg/L)

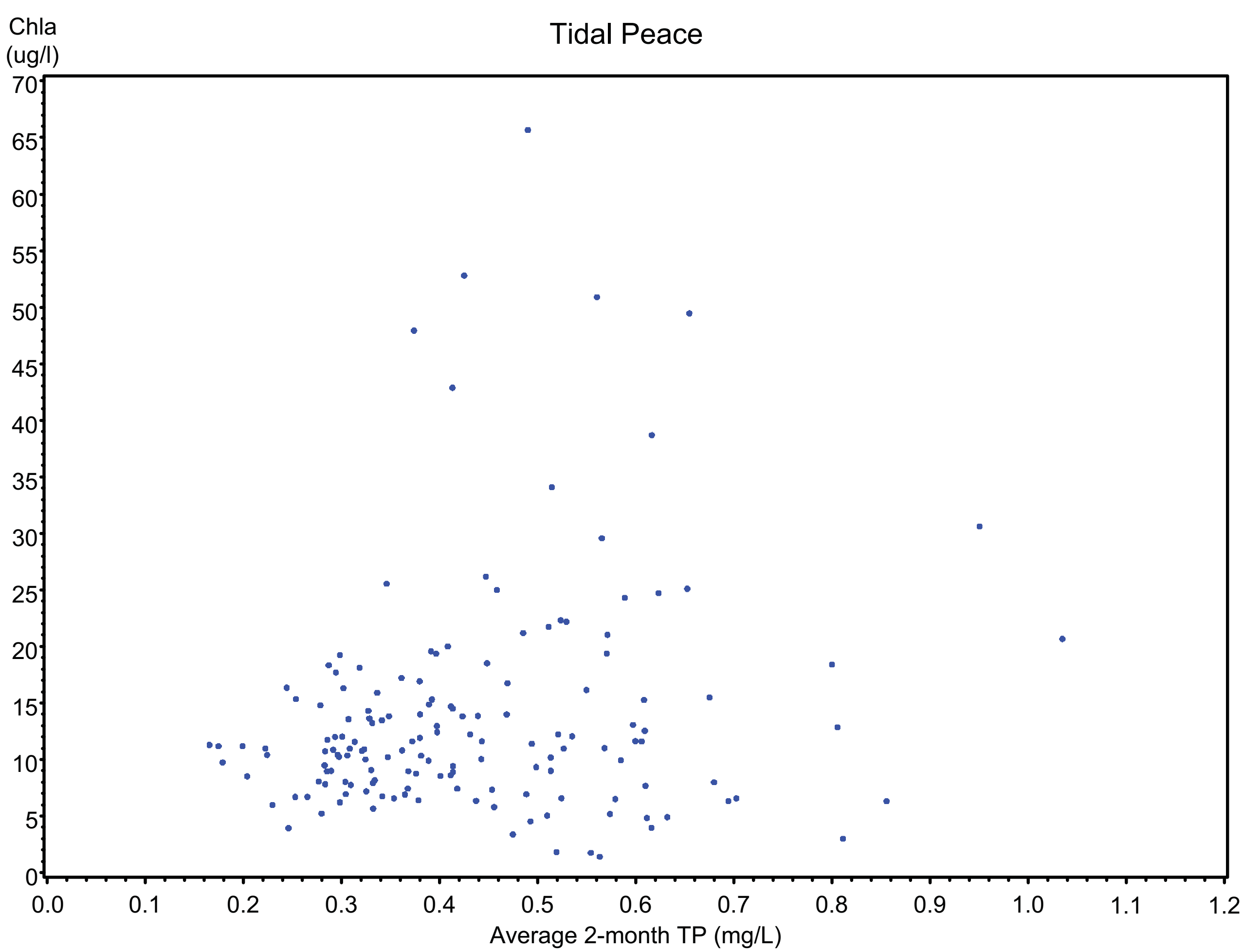

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
Average 3-month TP (mg/L)

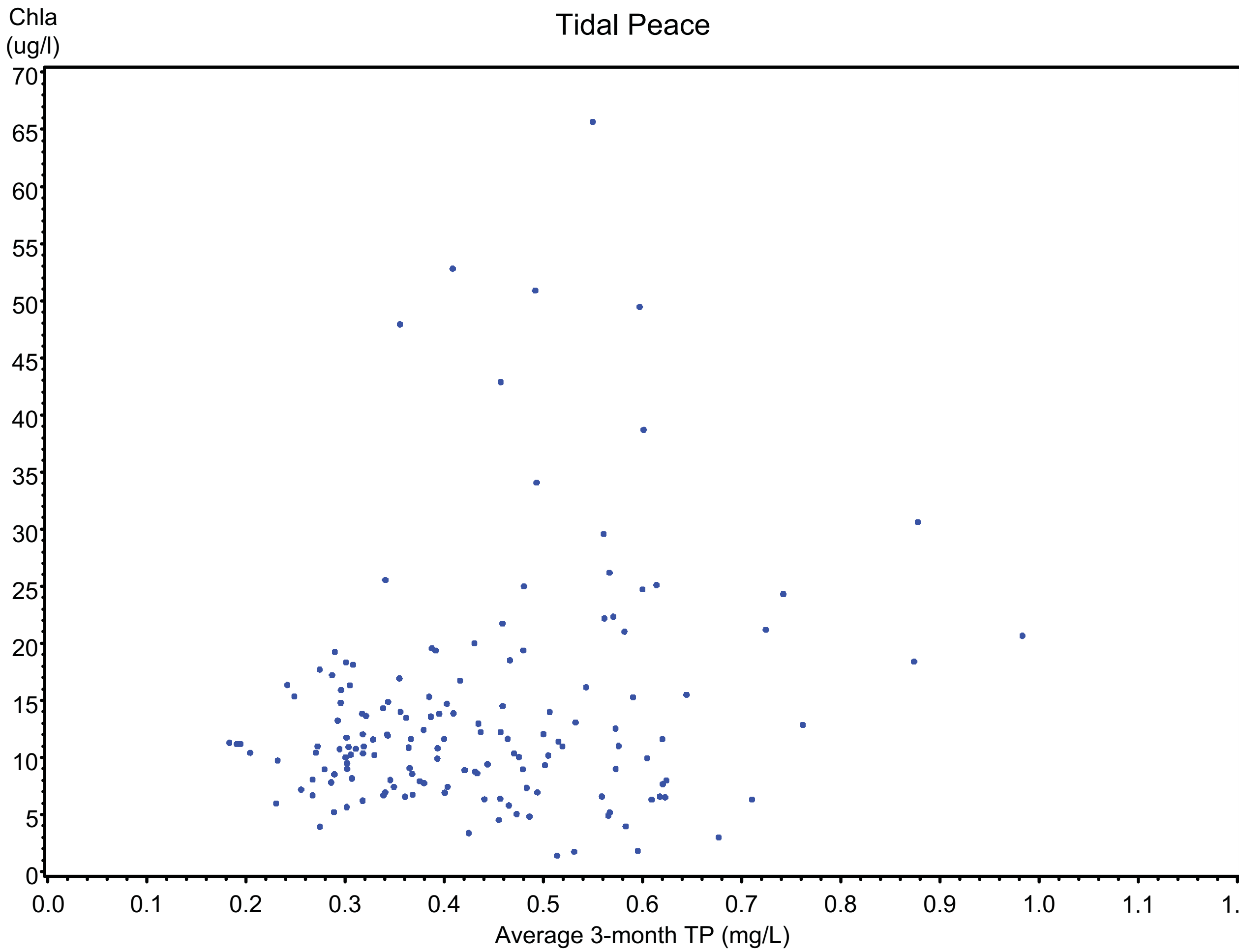

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Monthly TP (mg/L)

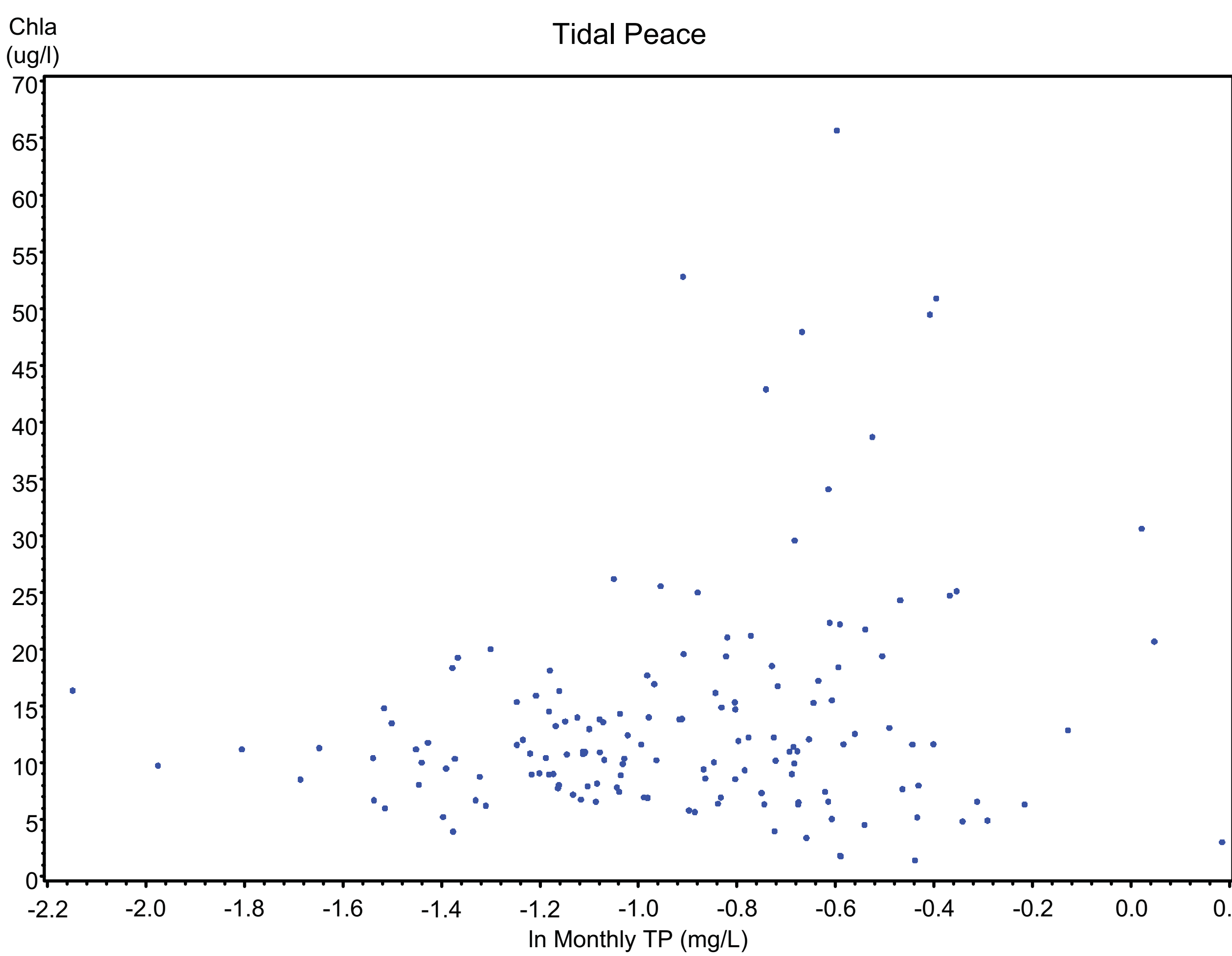

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Average 2-month TP (mg/L)

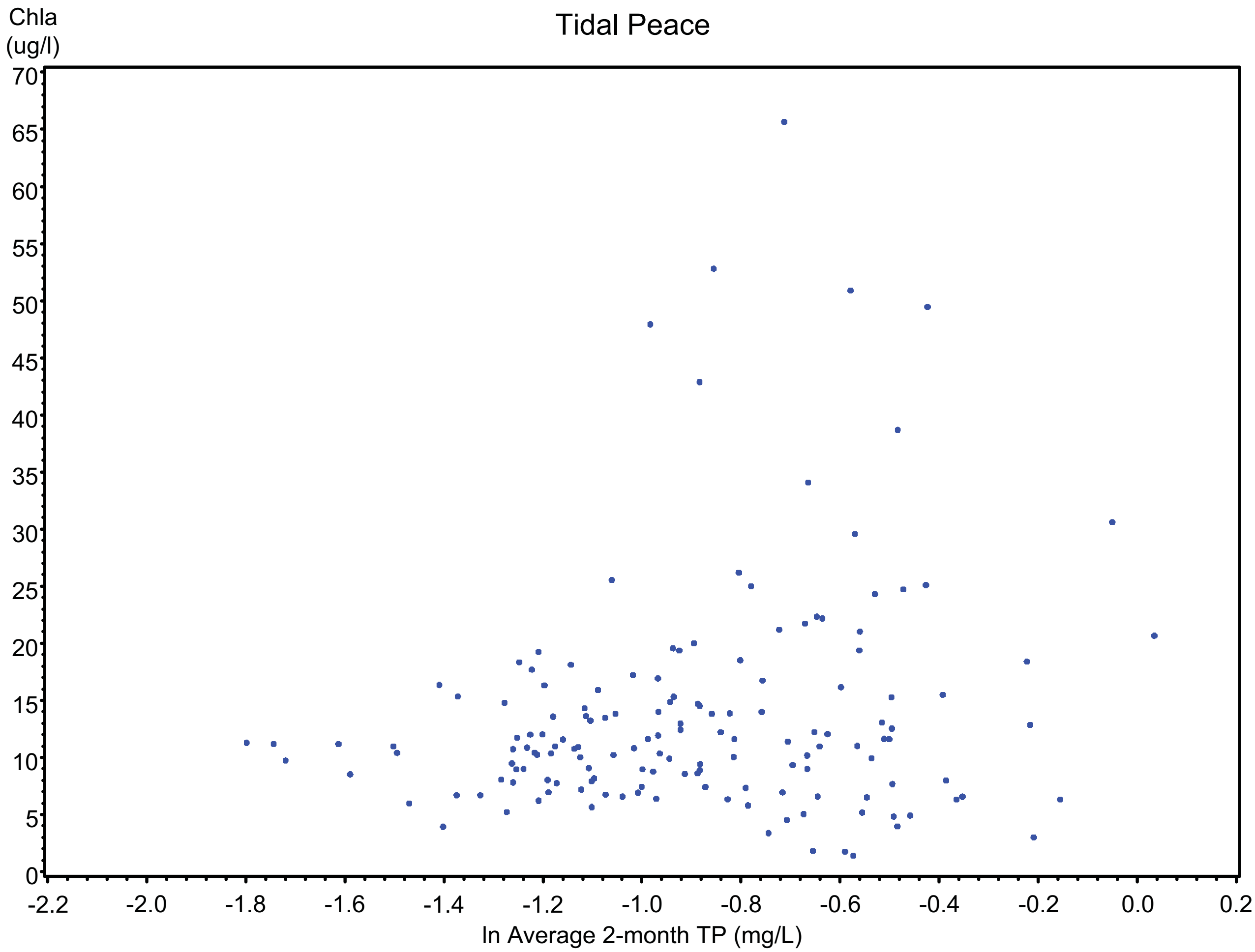

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
ln Average 3-month TP (mg/L)

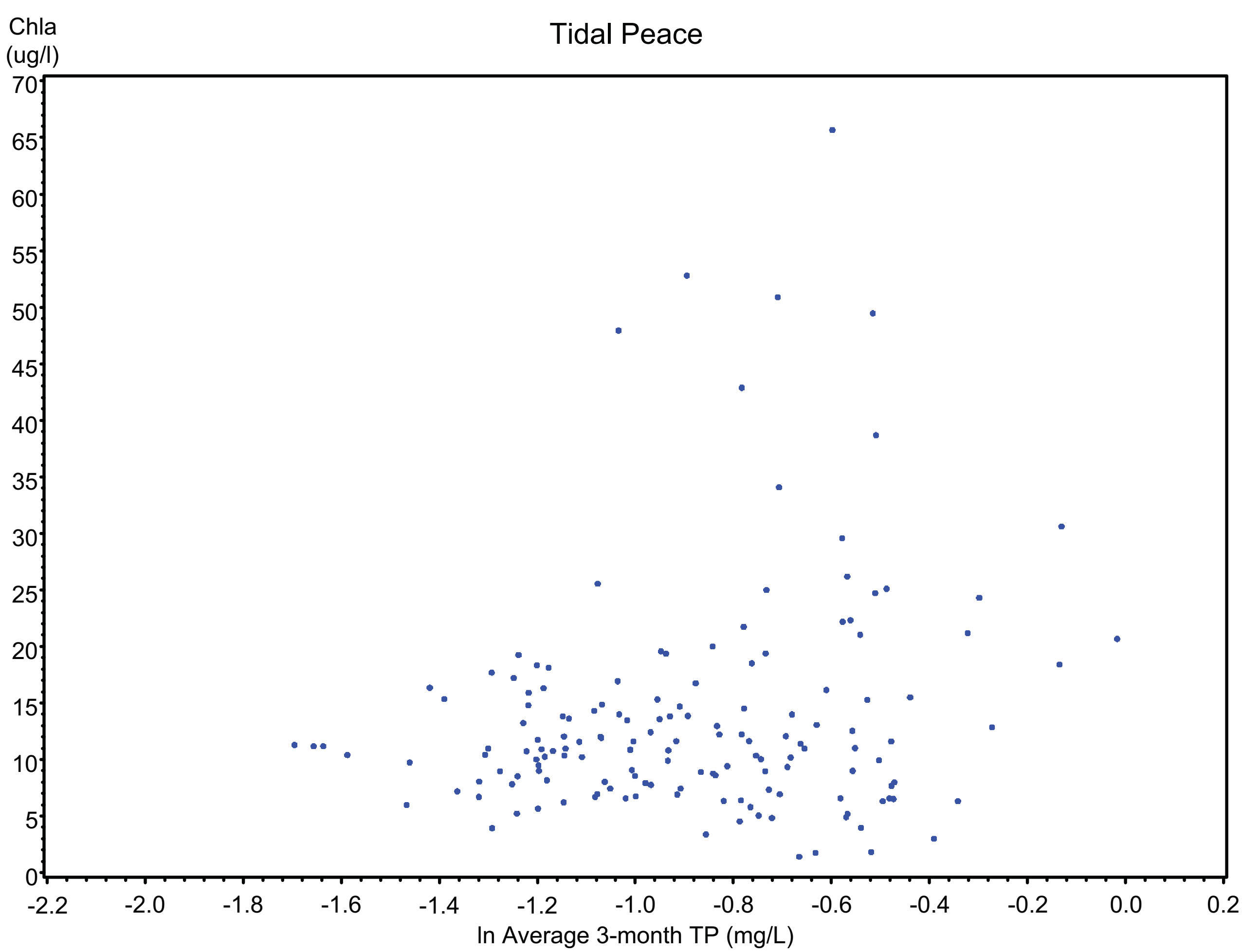

Tidal Peace
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
Monthly TP (mg/L)

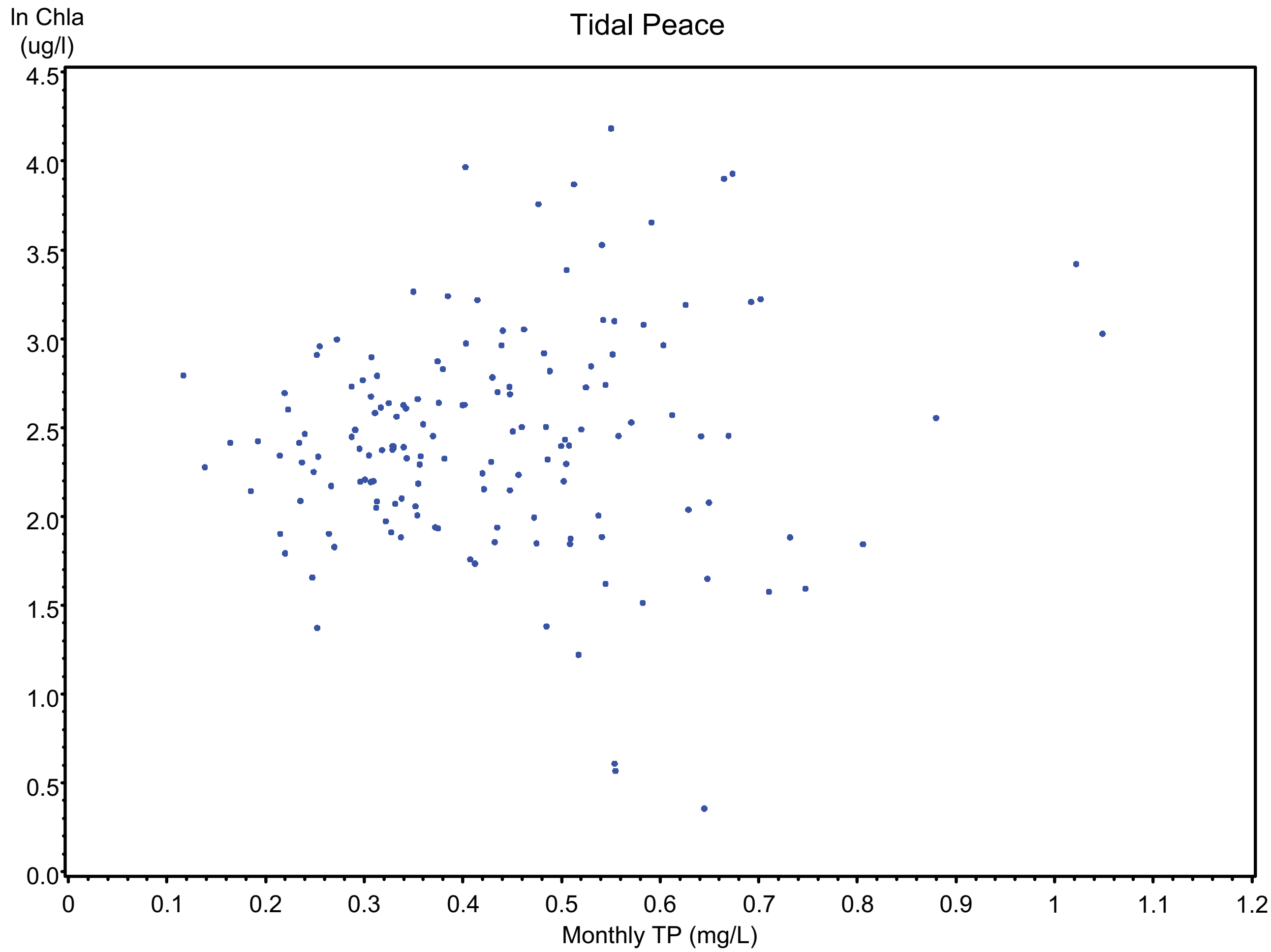

Tidal Peace
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Average 2-month TP (mg/L)

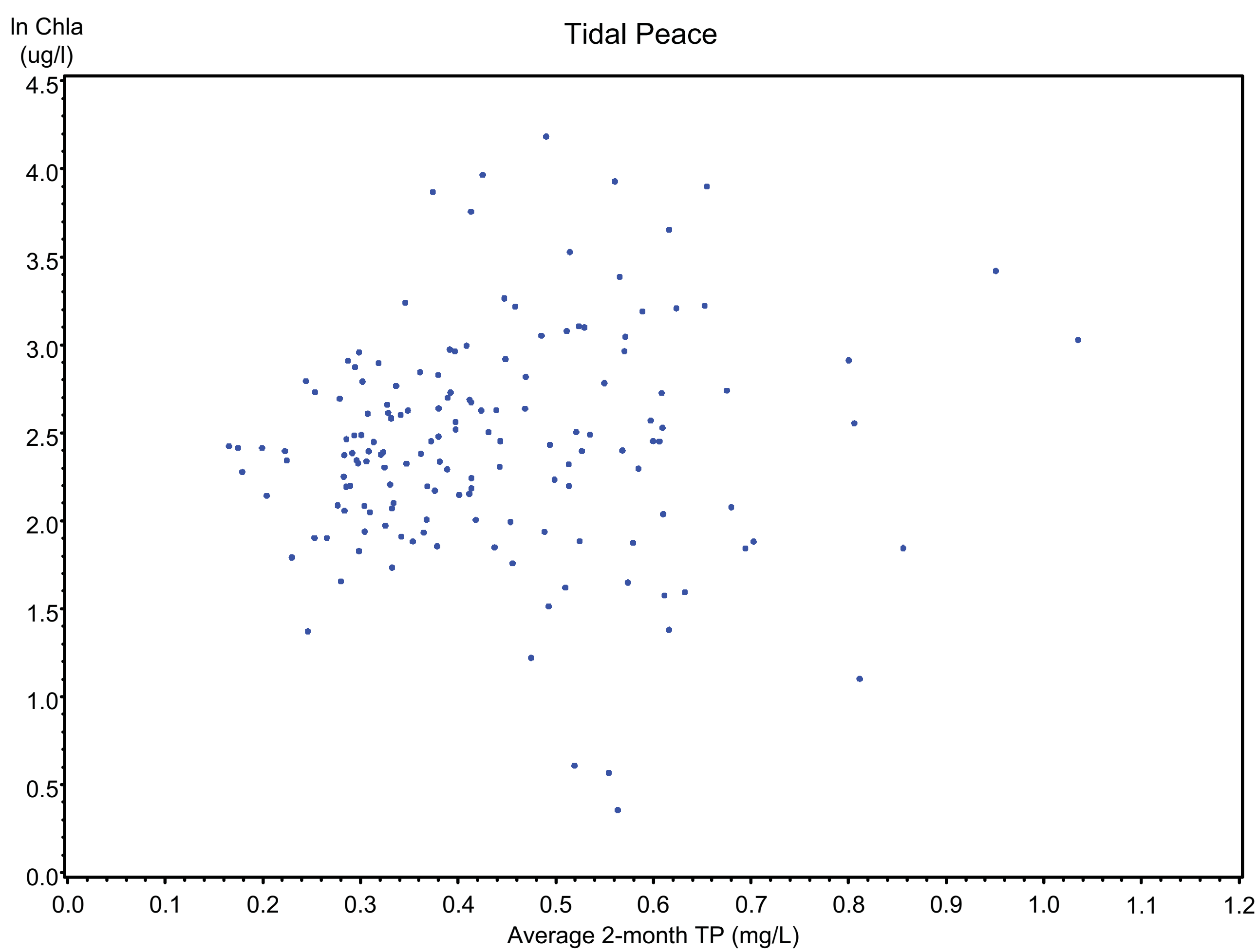

Chla
(ug/l)
Tidal Peace
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Average 3-month TP (mg/L)

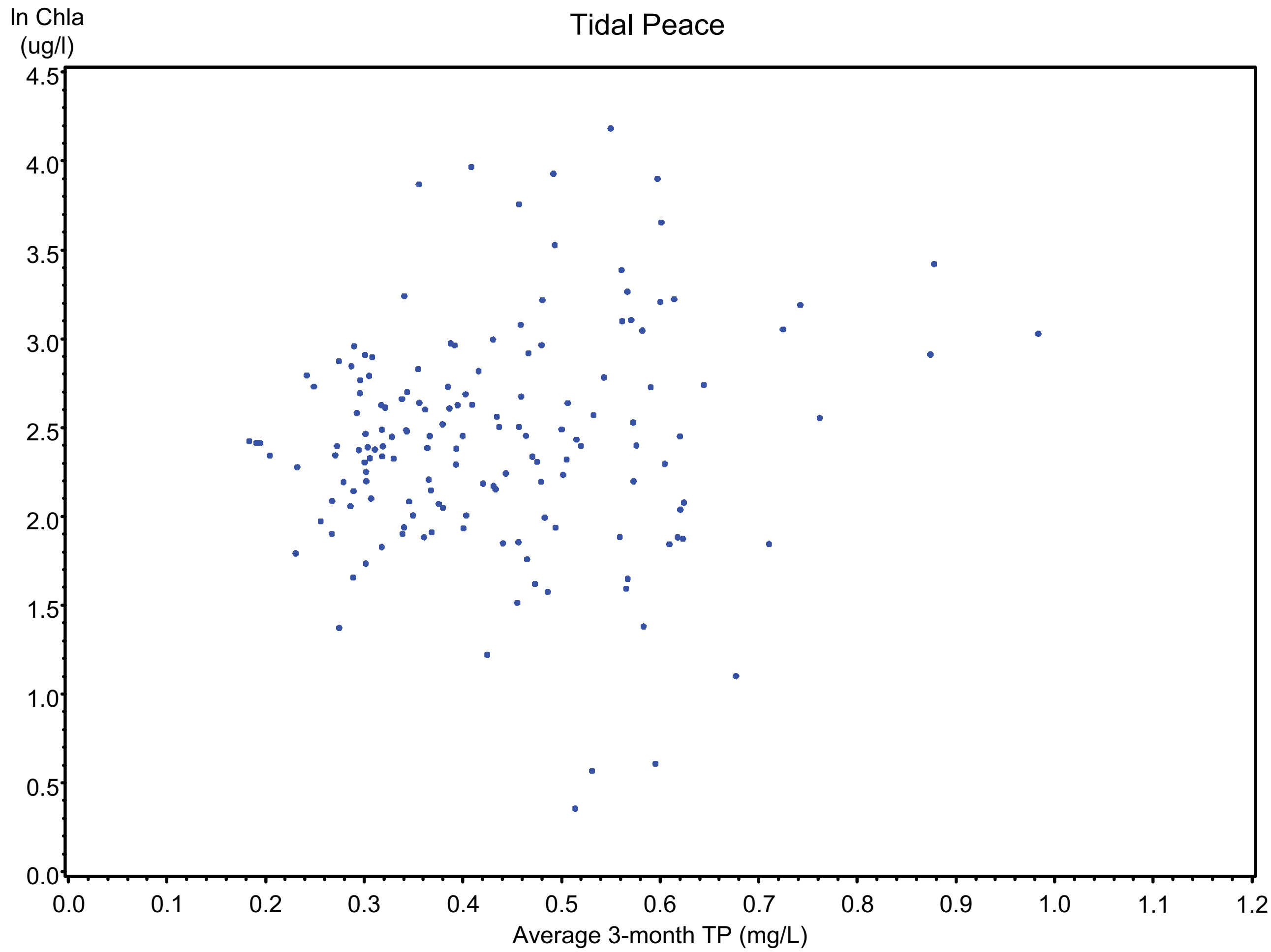

Chla
(ug/l)
Tidal Peace
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Monthly TP (mg/L)


Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Average 2-month TP (mg/L)

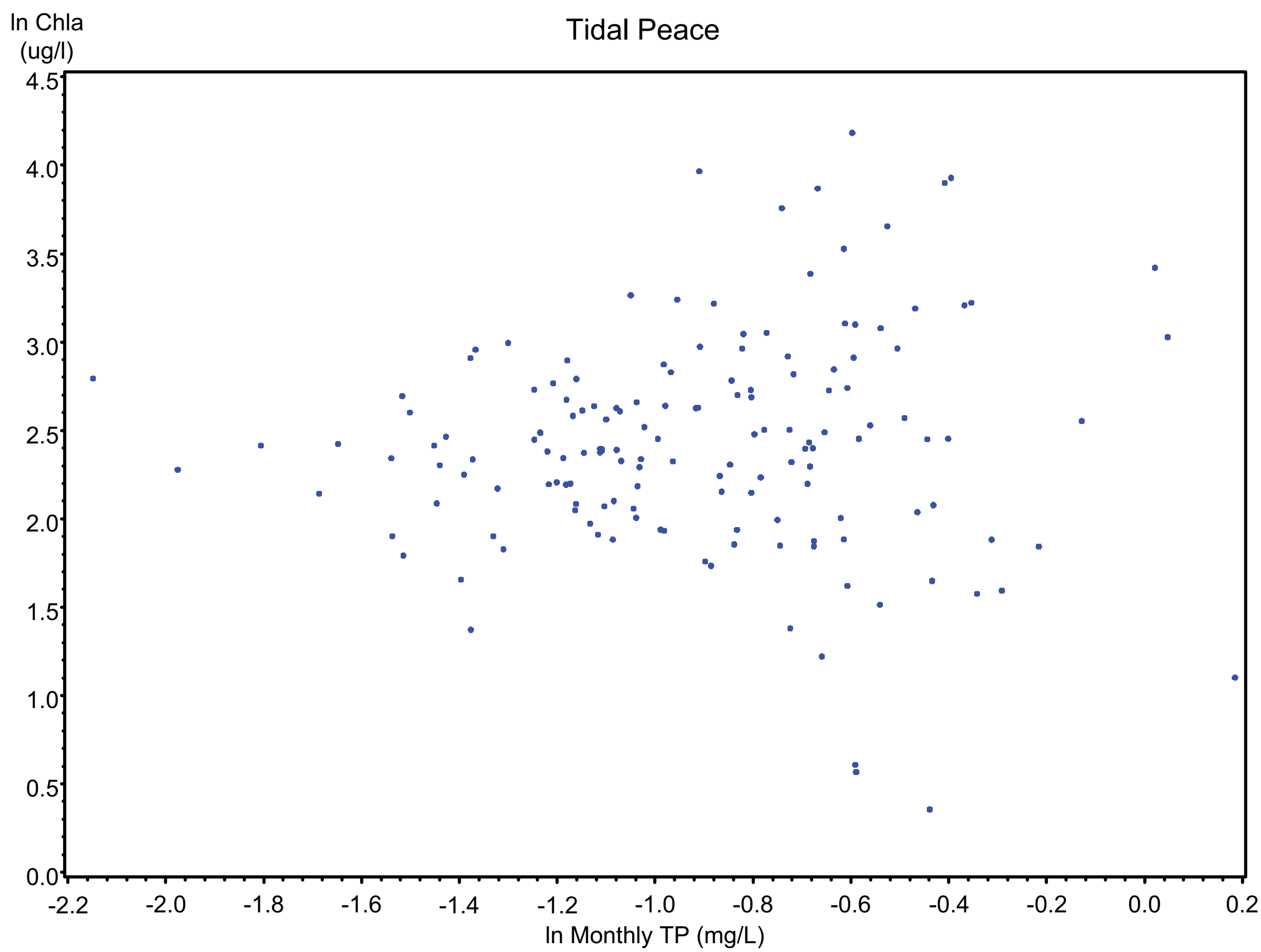

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Average 3-month TP (mg/L)


Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1
1.2
Monthly TP (mg/L)

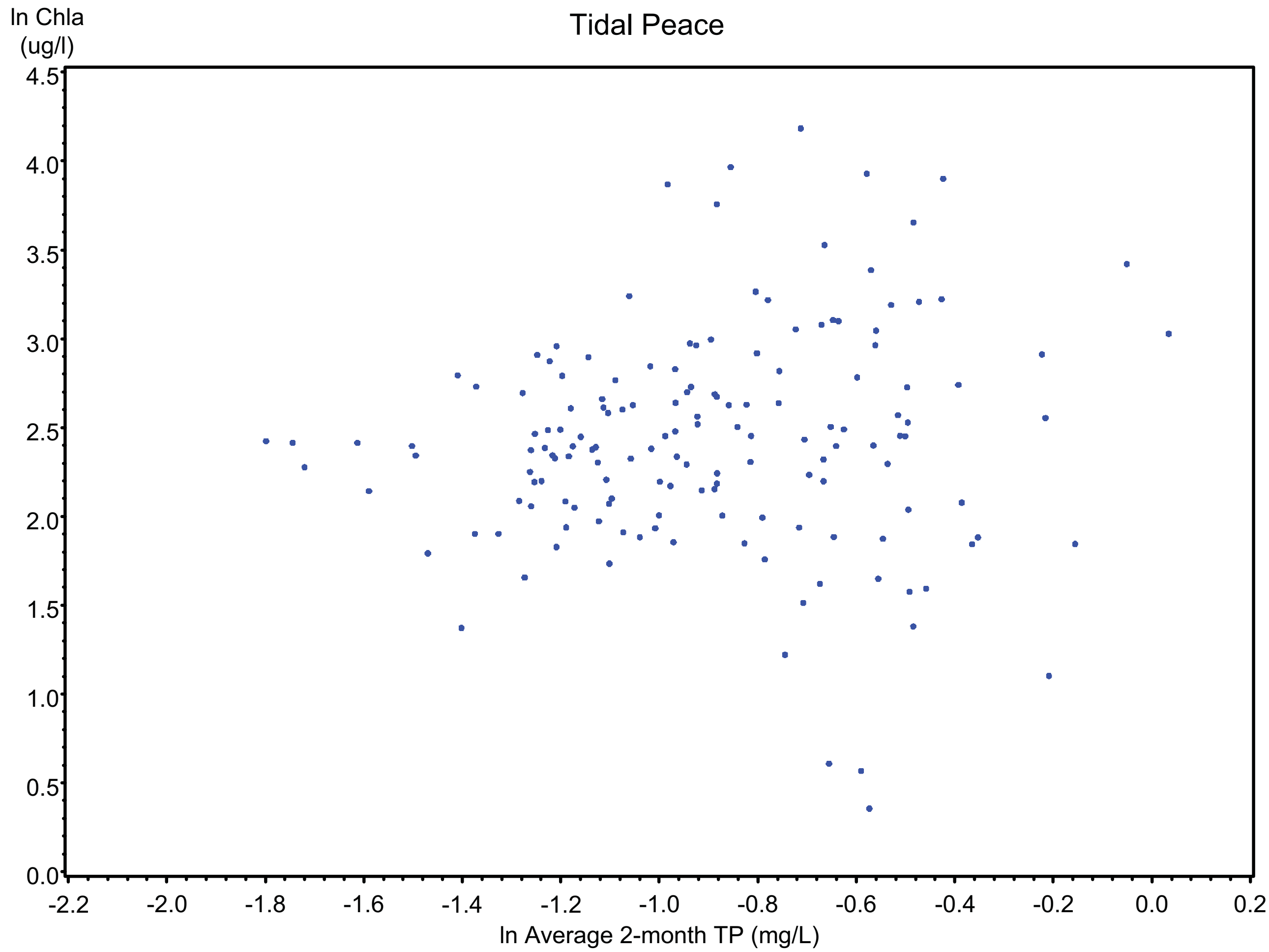

Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Average 2-month TP (mg/L)

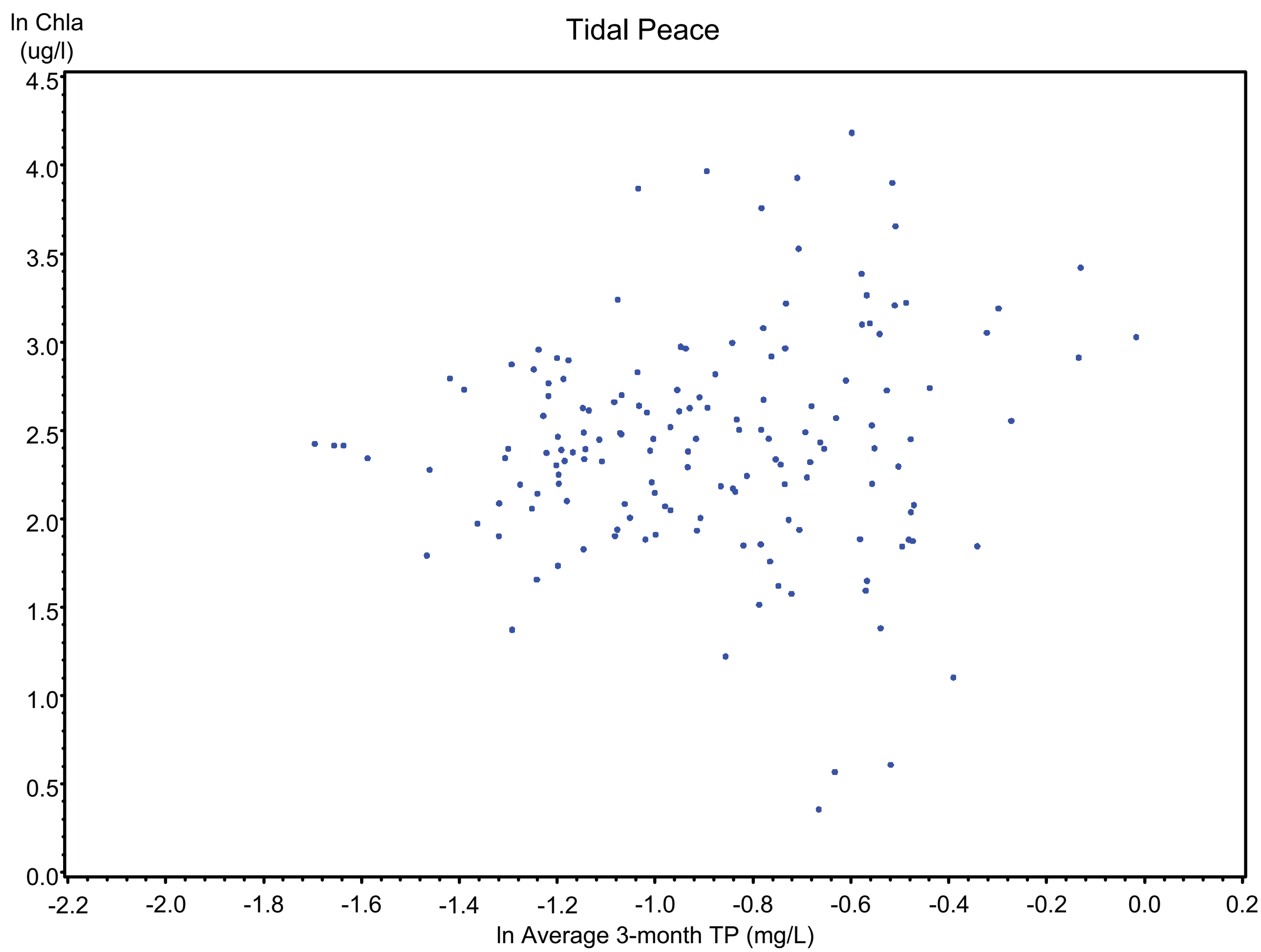


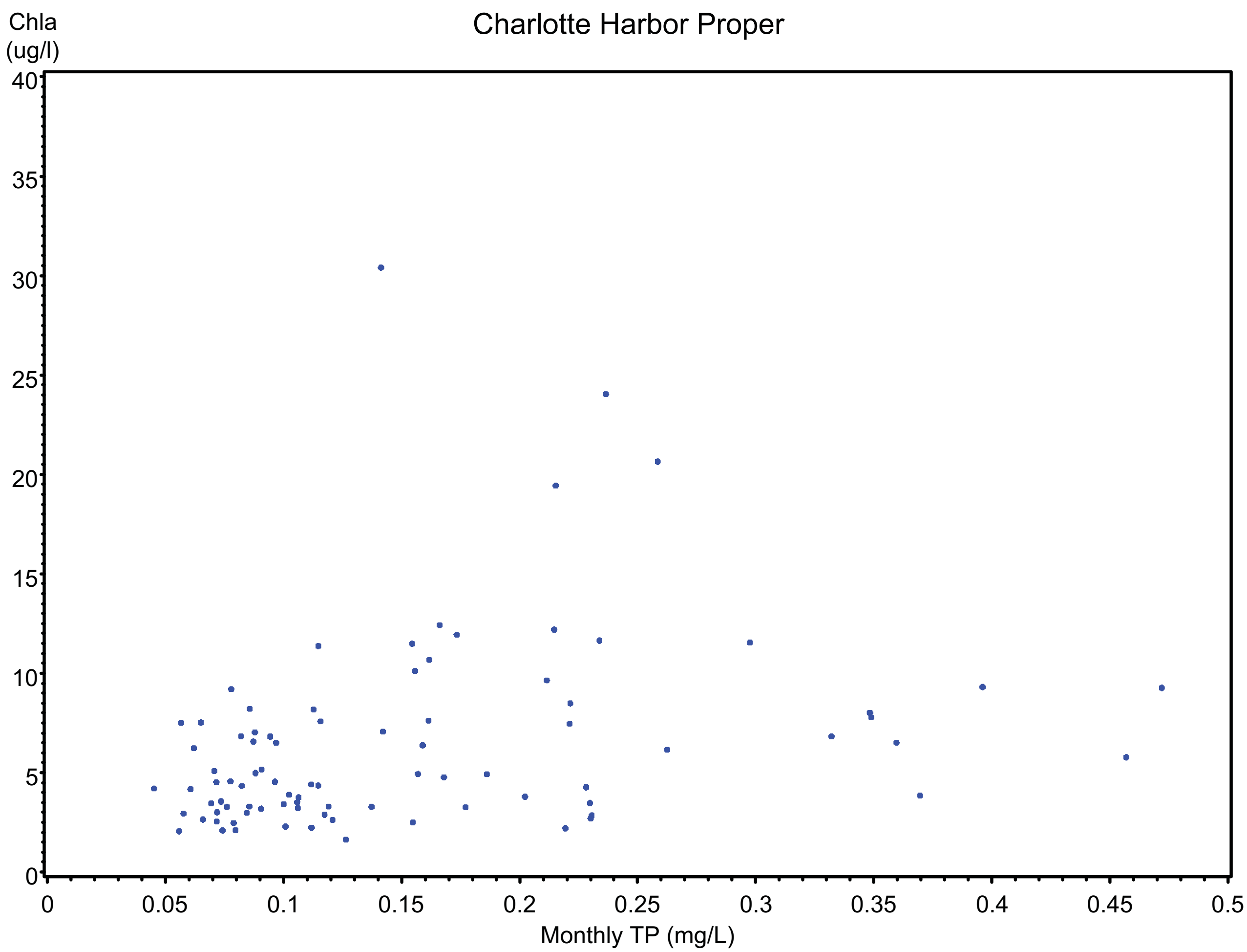
Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
Average 3-month TP (mg/L)

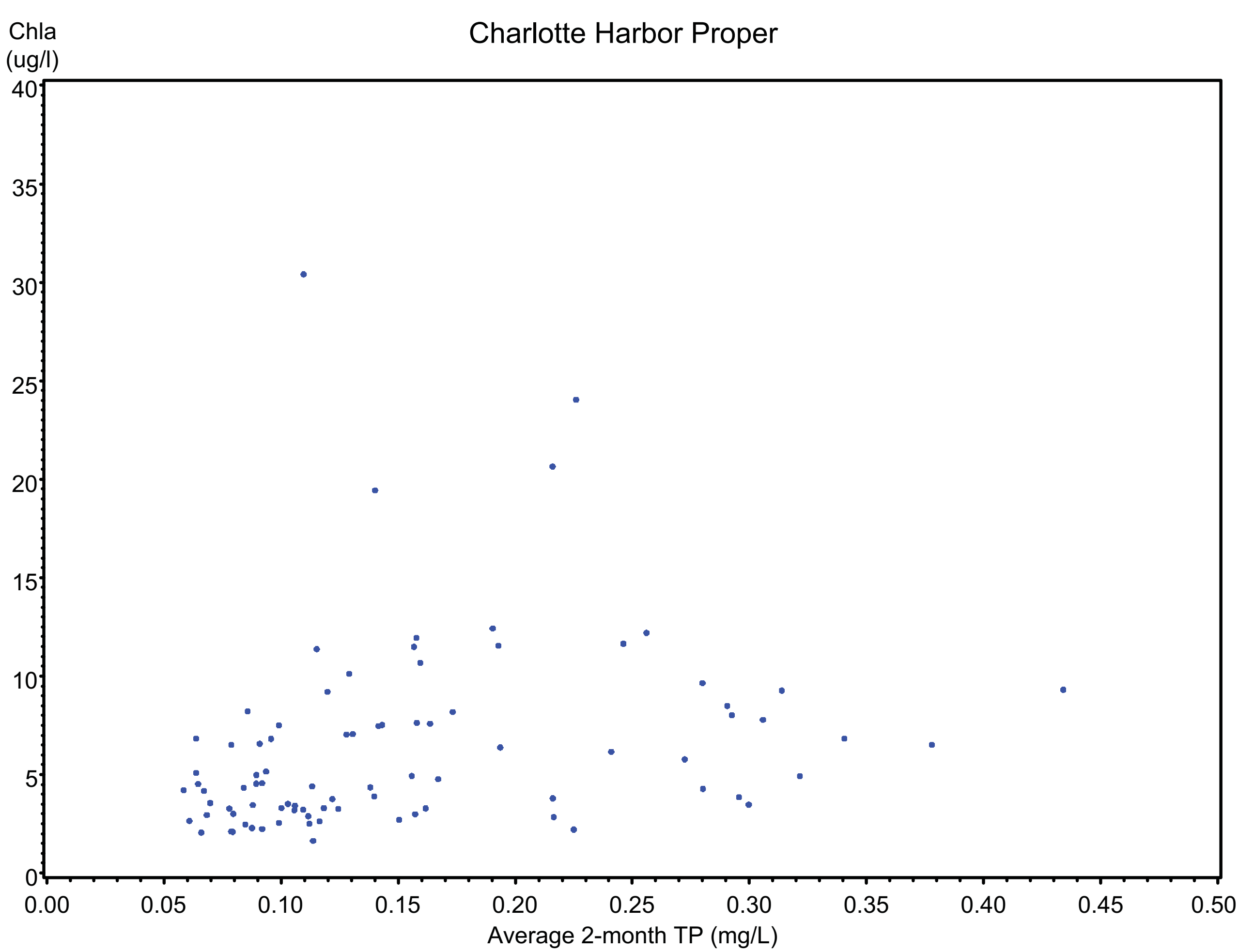


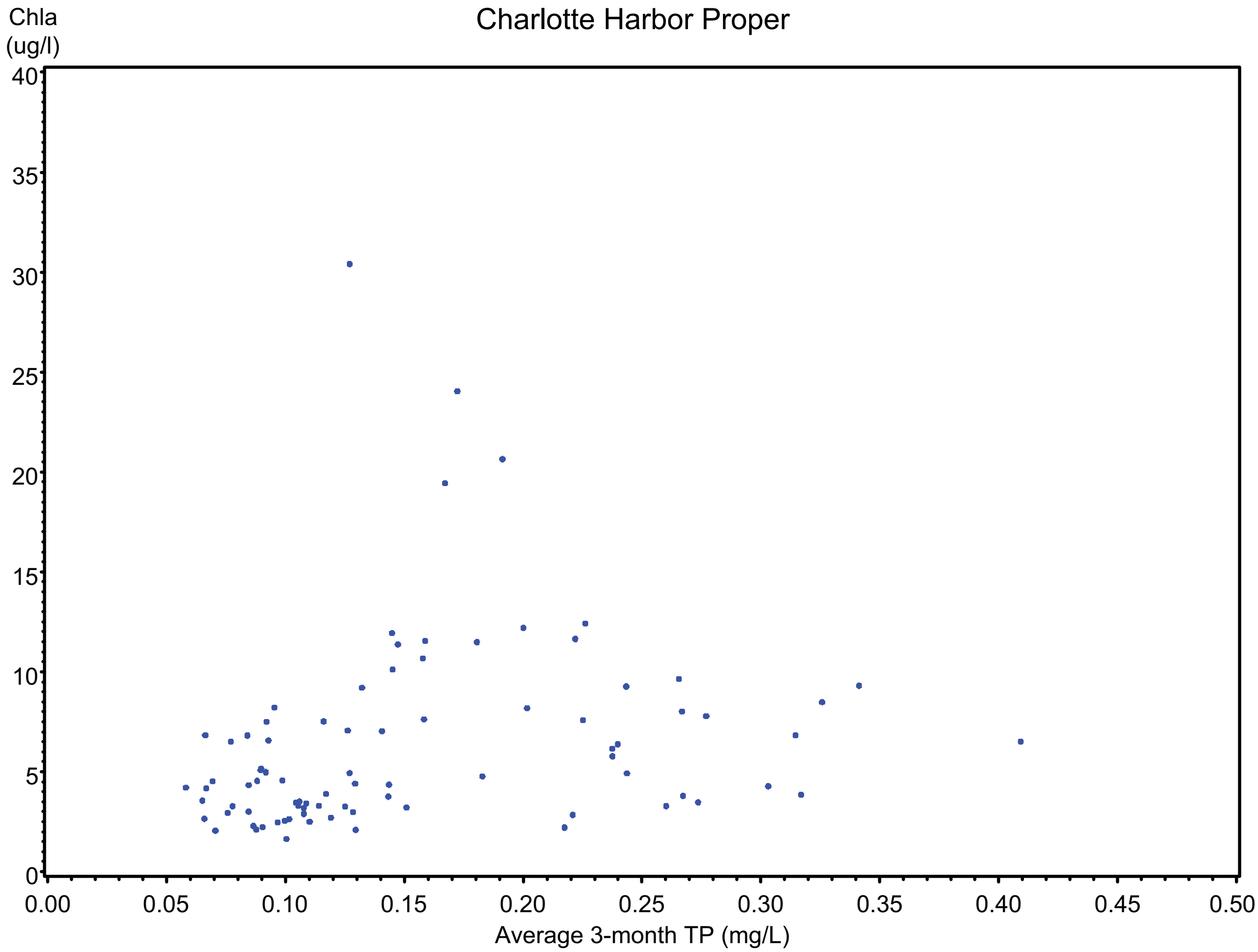
Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Monthly TP (mg/L)

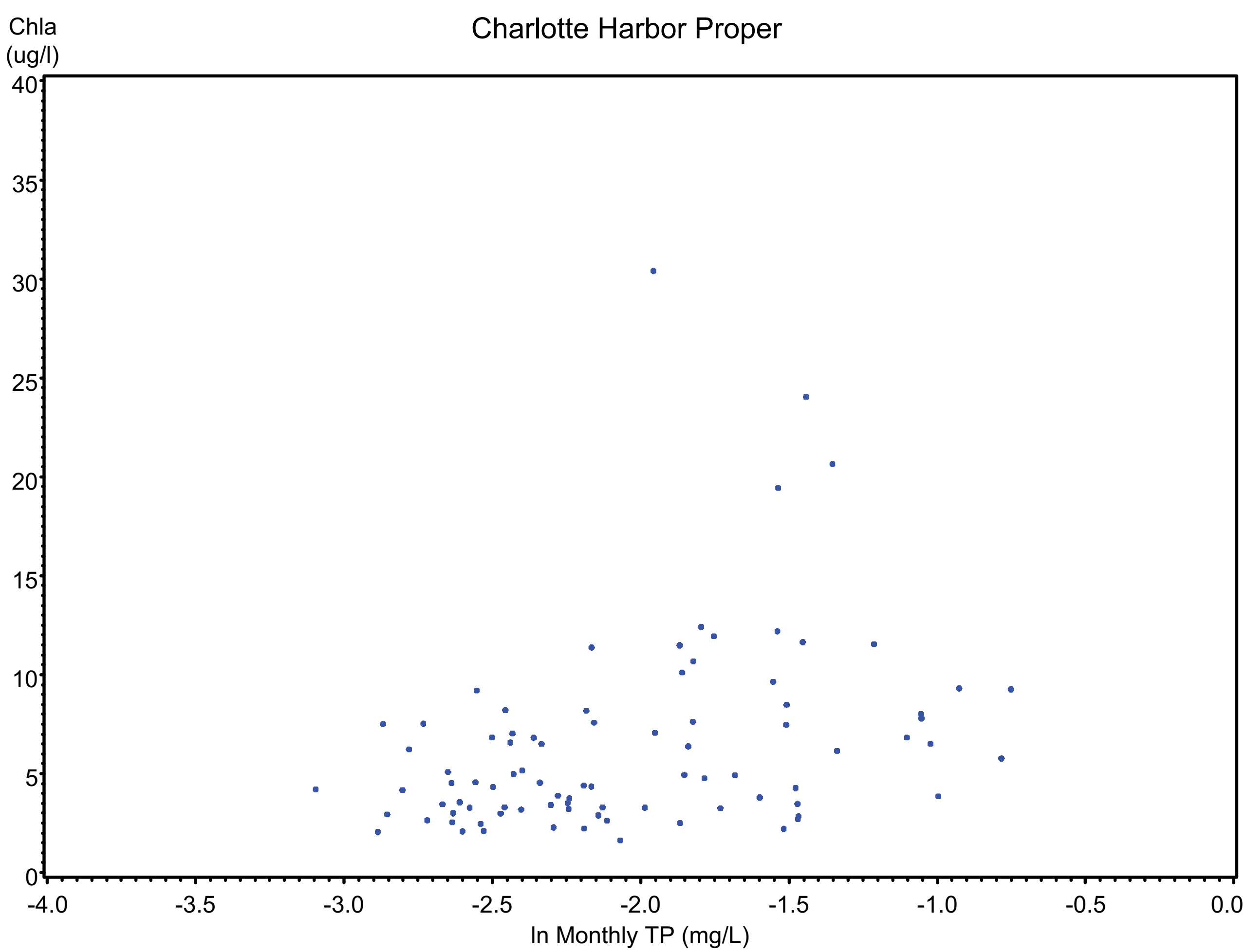

Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Average 2-month TP (mg/L)

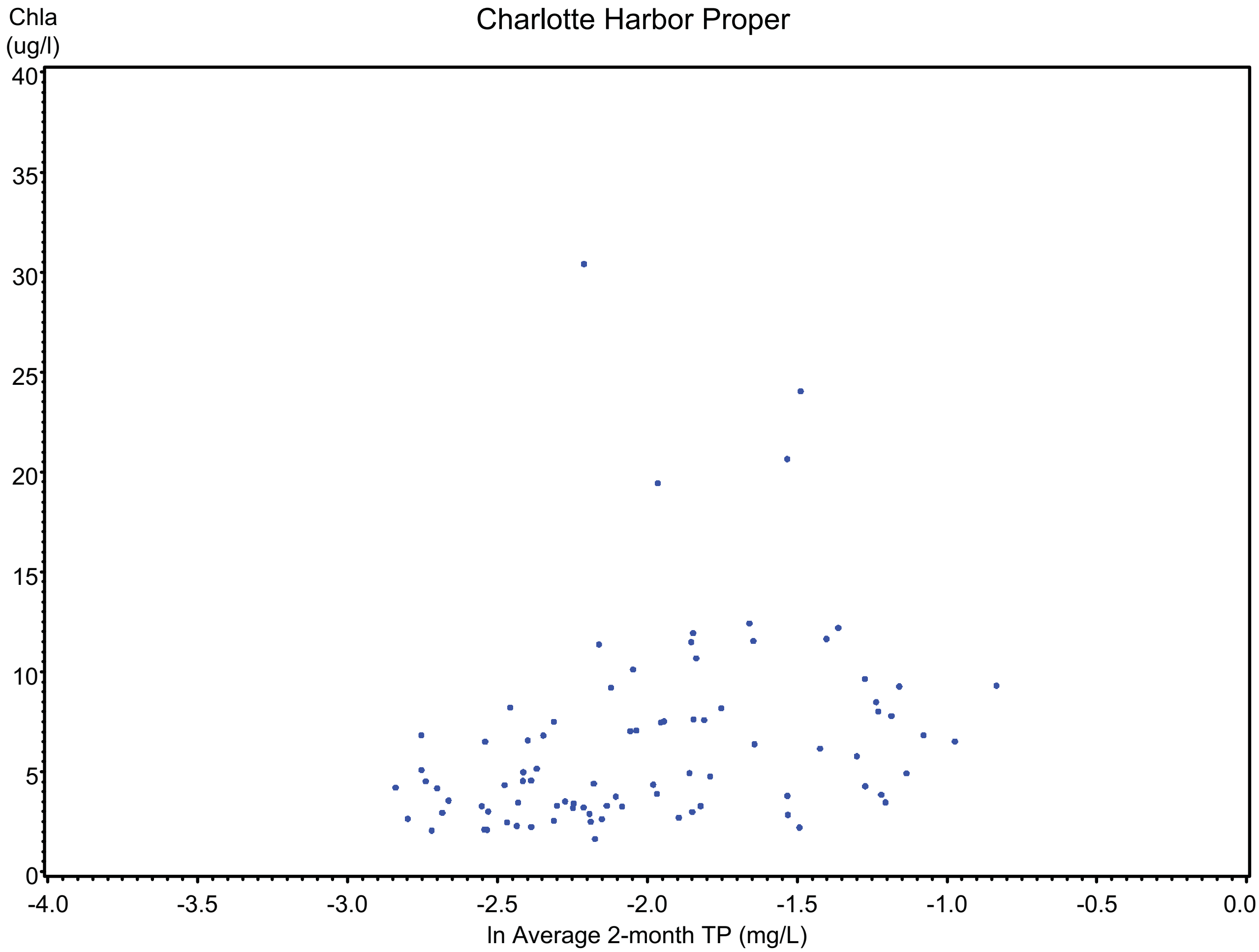

Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2.2
-2.0
-1.8
-1.6
-1.4
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
ln Average 3-month TP (mg/L)


Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Monthly TP (mg/L)

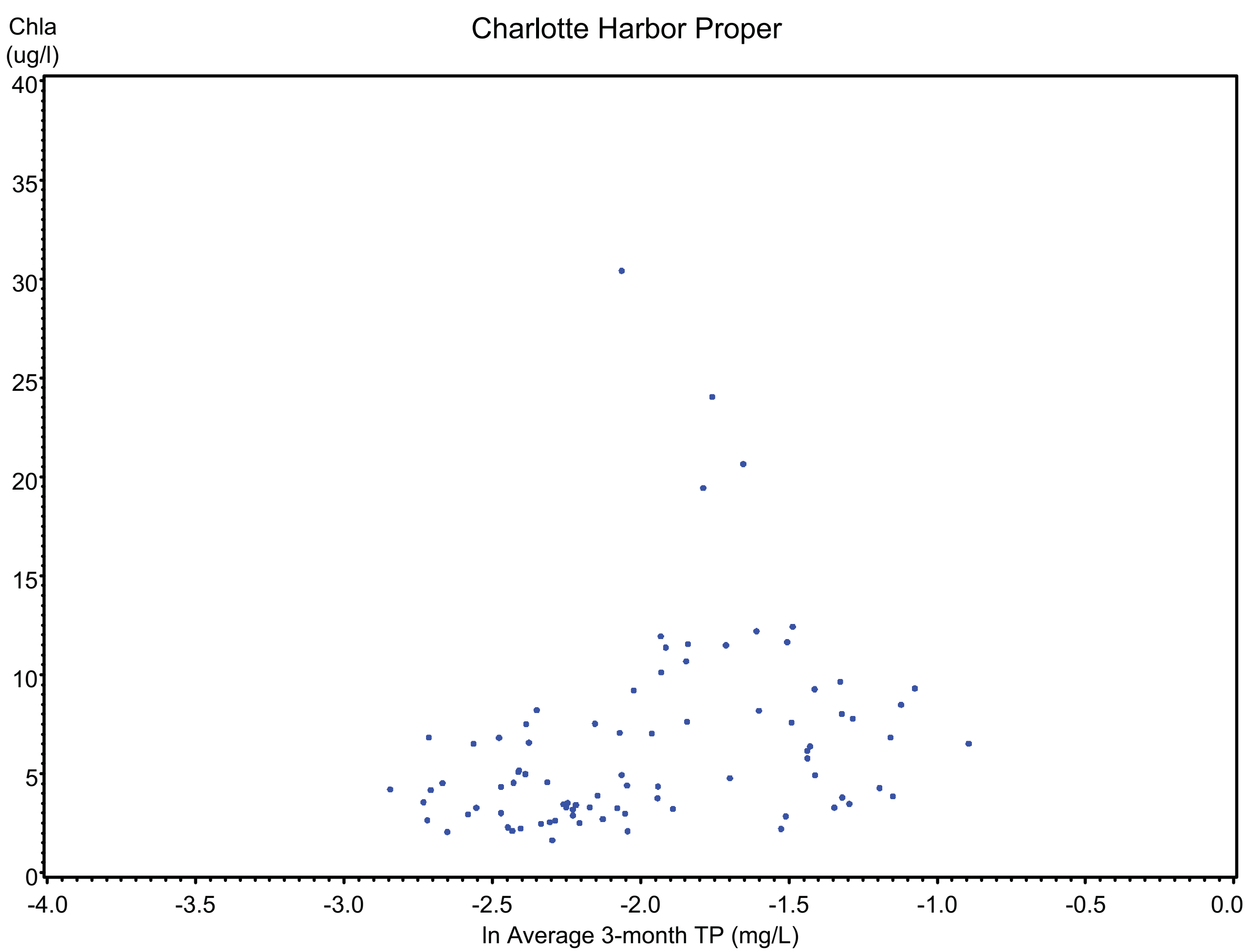

Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 2-month TP (mg/L)


Charlotte Harbor Proper
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 3-month TP (mg/L)

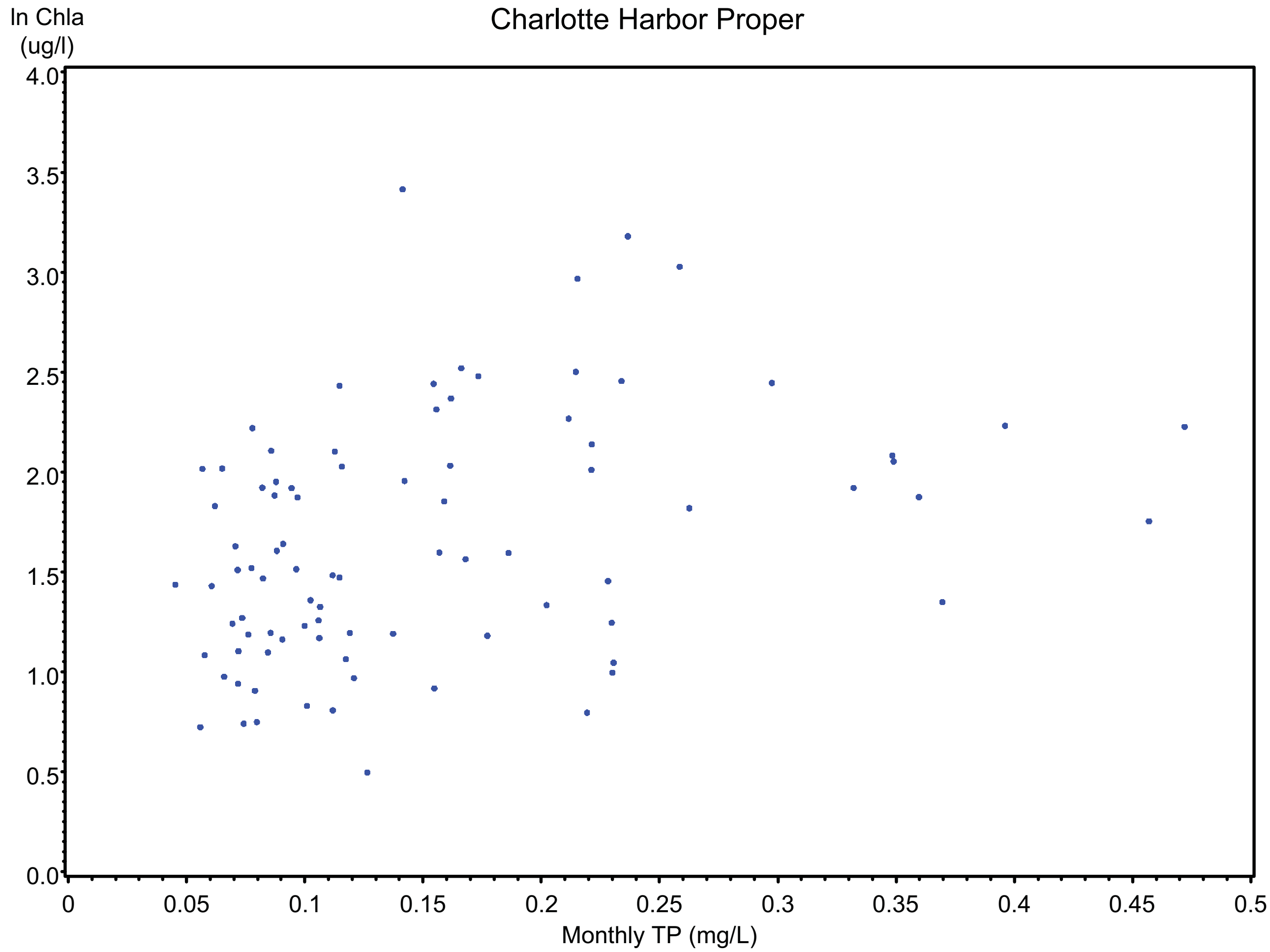

Charlotte Harbor Proper
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)



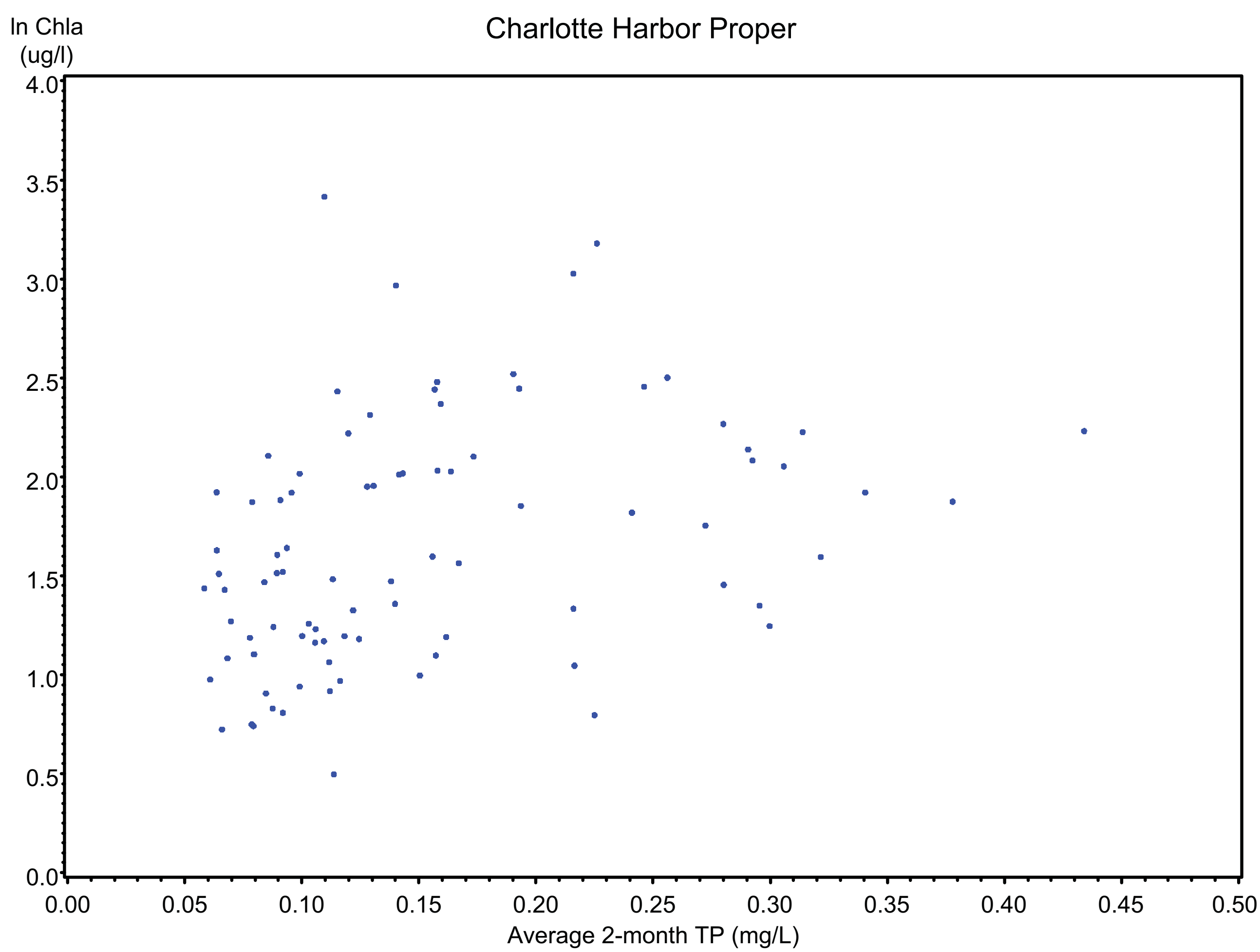
Charlotte Harbor Proper
Chla (ug/l)
0
5
10
15
20
25
30
35
40
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)



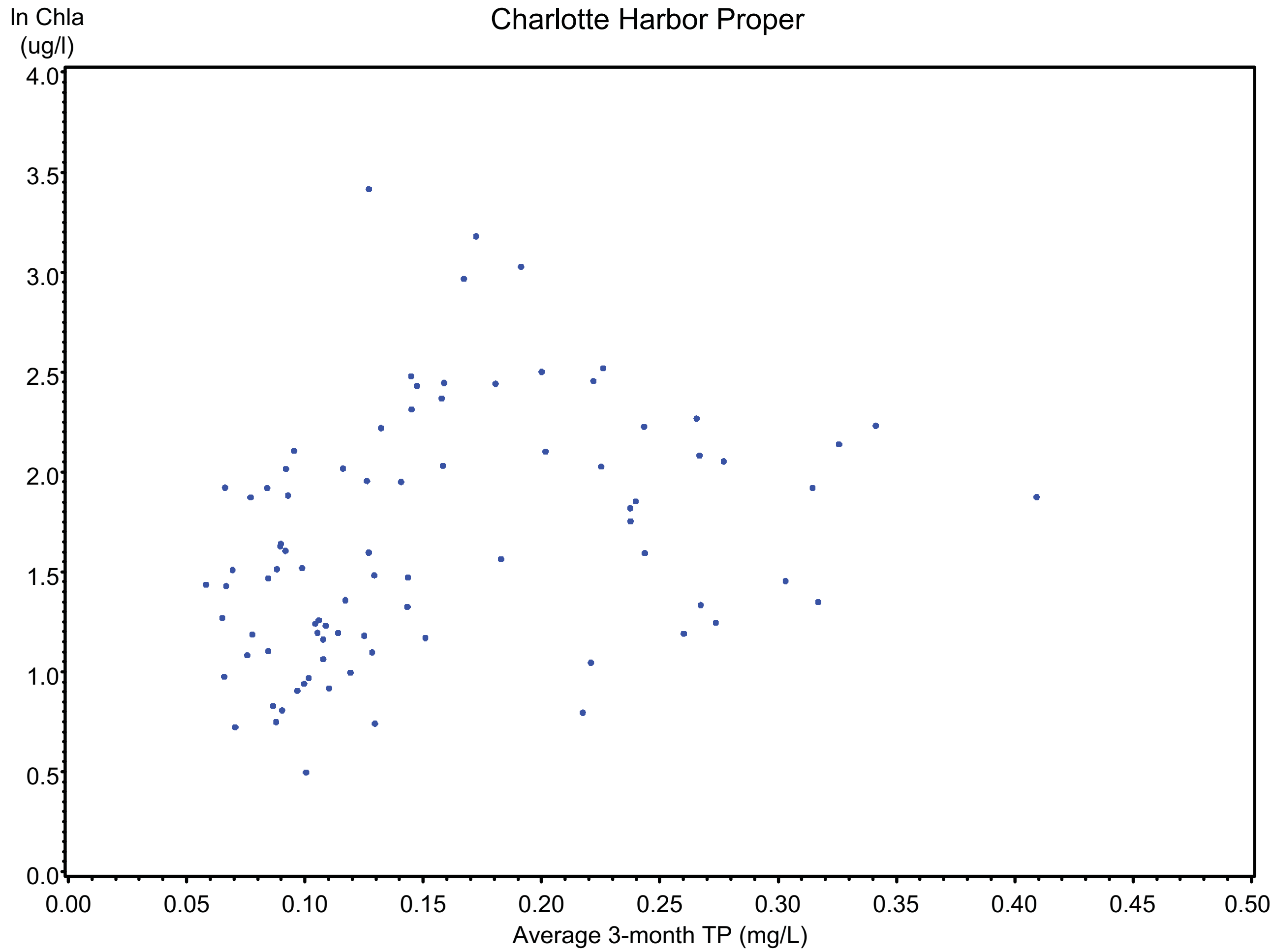
Charlotte Harbor Proper
Chla (ug/l)
0
5
10
15
20
25
30
35
40
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)

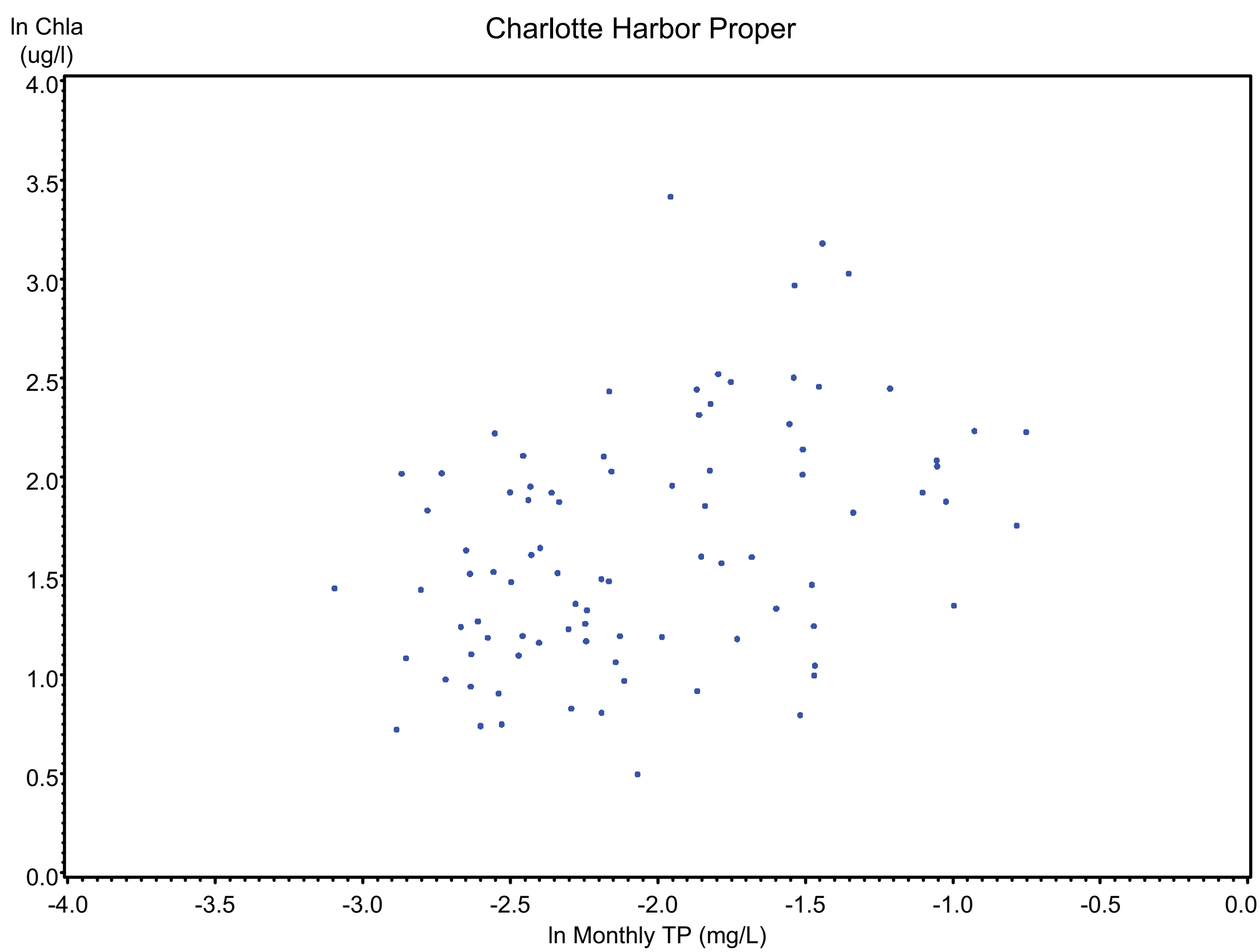


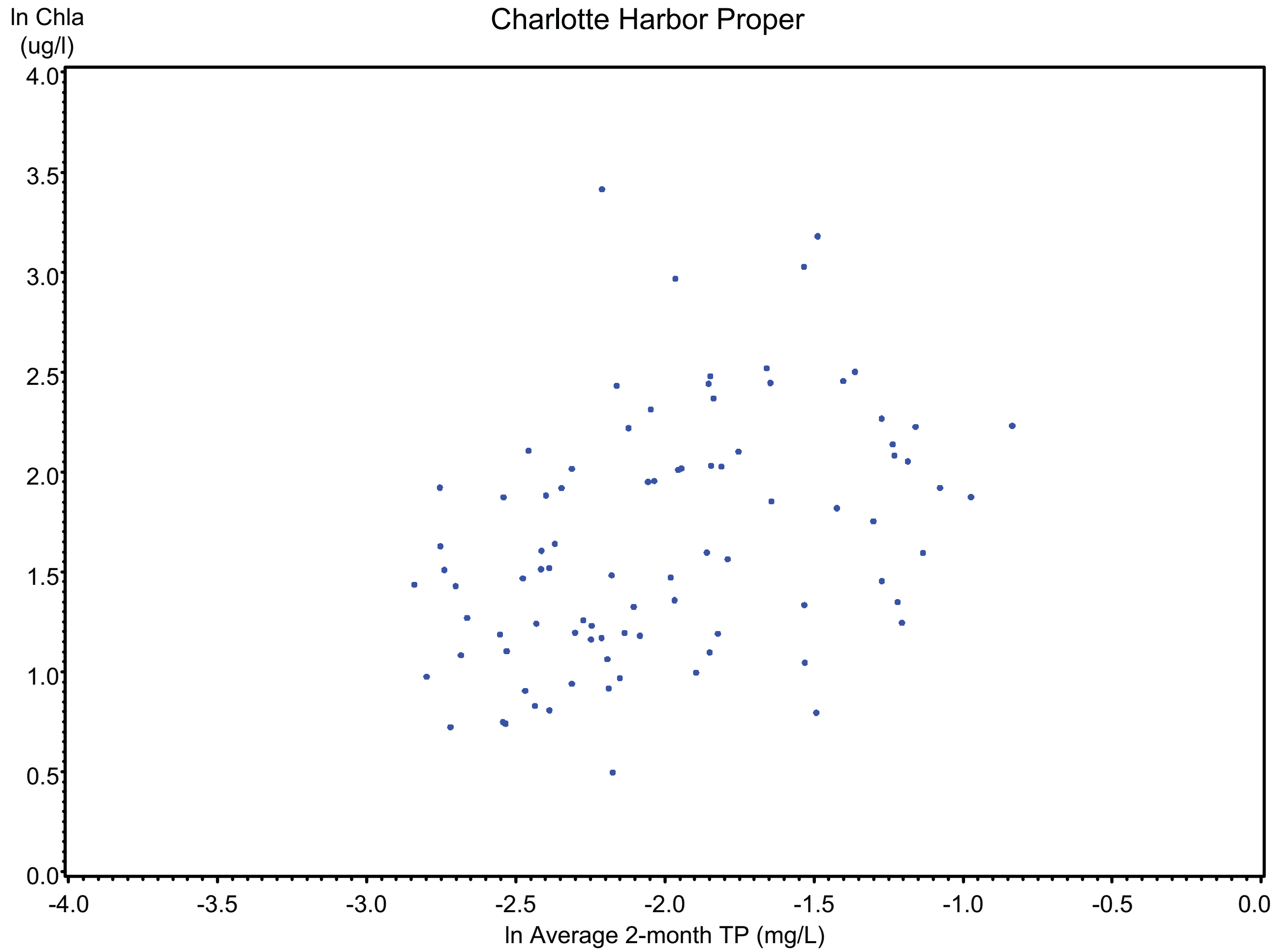
Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Monthly TP (mg/L)

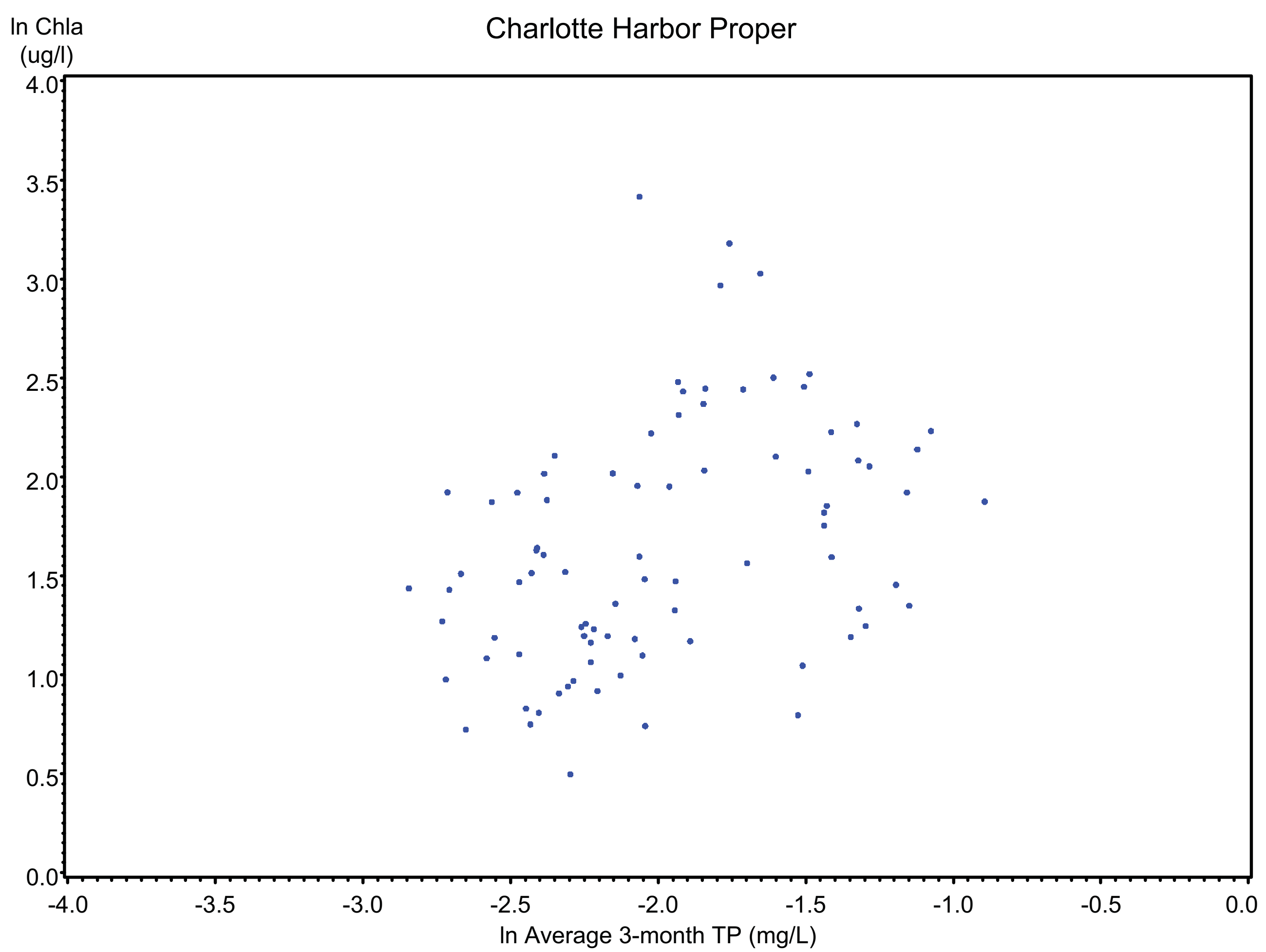


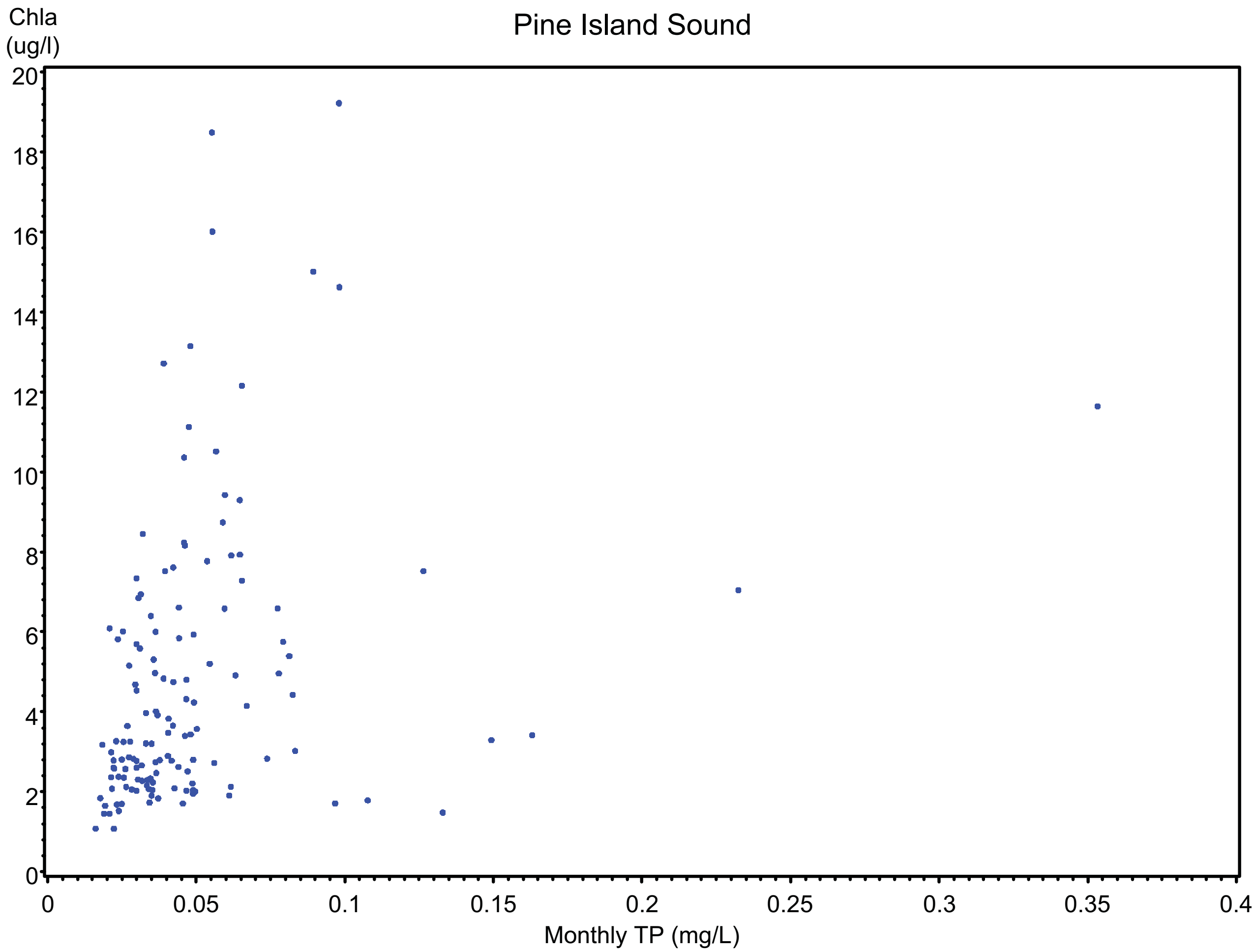
Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 2-month TP (mg/L)

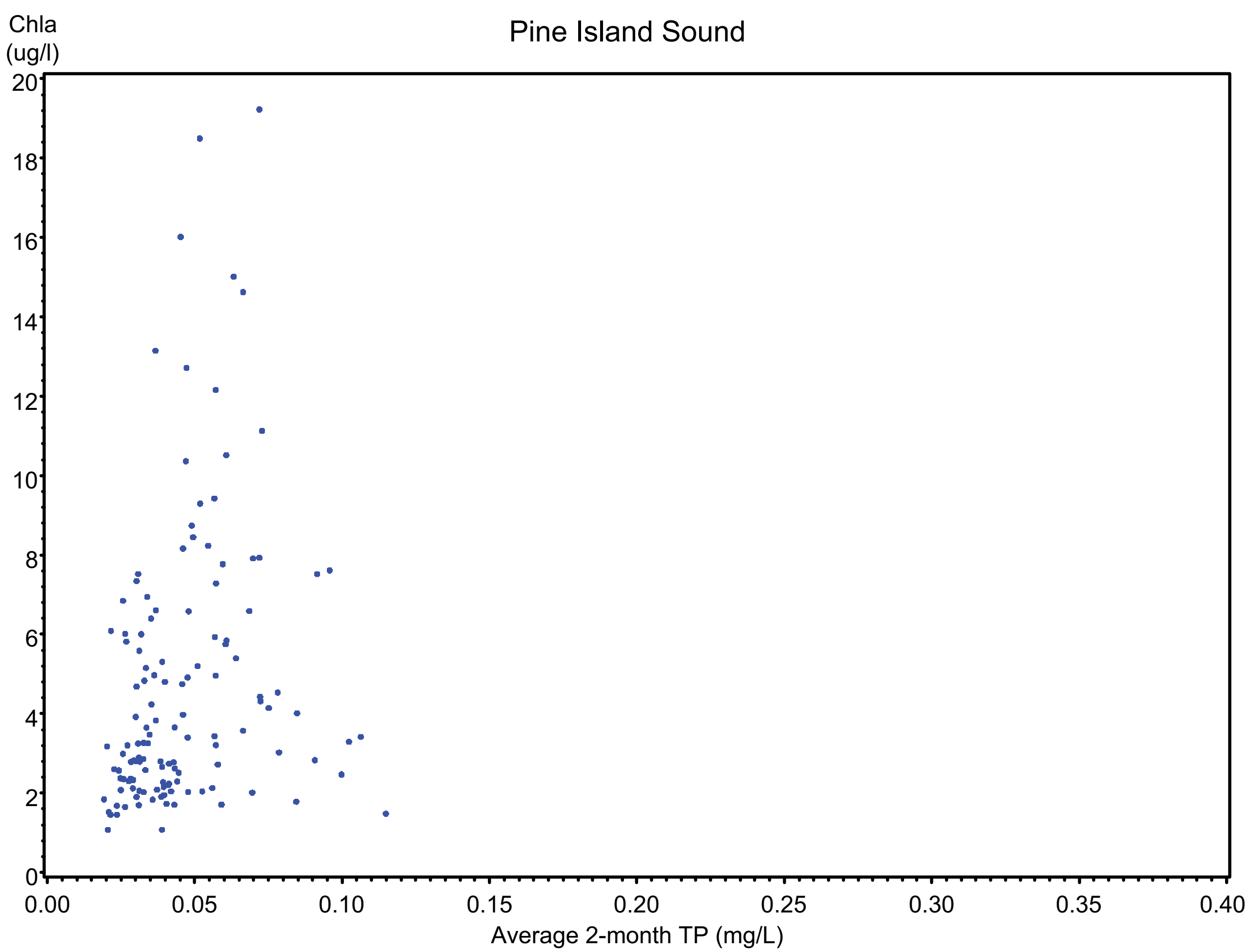

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
Average 3-month TP (mg/L)

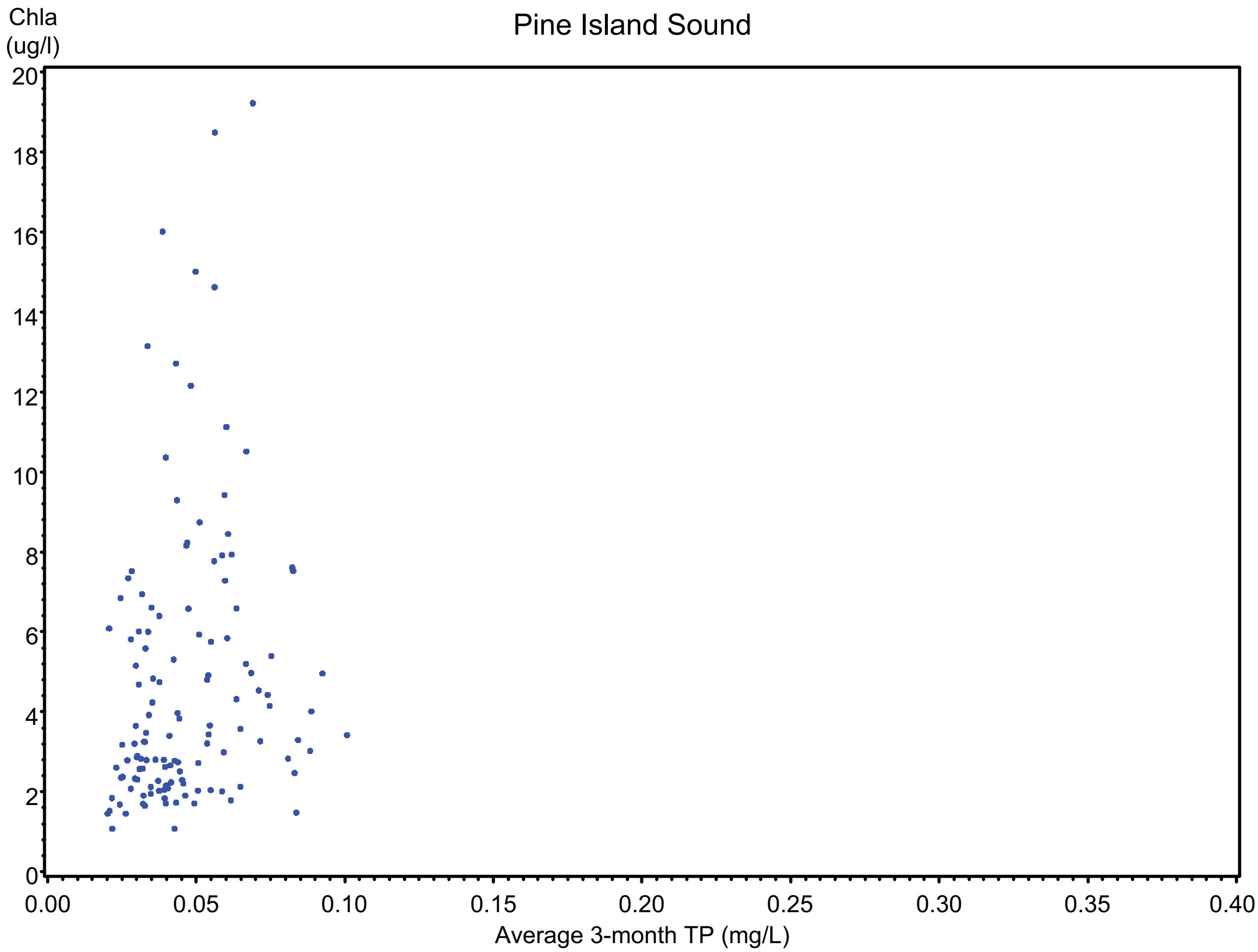

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Monthly TP (mg/L)


Charlotte Harbor Proper
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 2-month TP (mg/L)

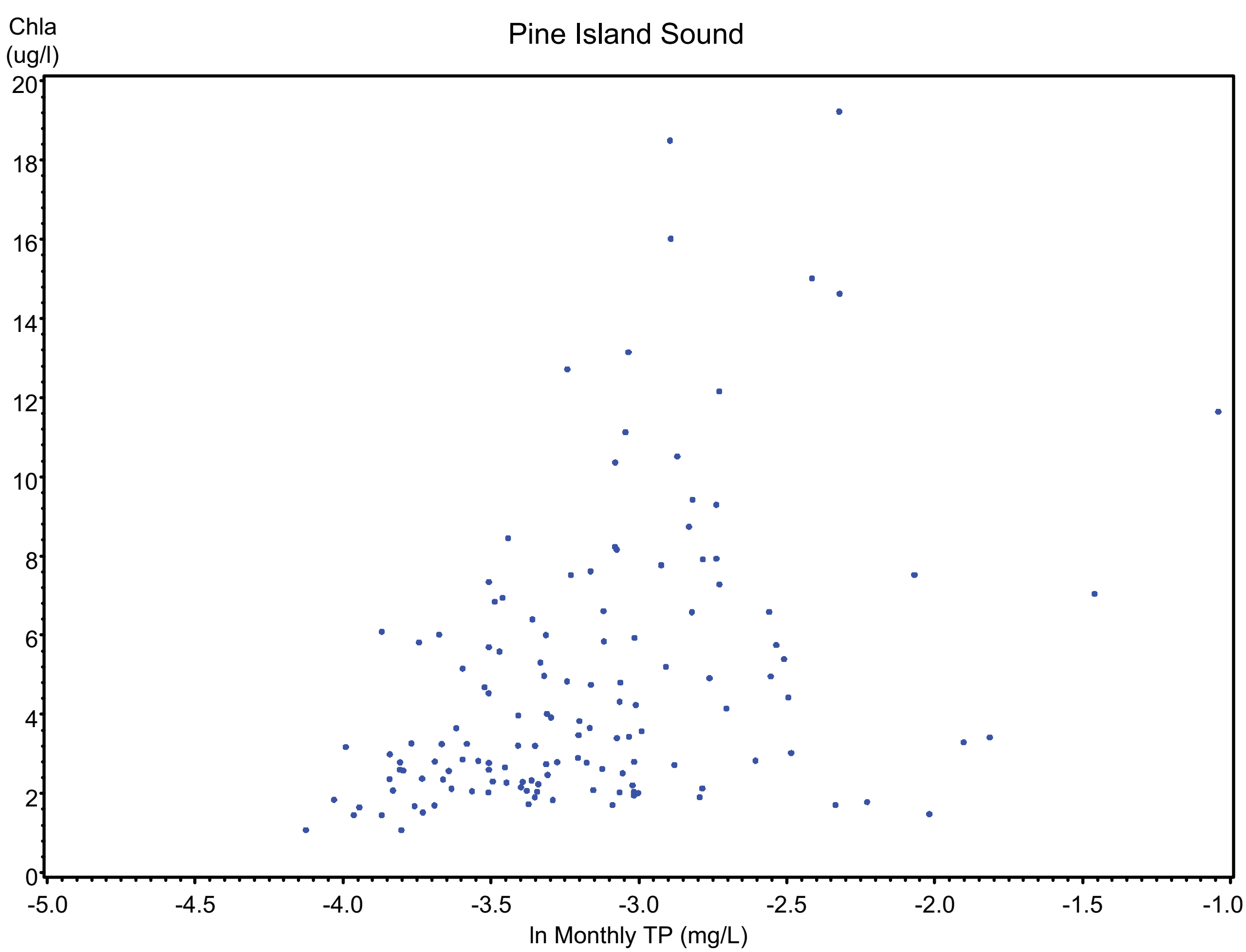

Charlotte Harbor Proper
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
ln Average 3-month TP (mg/L)


Pine Island Sound
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
Monthly TP (mg/L)

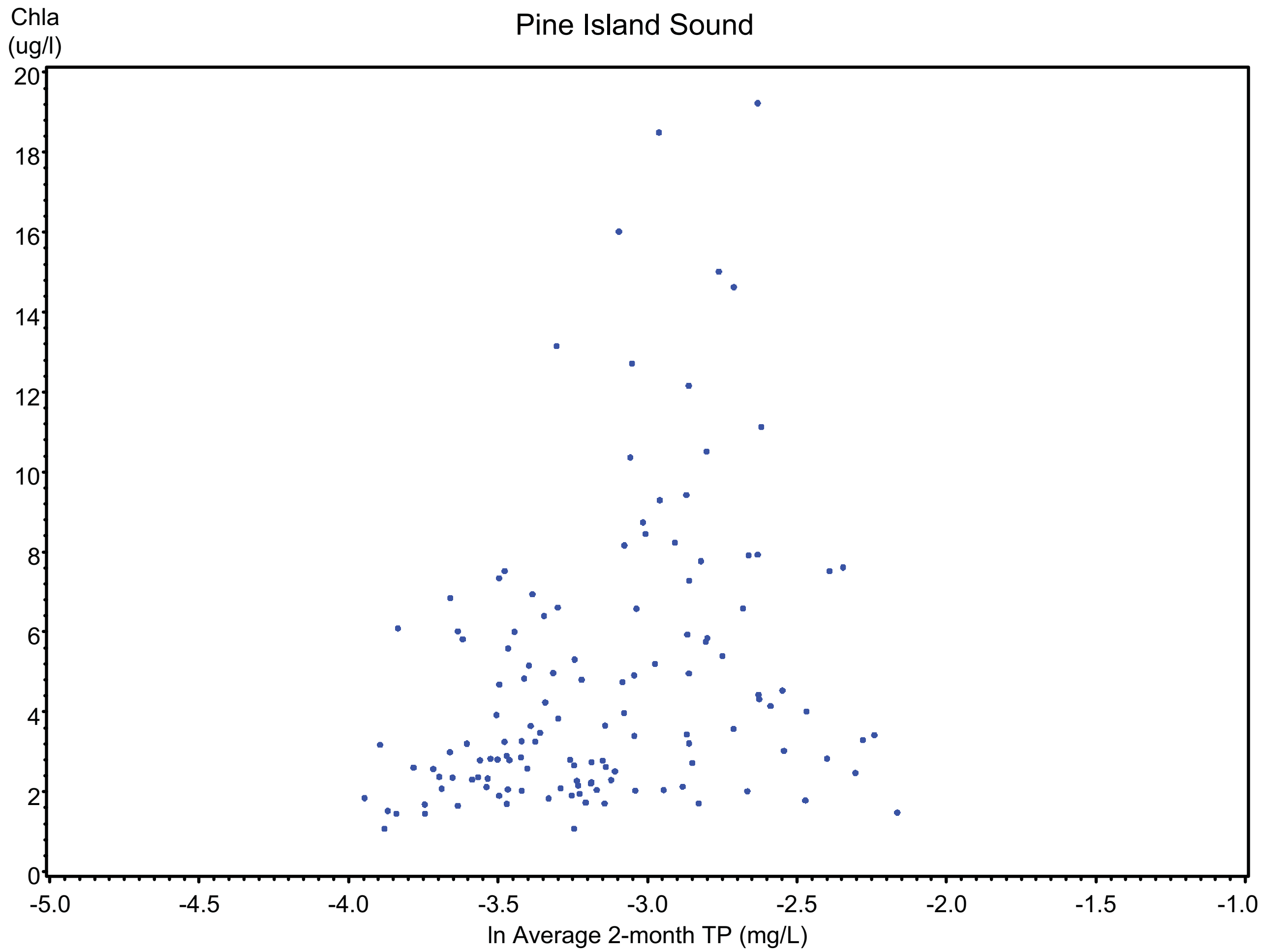

Pine Island Sound
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 2-month TP (mg/L)

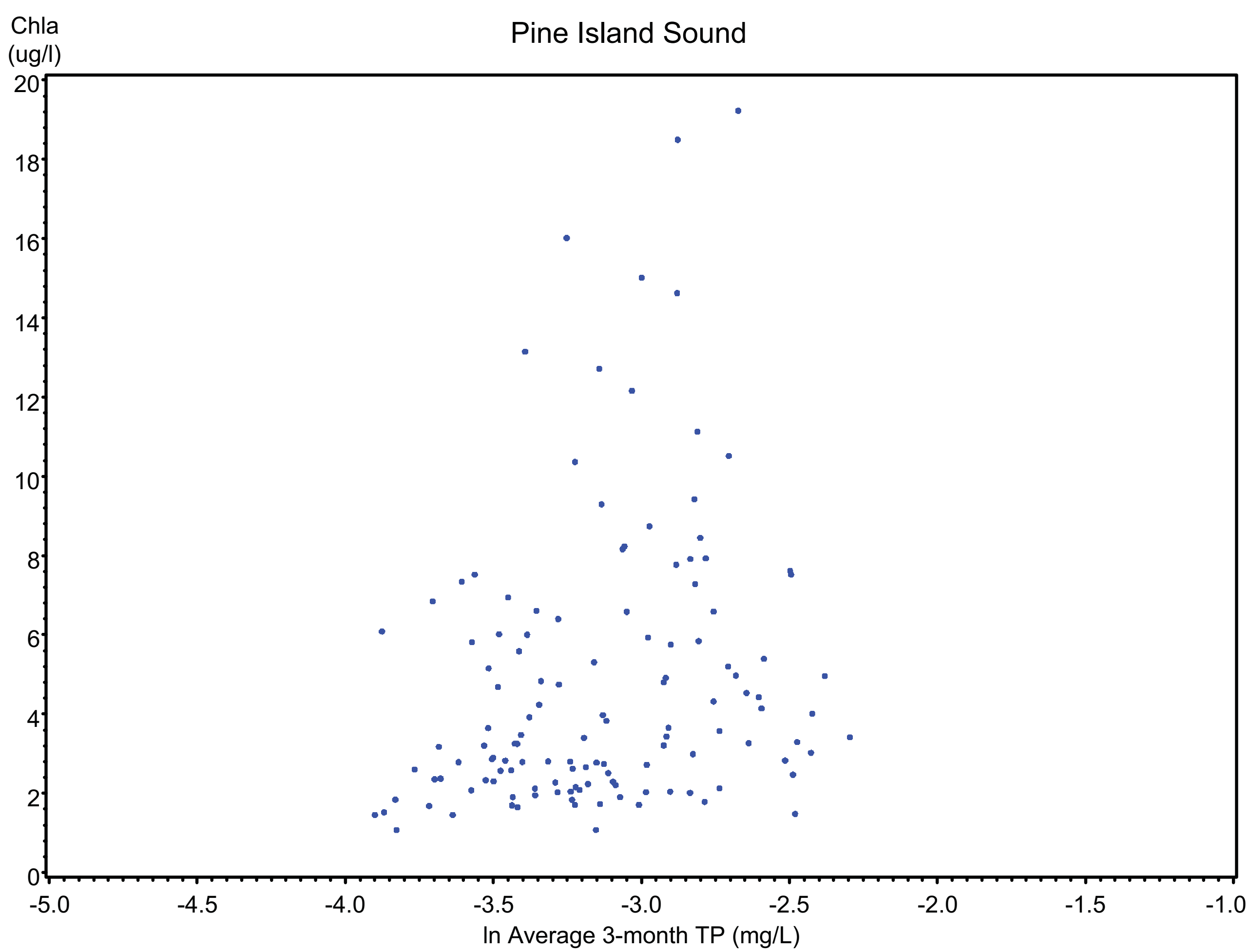


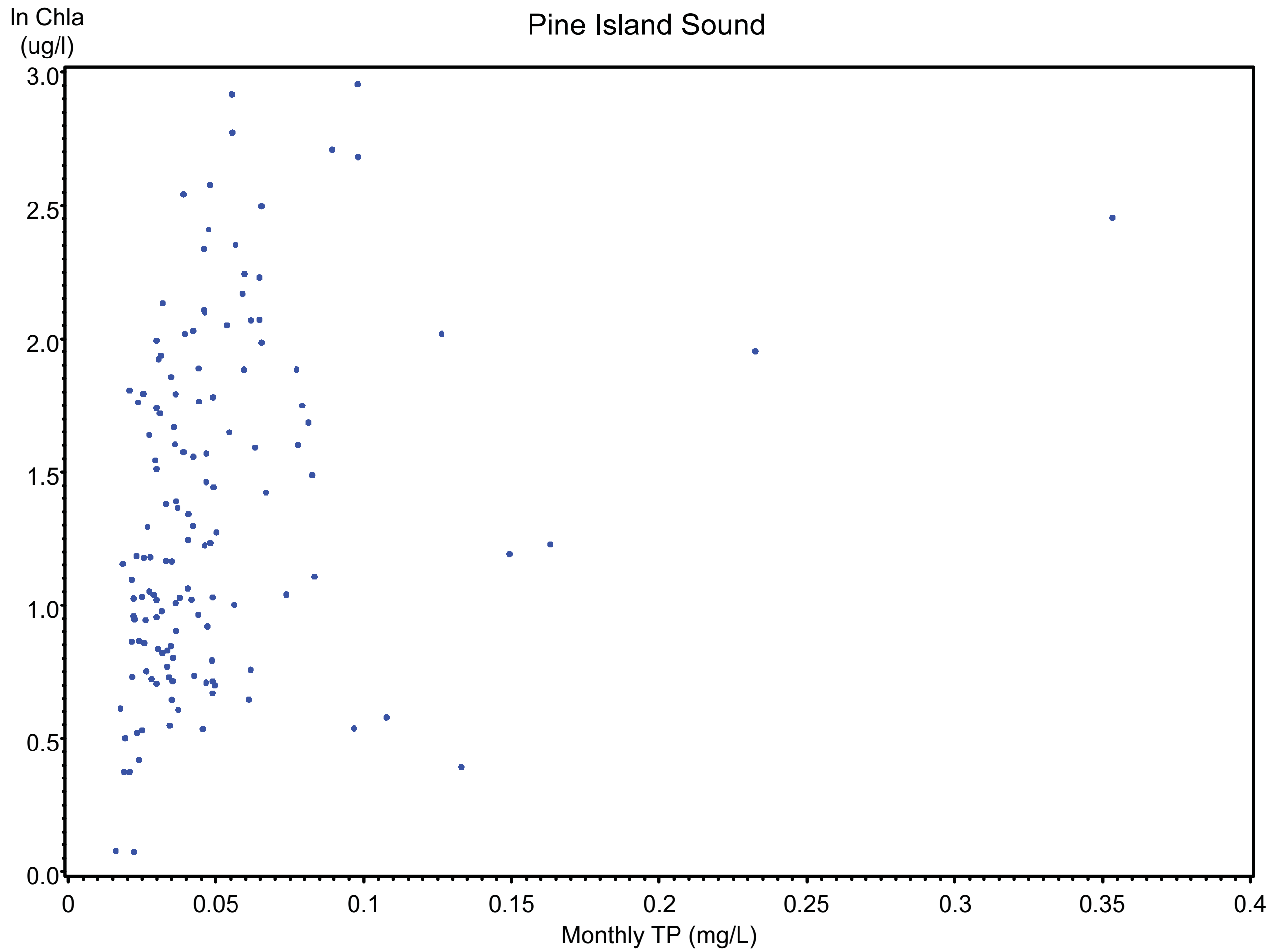
Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 3-month TP (mg/L)

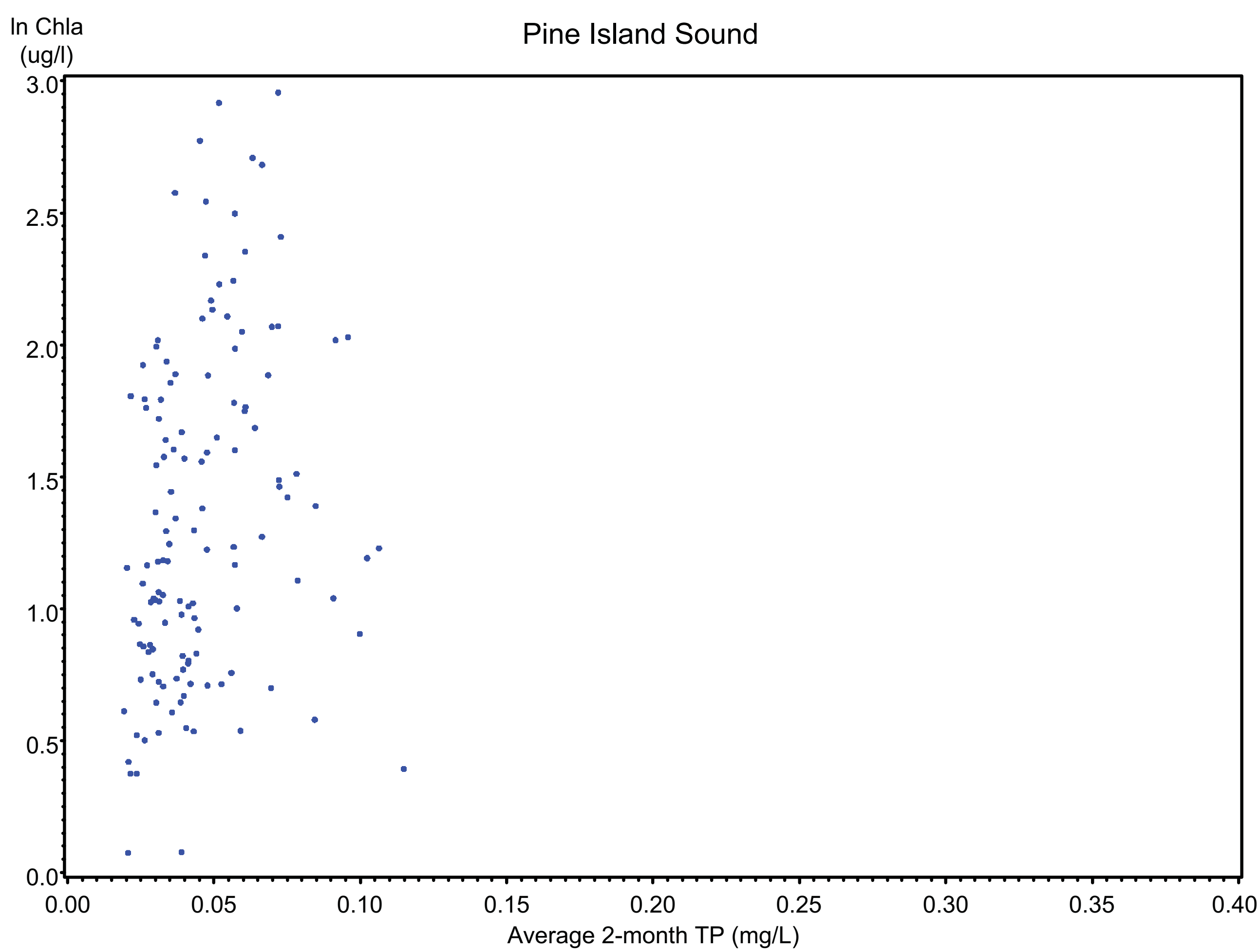


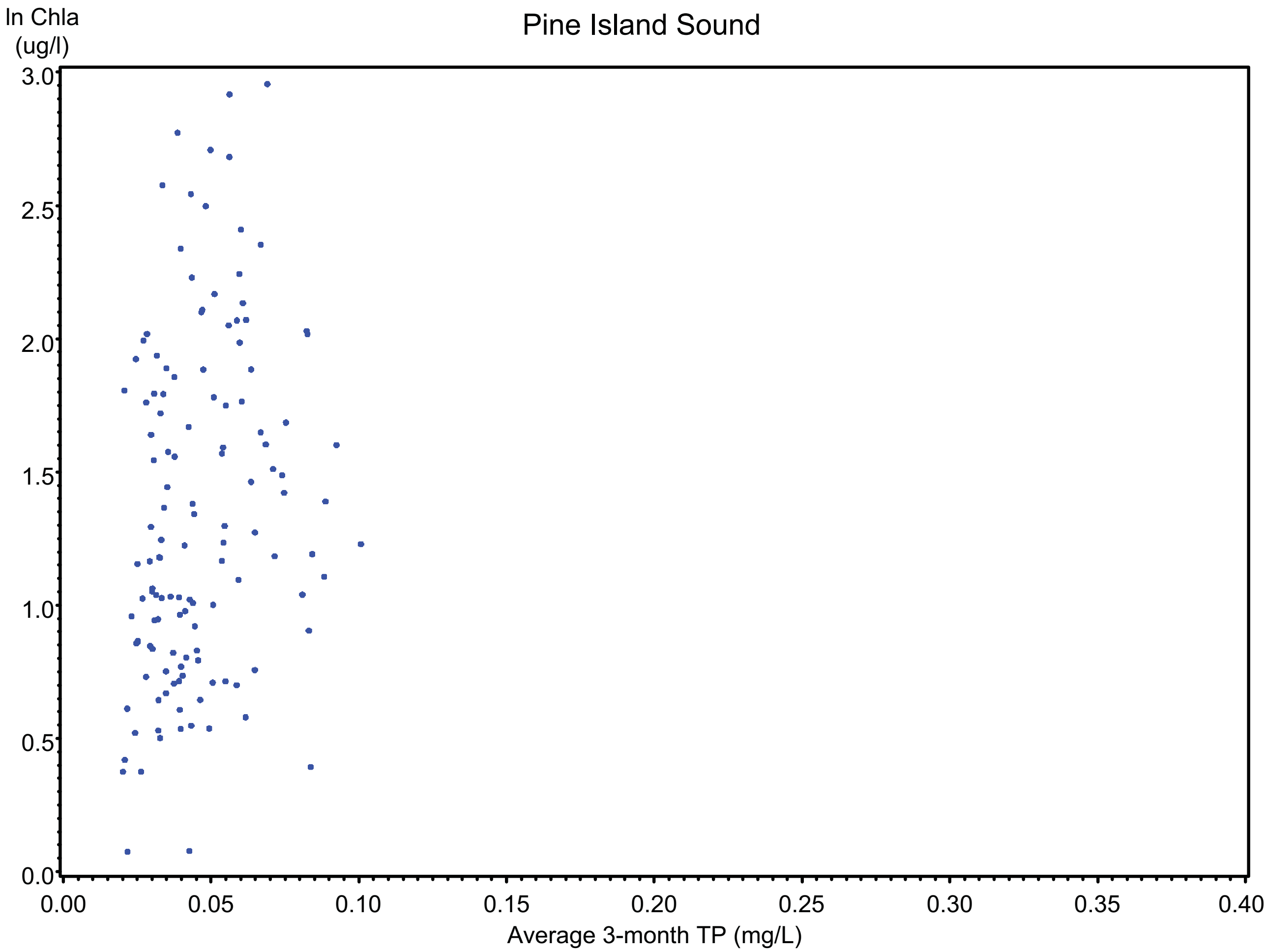
Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)


Pine Island Sound
Chla (ug/l)
0 2 4 6 8 10 12 14 16 18 20
-5.0 -4.5 -4.0 -3.5 -3.0 -2.5 -2.0 -1.5 -1.0
ln Average 2-month TP (mg/L)

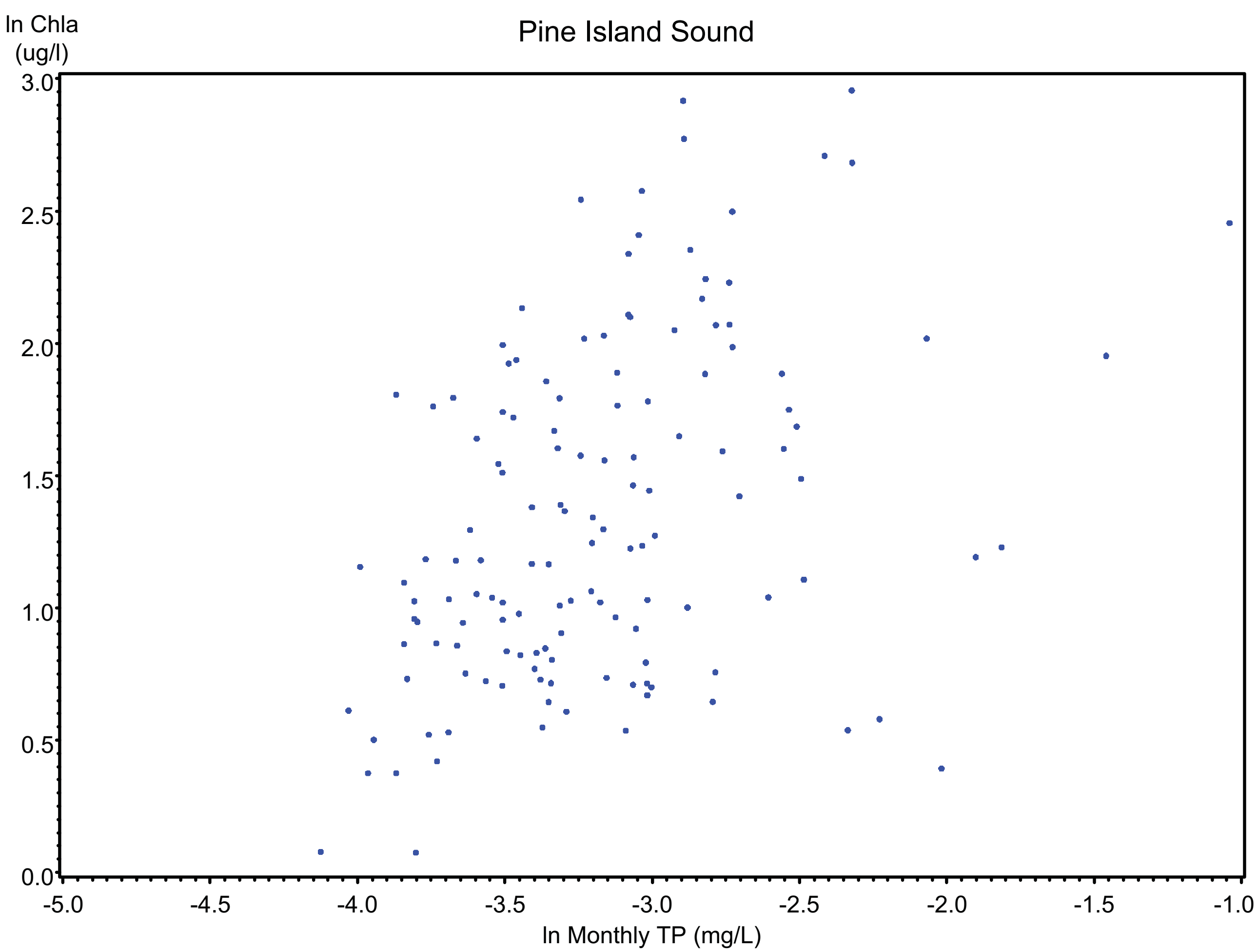

Pine Island Sound
Chla (ug/l)
0 2 4 6 8 10 12 14 16 18 20
-5.0 -4.5 -4.0 -3.5 -3.0 -2.5 -2.0 -1.5 -1.0
ln Average 3-month TP (mg/L)


Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
Monthly TP (mg/L)

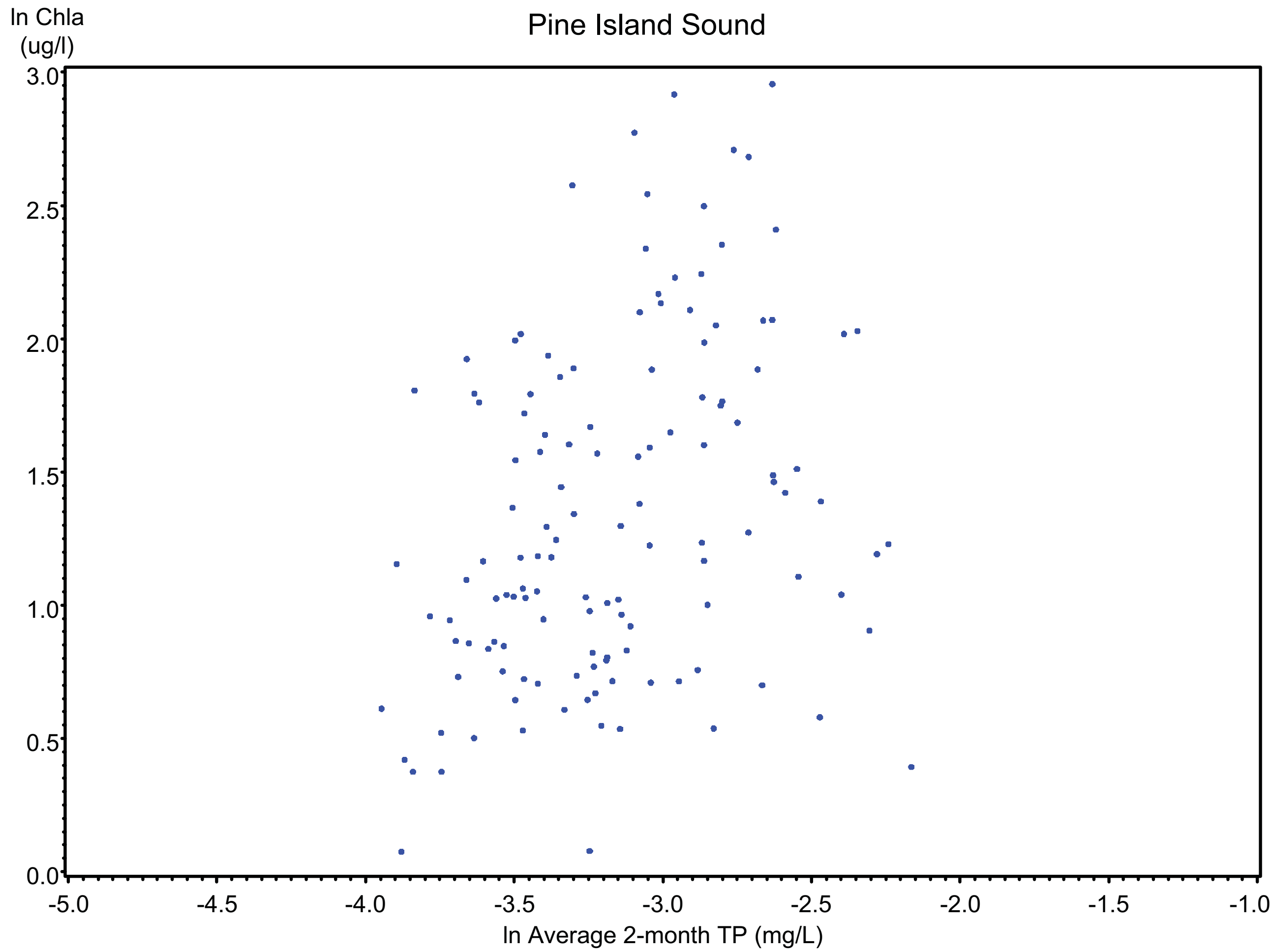

Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 2-month TP (mg/L)



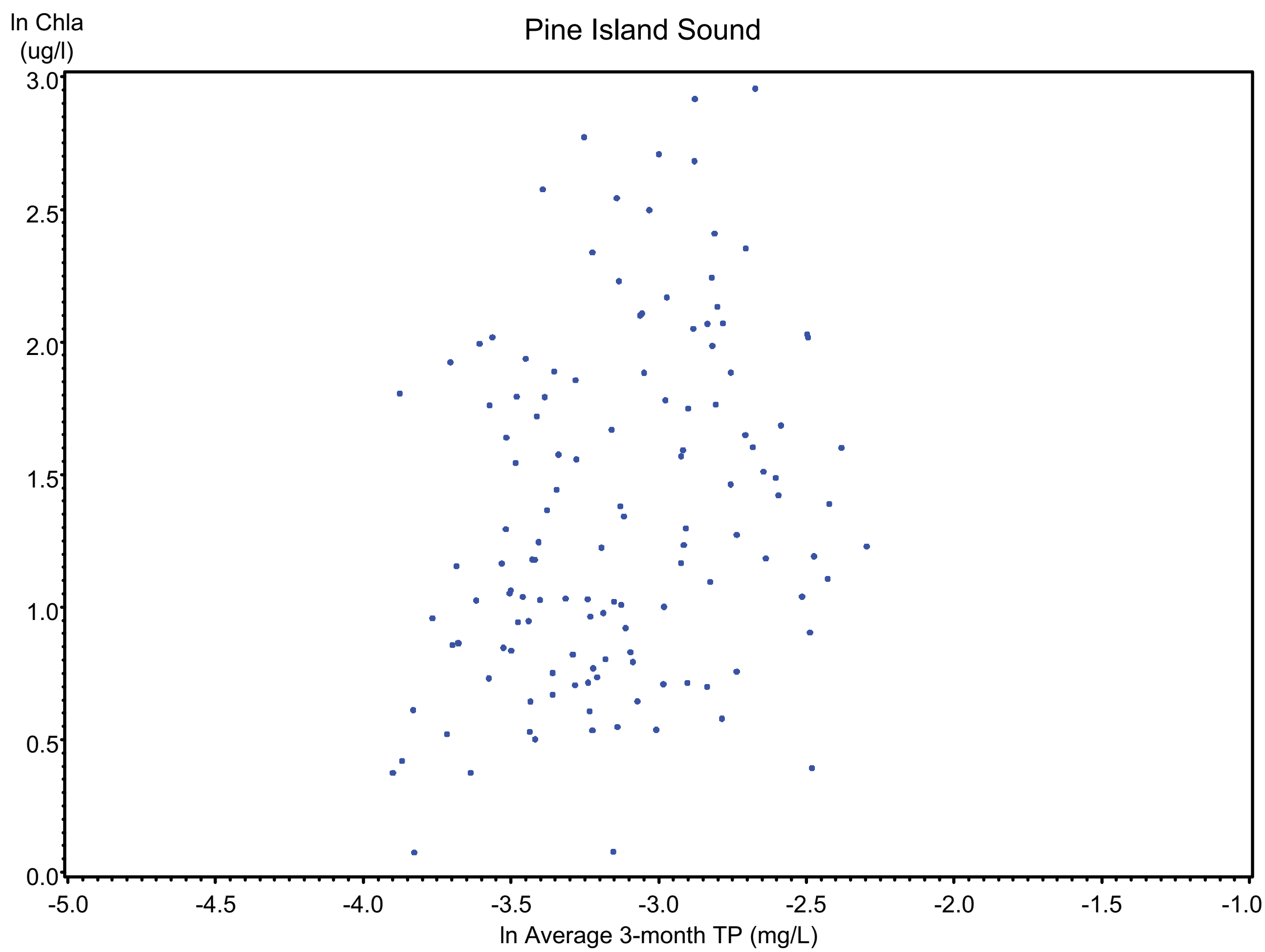
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 3-month TP (mg/L)



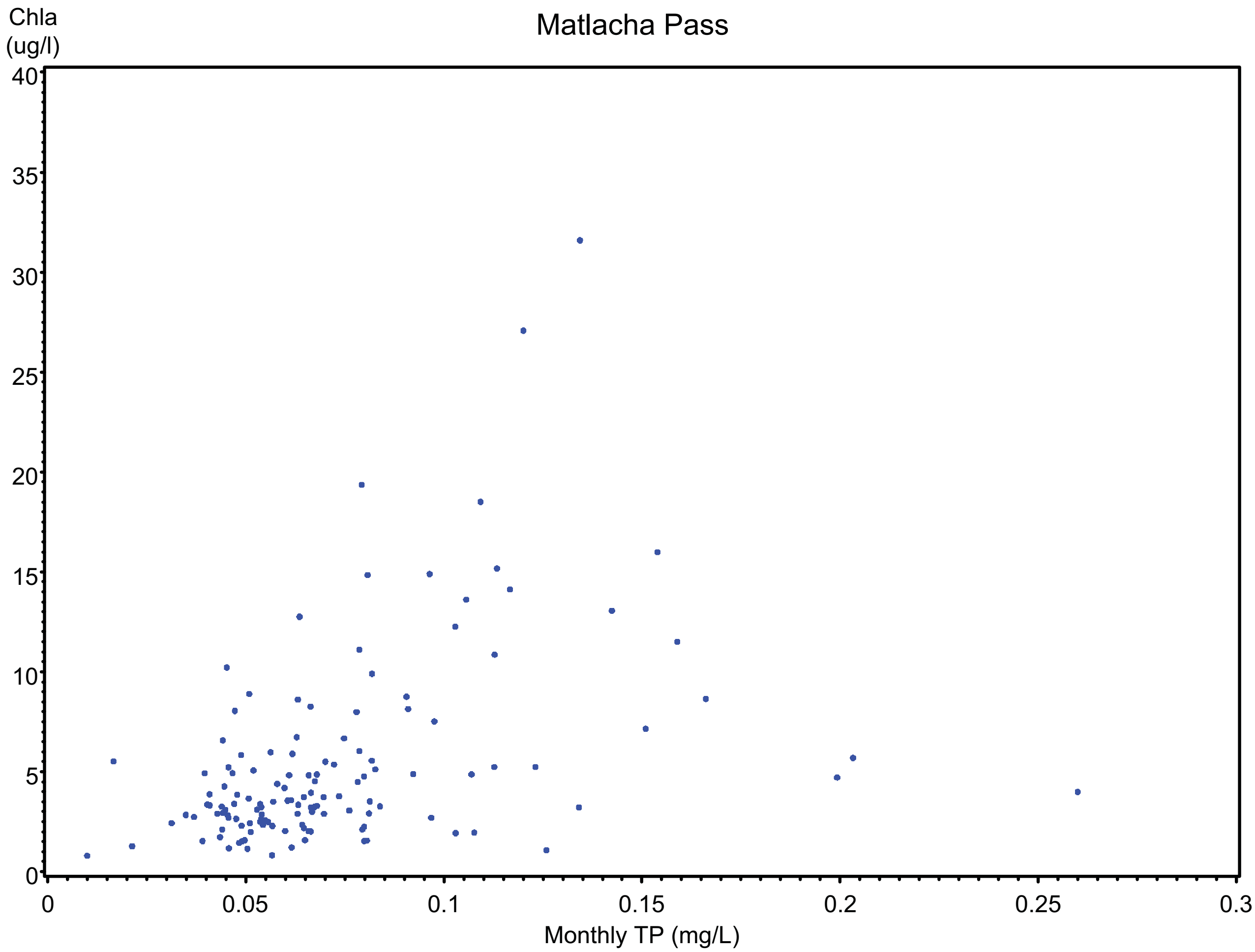
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

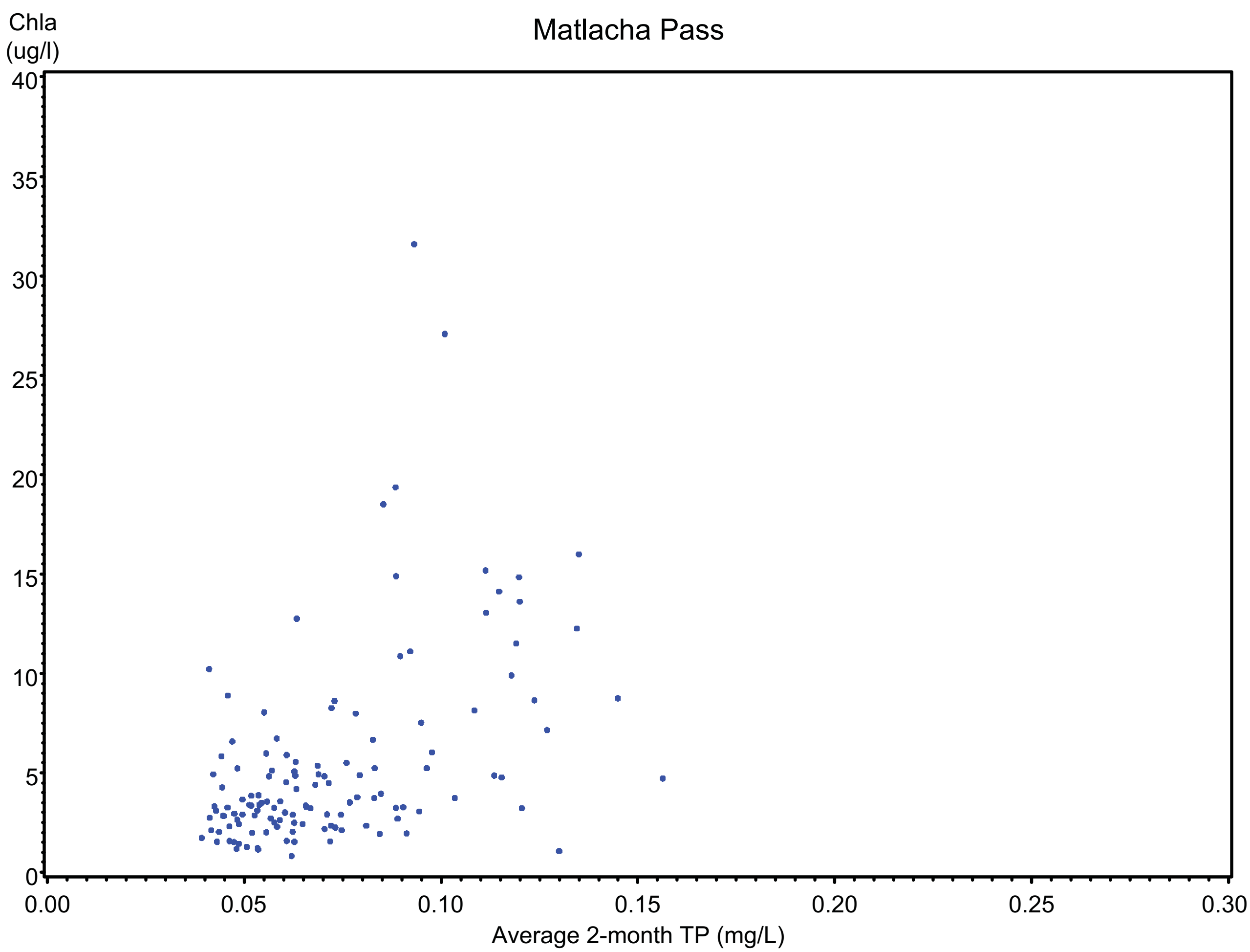


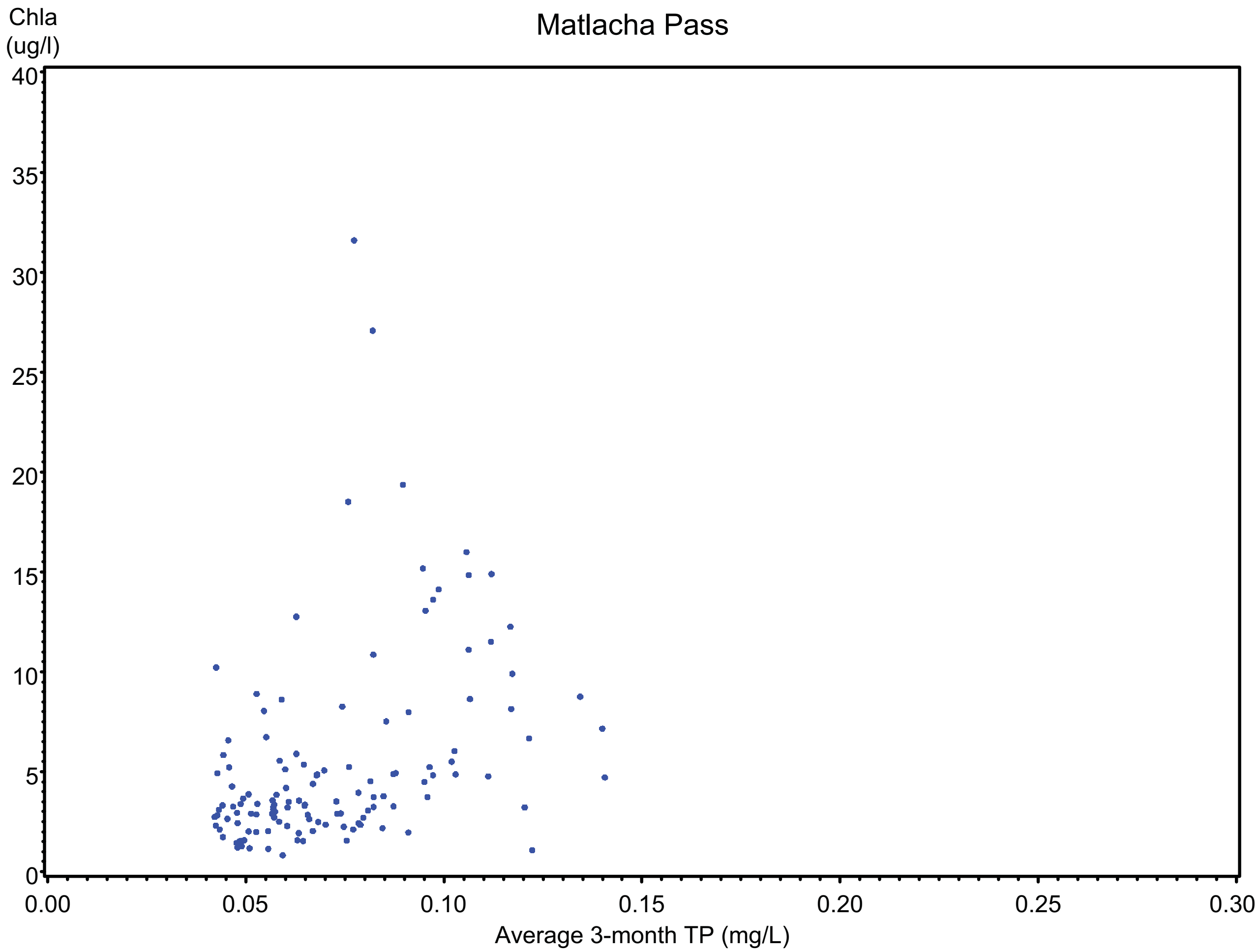
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

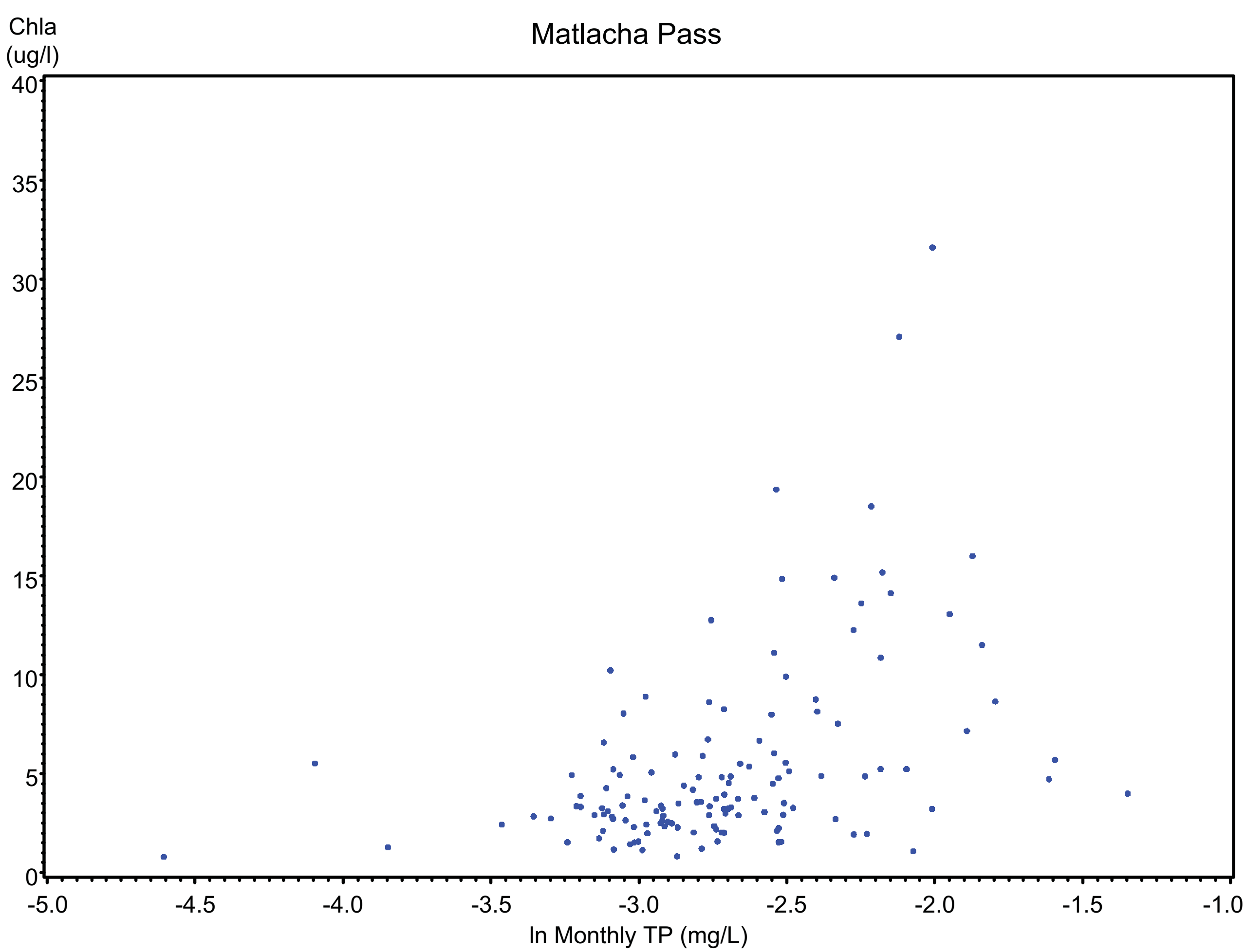


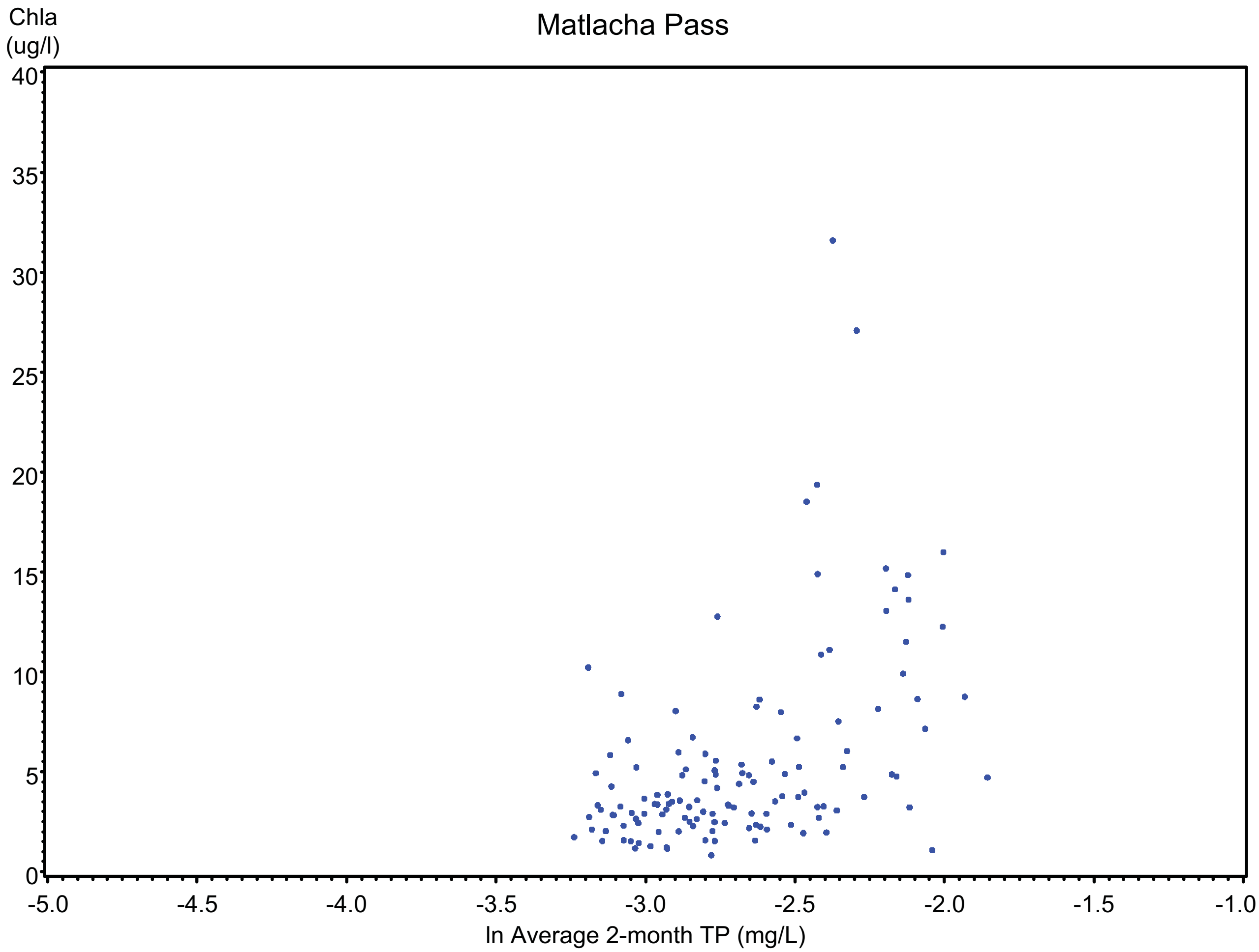
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)

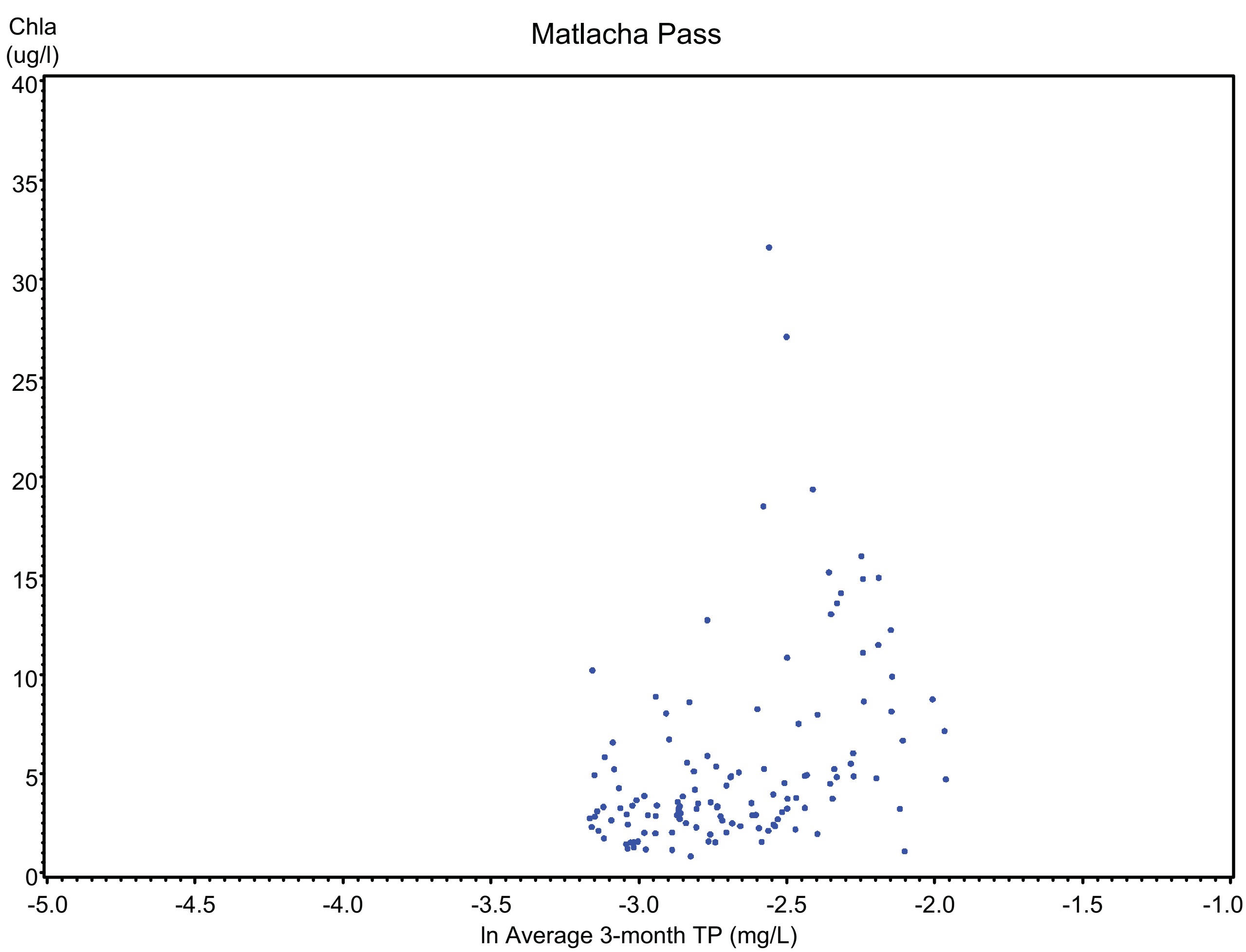

Chla
(ug/l)
Matlacha Pass
0
5
10
15
20
25
30
35
40
0
0.05
0.1
0.15
0.2
0.25
0.3
Monthly TP (mg/L)

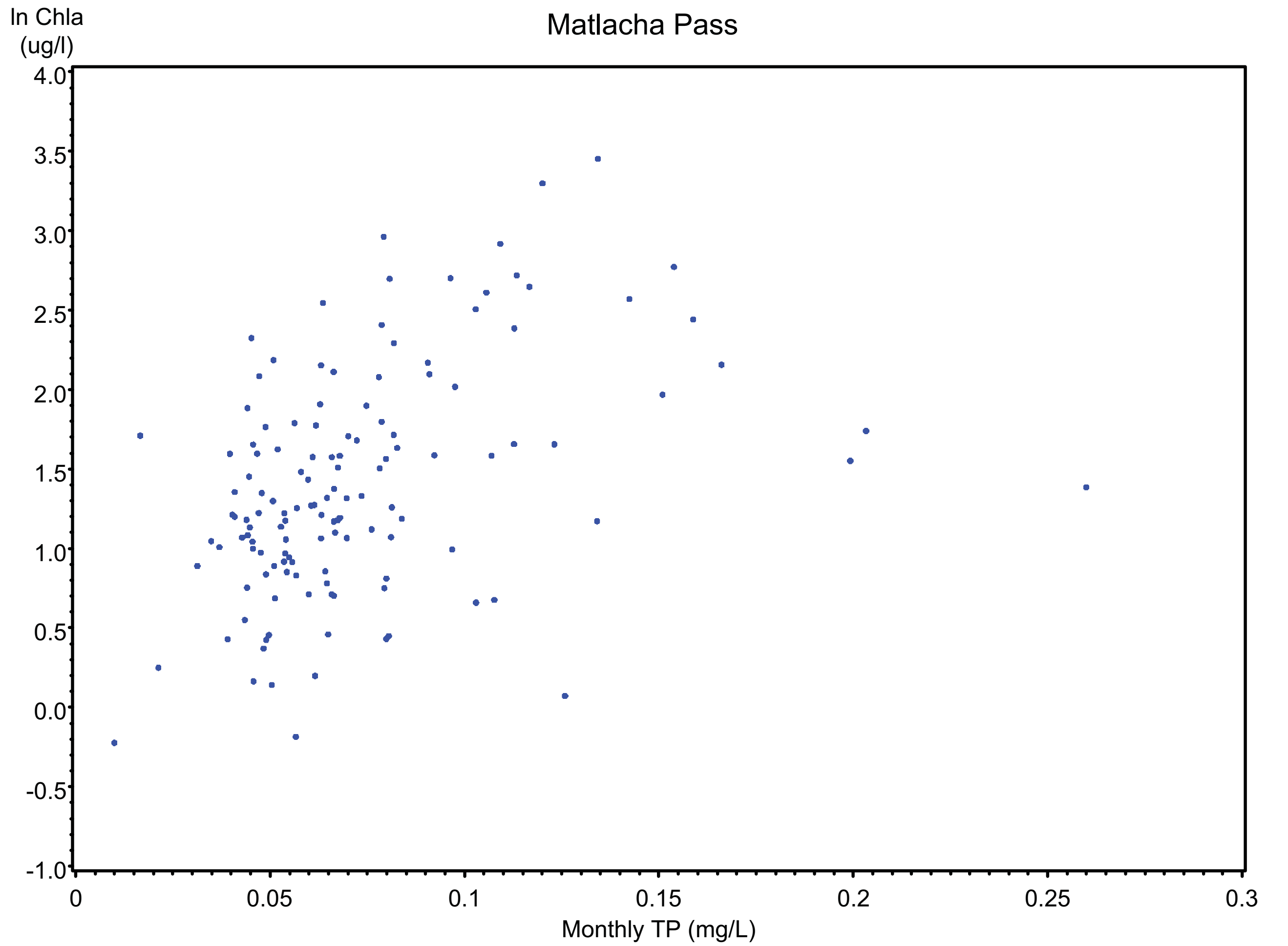

Chla
(ug/l)
Matlacha Pass
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 2-month TP (mg/L)

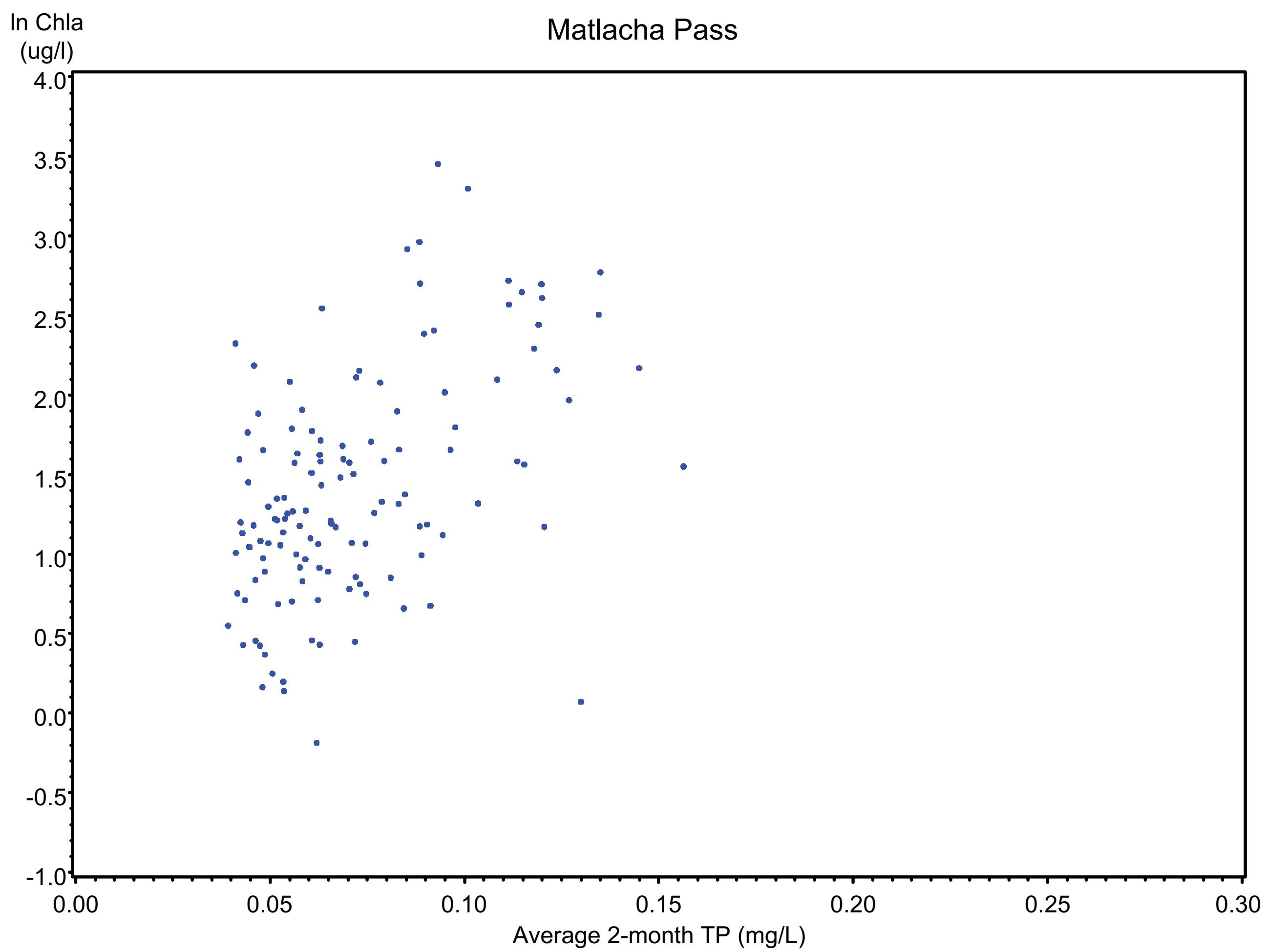

Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)

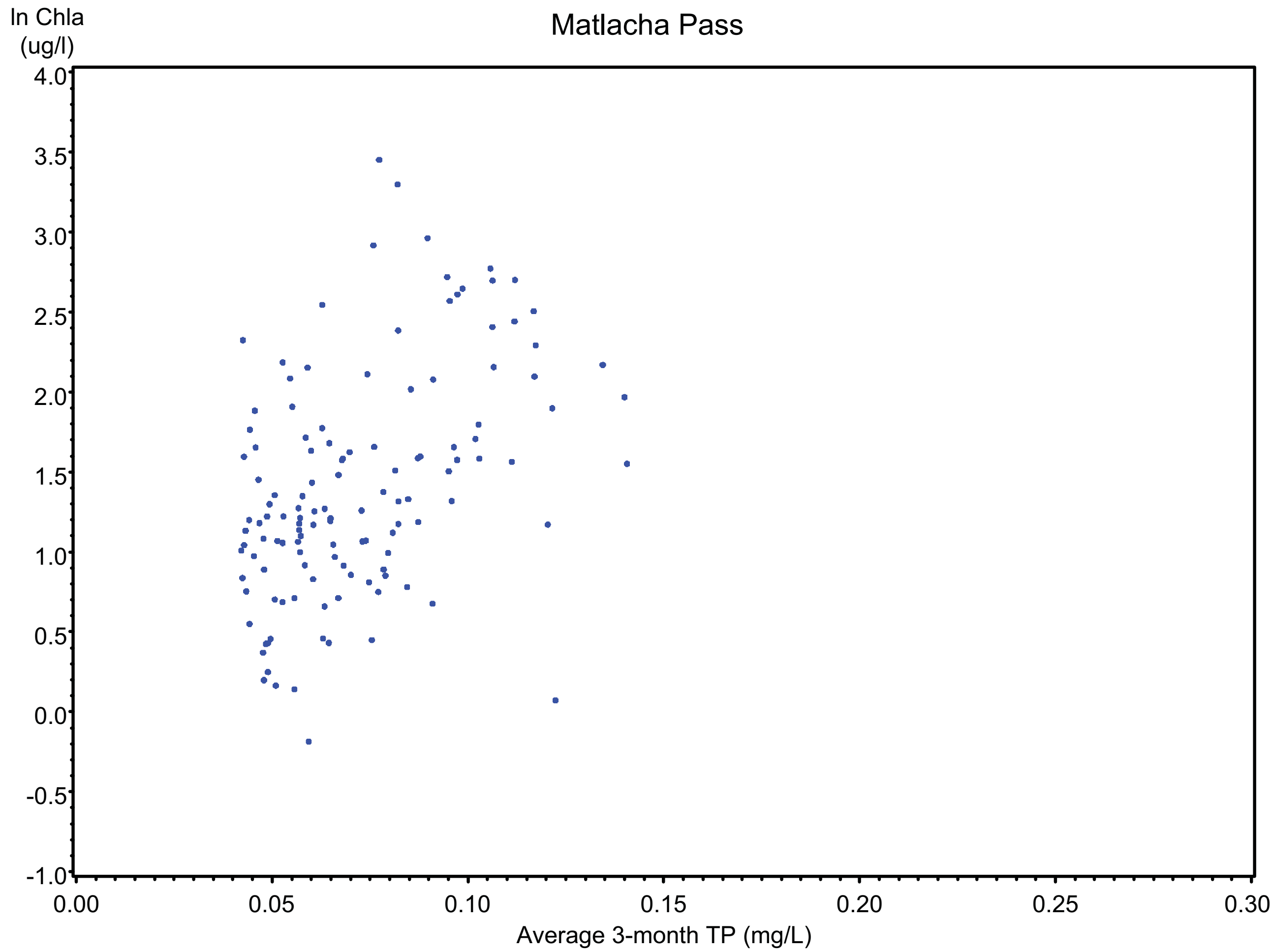

Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)


Matlacha Pass
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

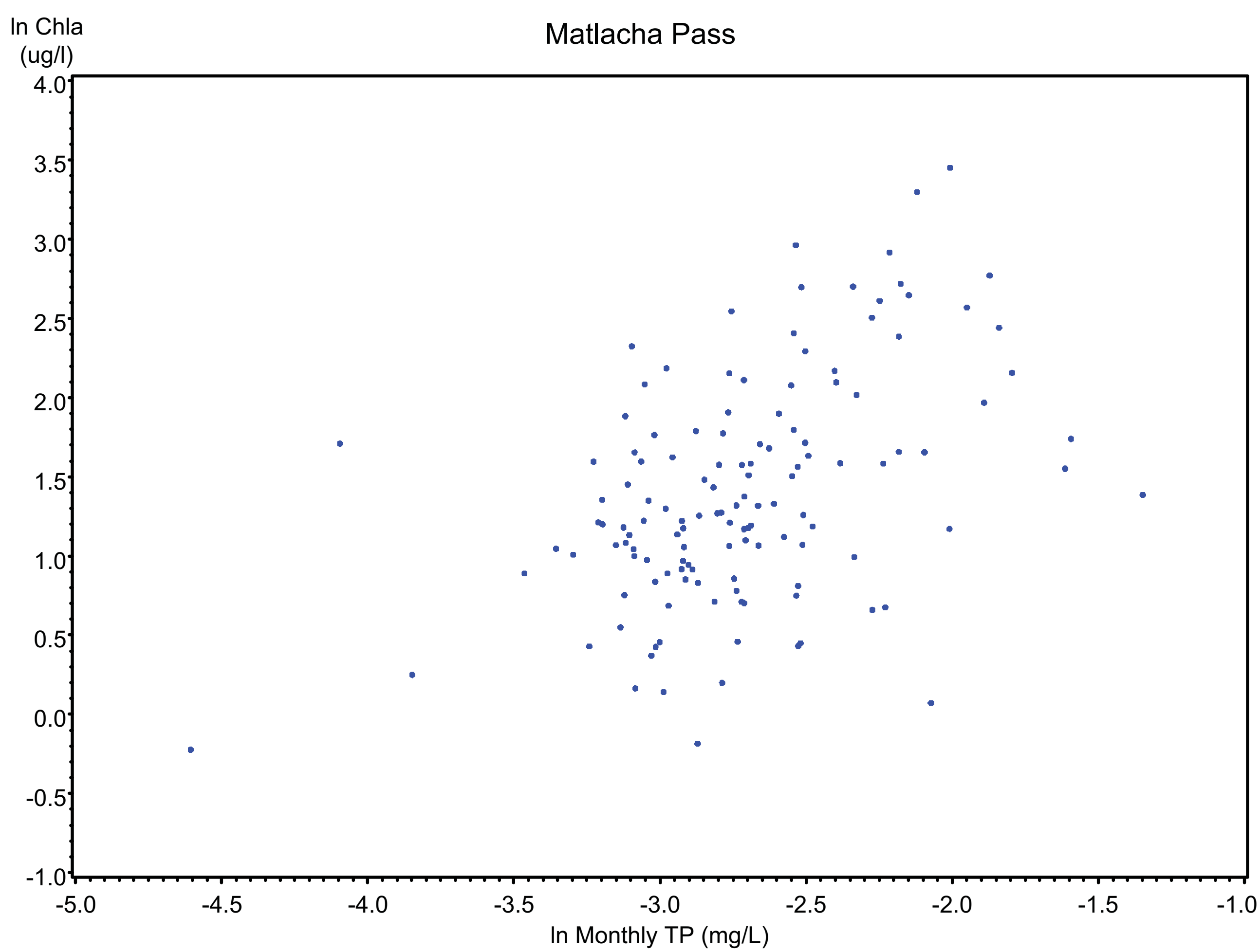

Matlacha Pass
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)


Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
0.05
0.1
0.15
0.2
0.25
0.3
Monthly TP (mg/L)

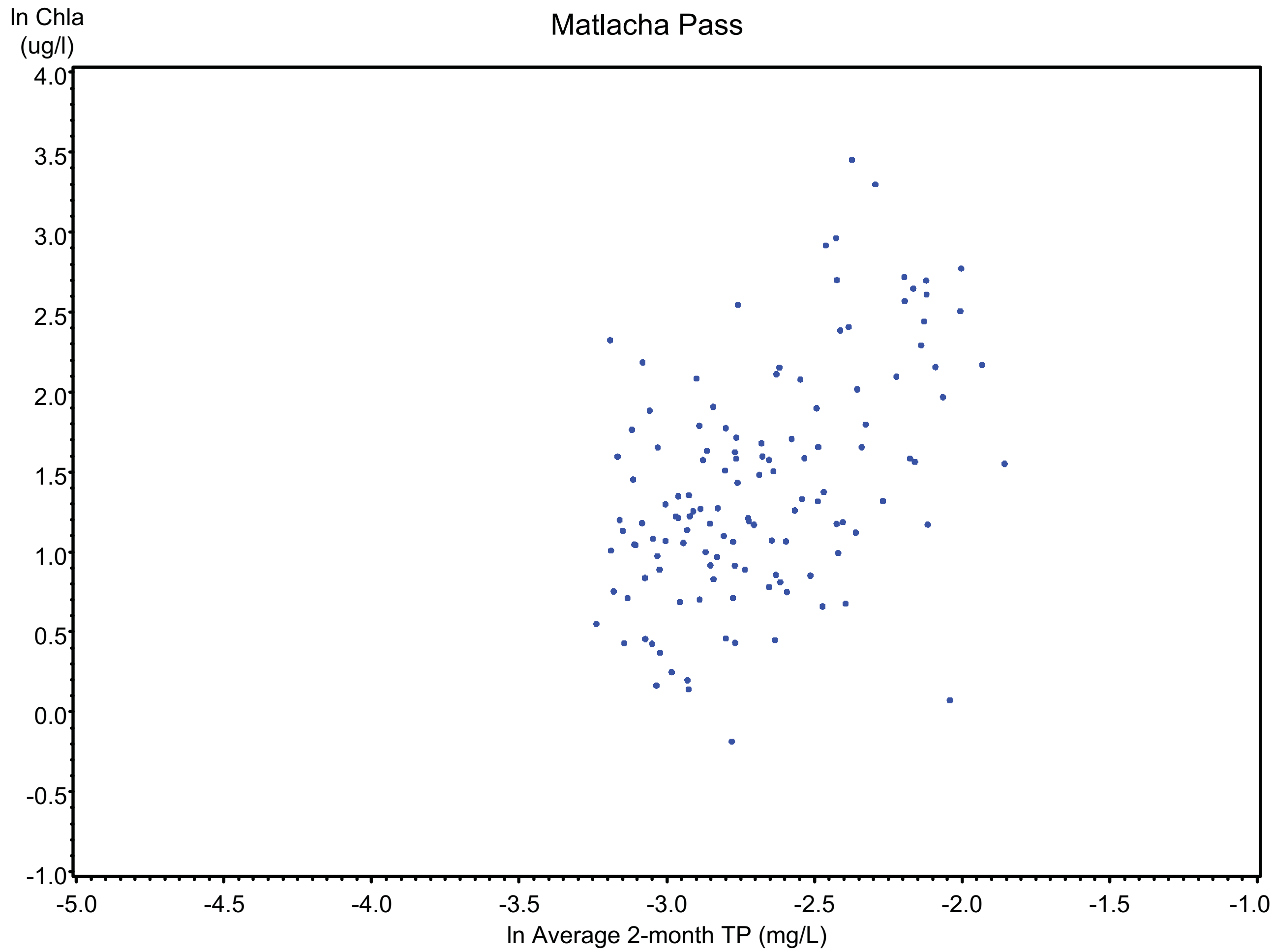

Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 2-month TP (mg/L)



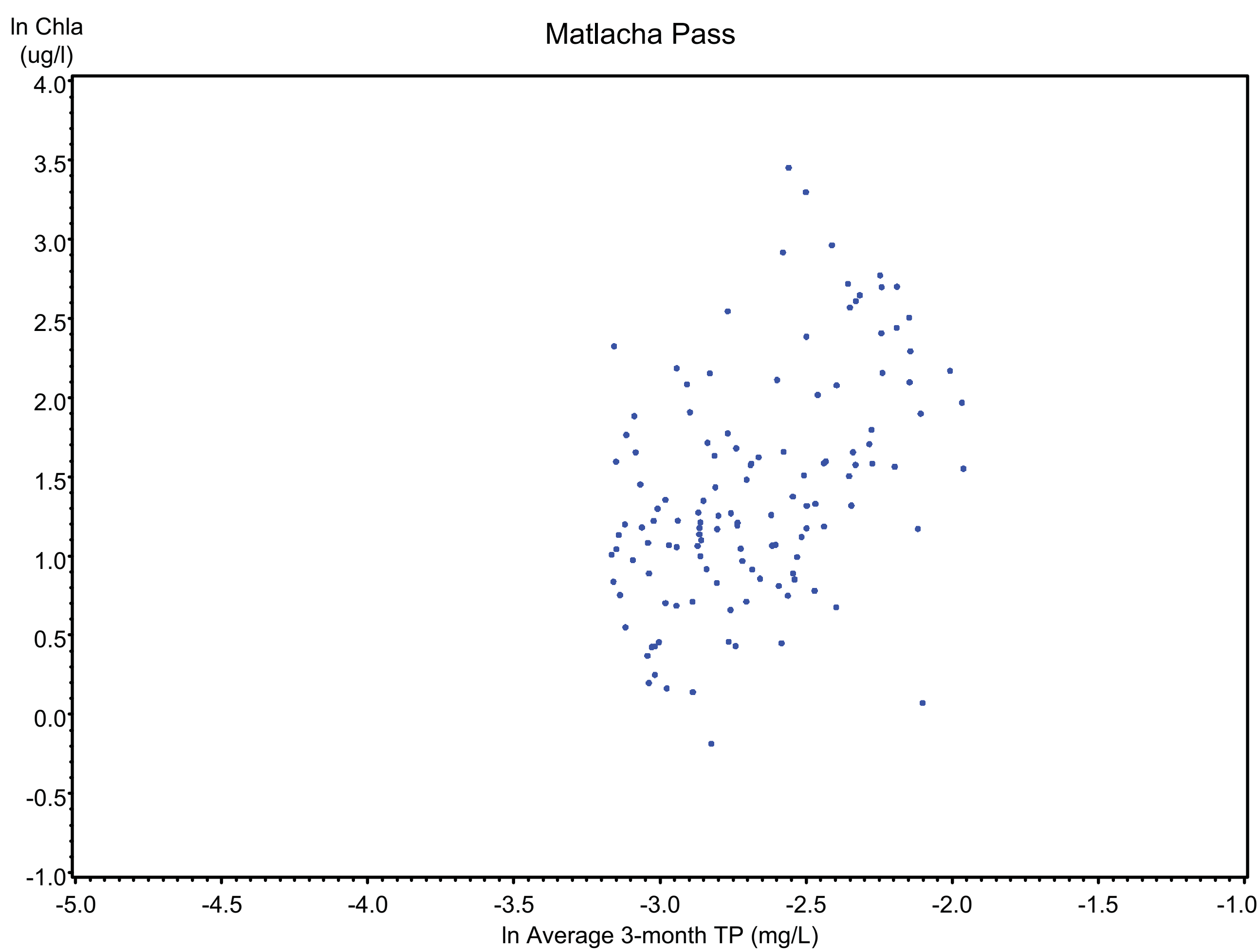
Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)



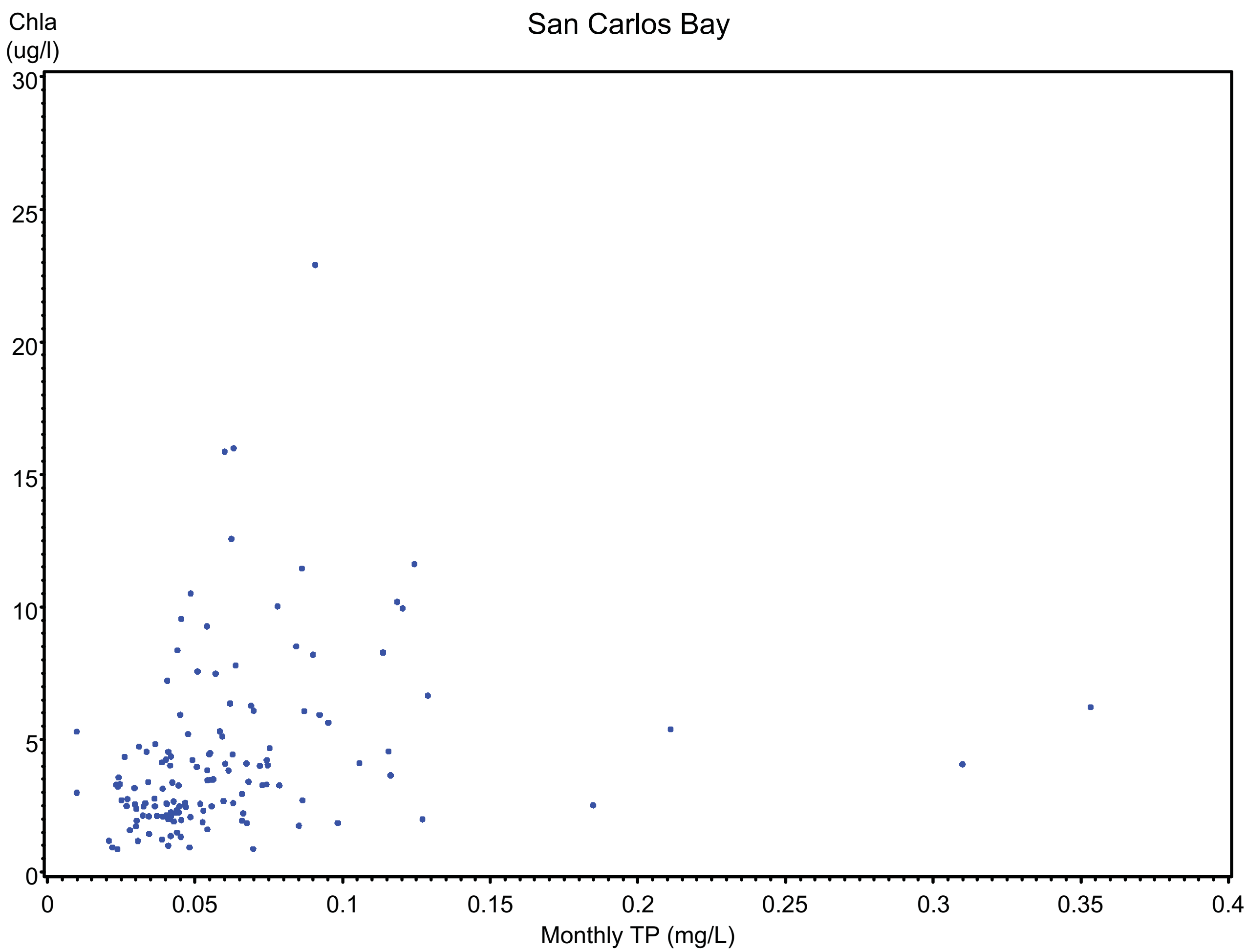
Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

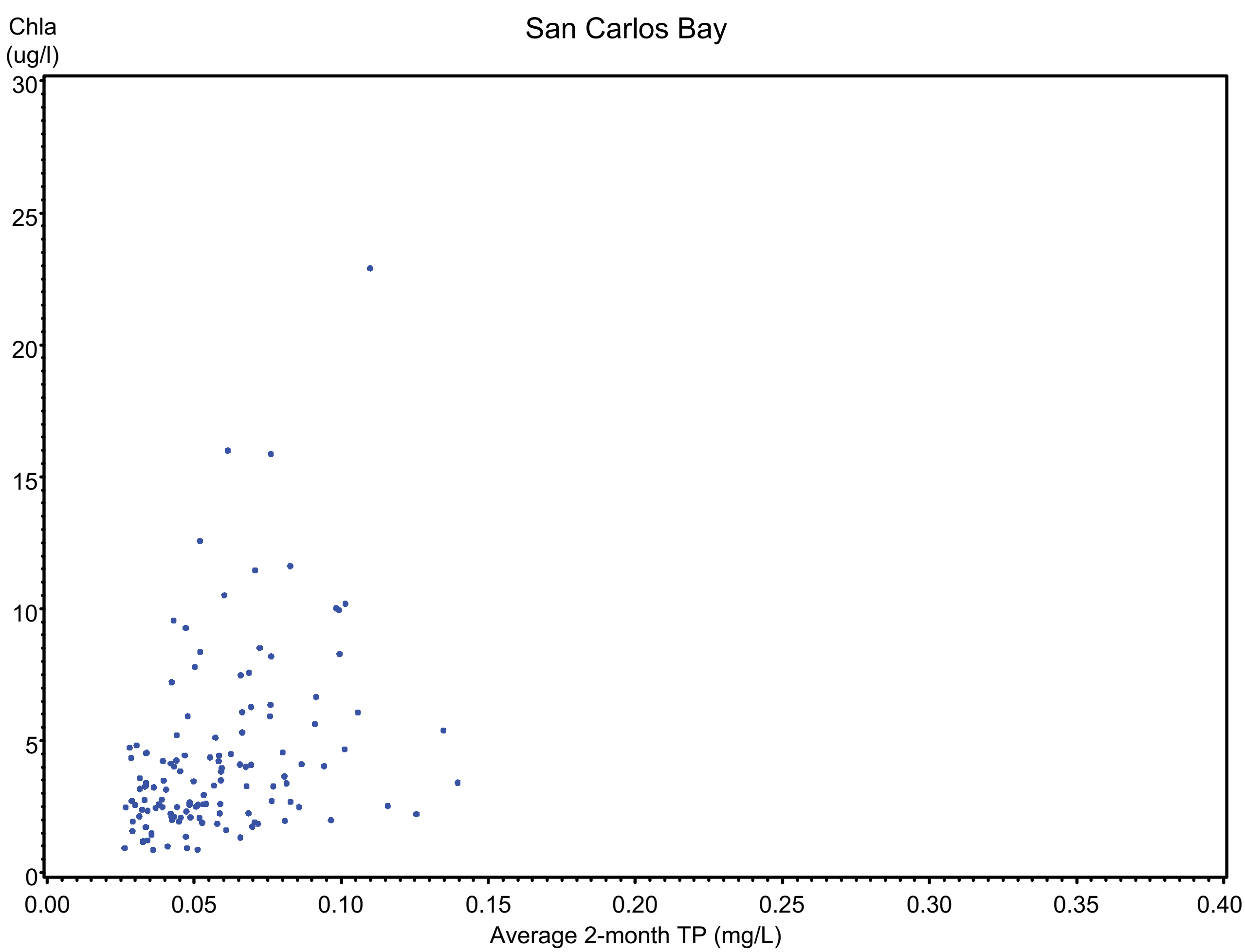


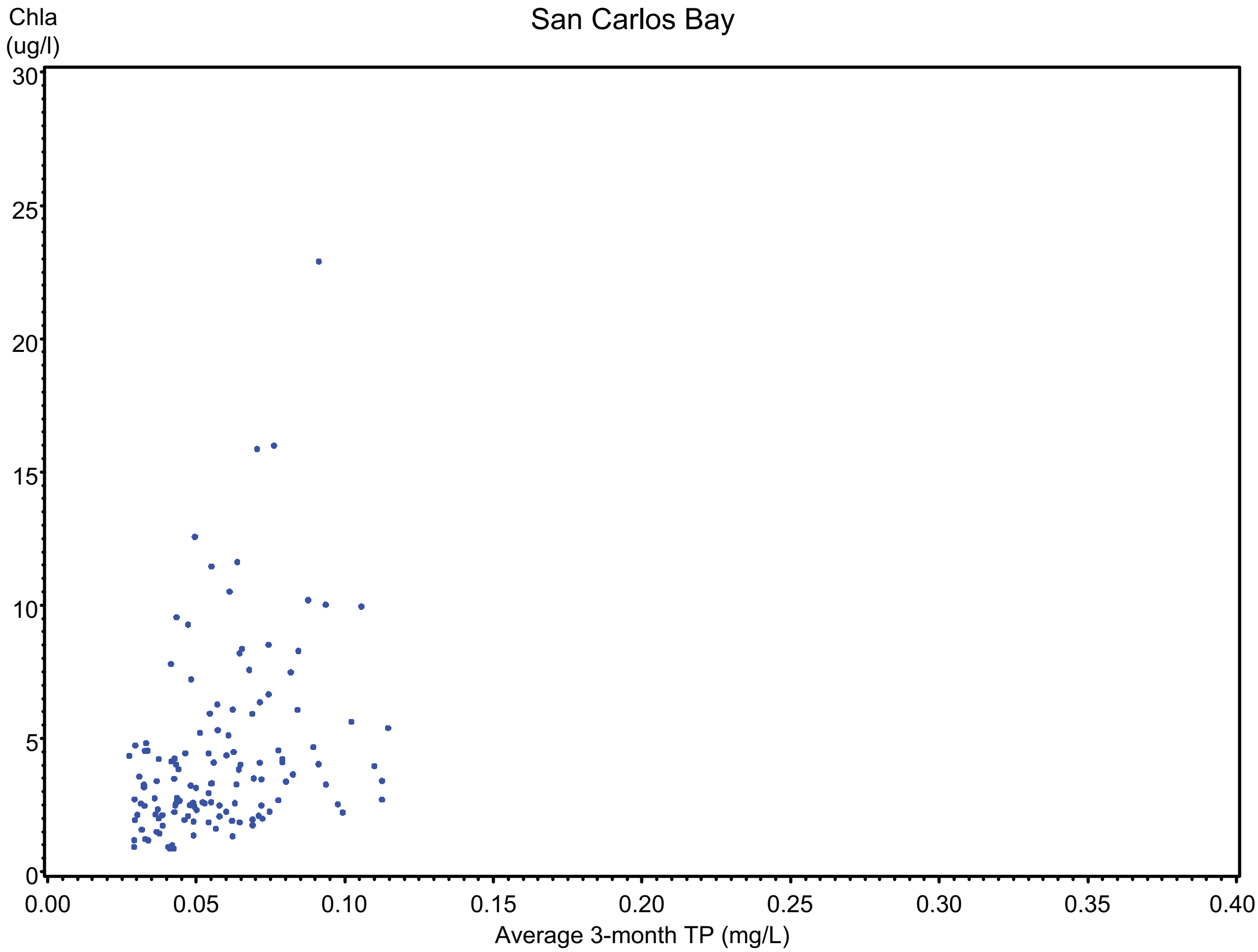
Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)



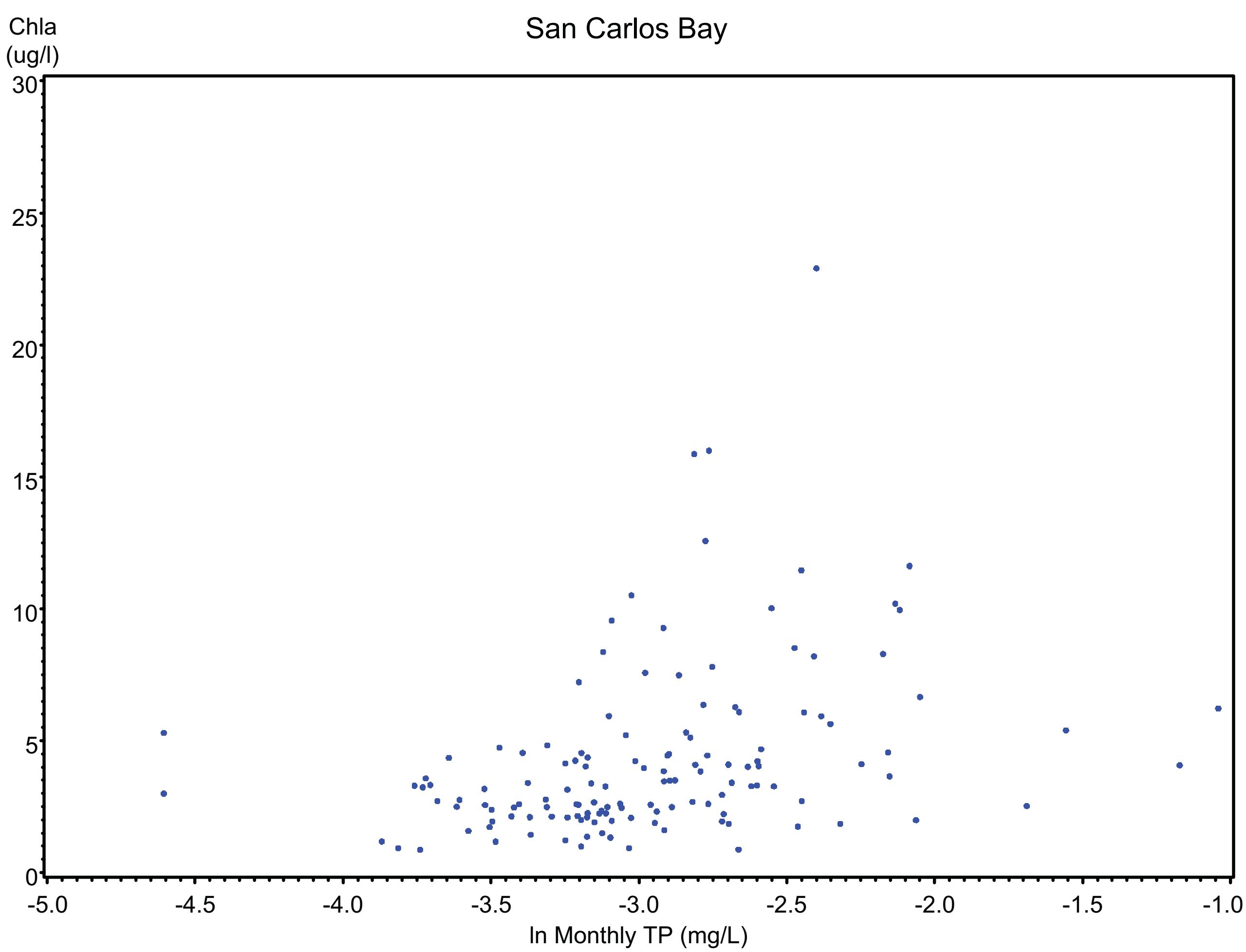
Matlacha Pass
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)


San Carlos Bay
Chla
(ug/l)
30
25
20
15
10
5
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
Monthly TP (mg/L)

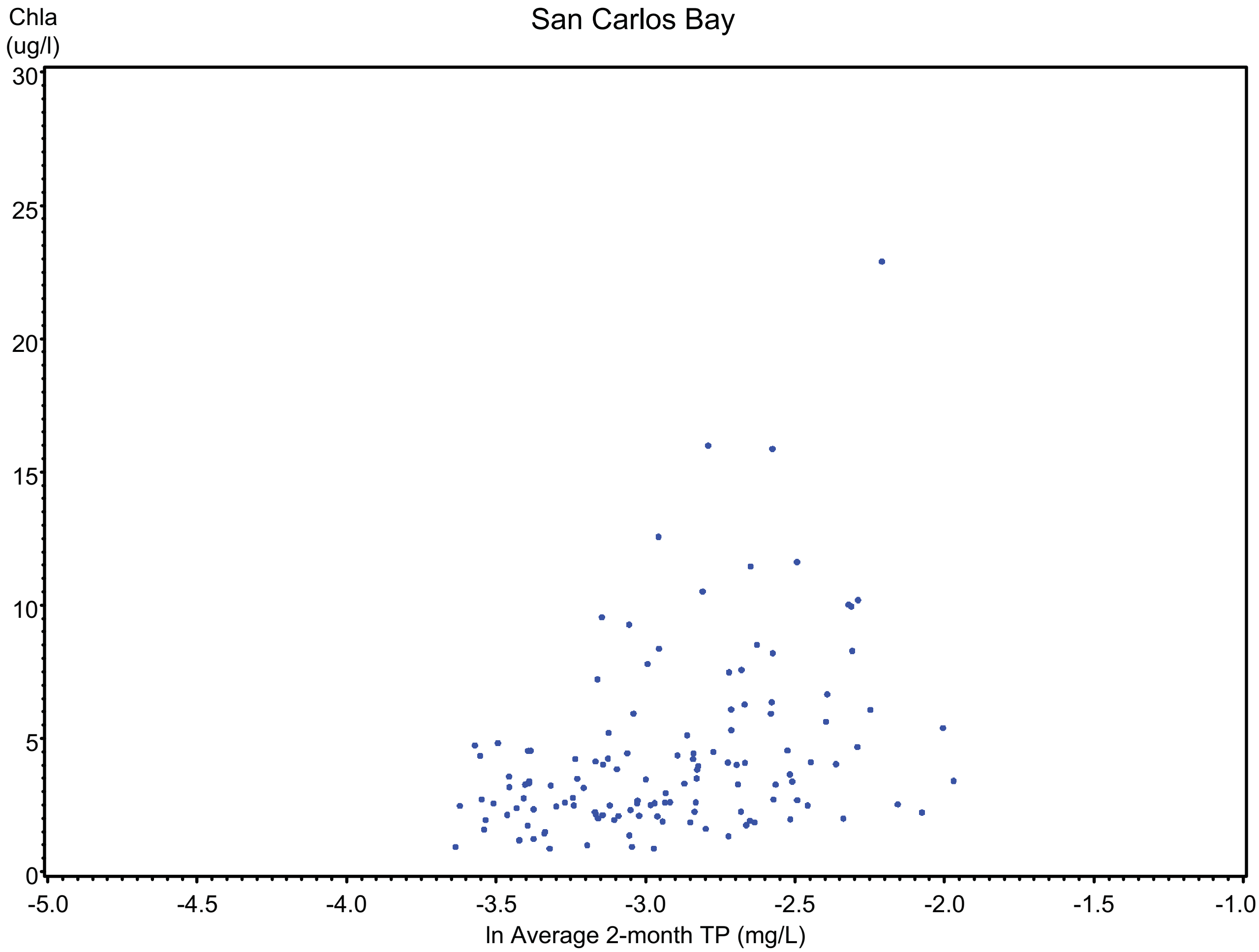

San Carlos Bay
Chla
(ug/l)
30
25
20
15
10
5
0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 2-month TP (mg/L)

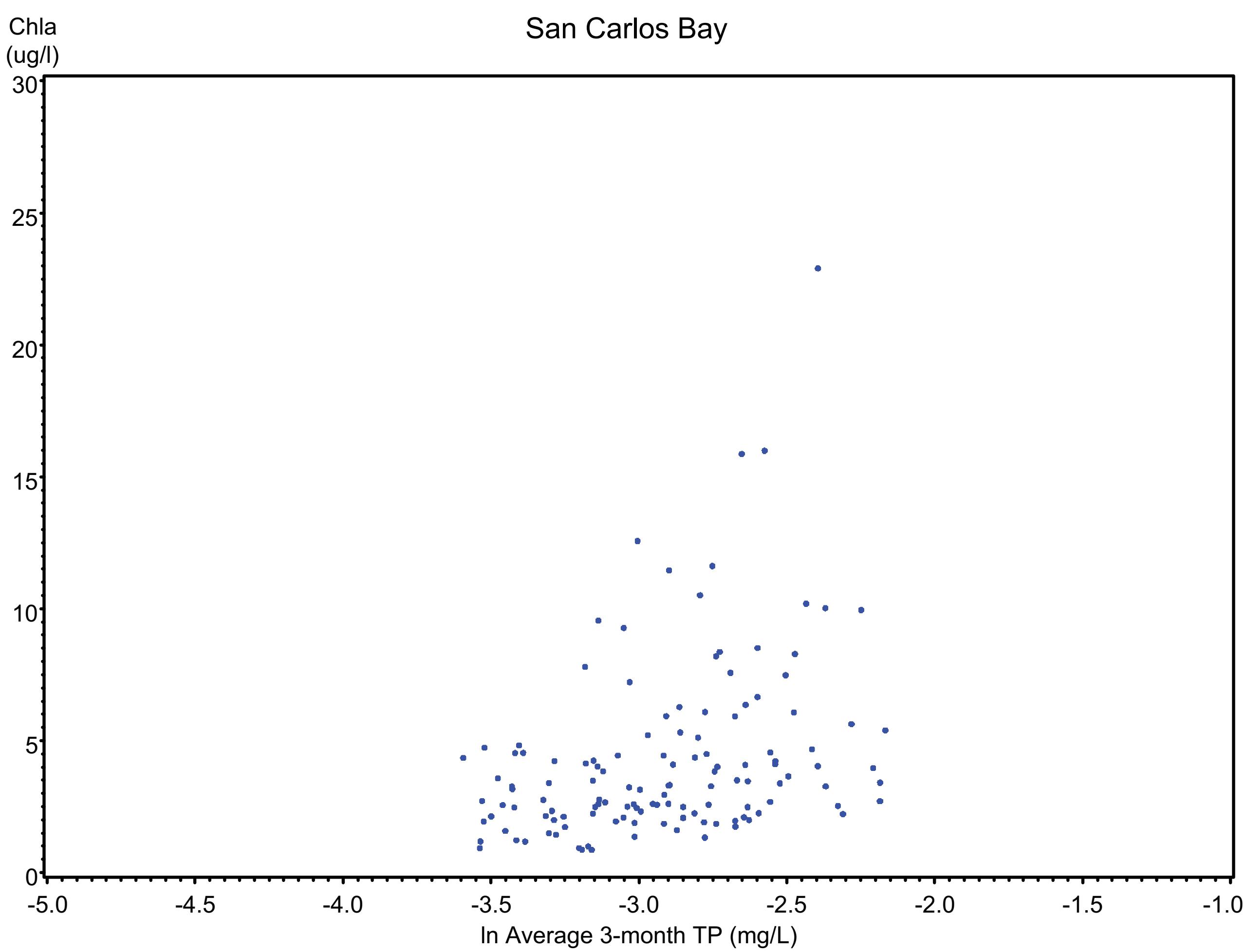


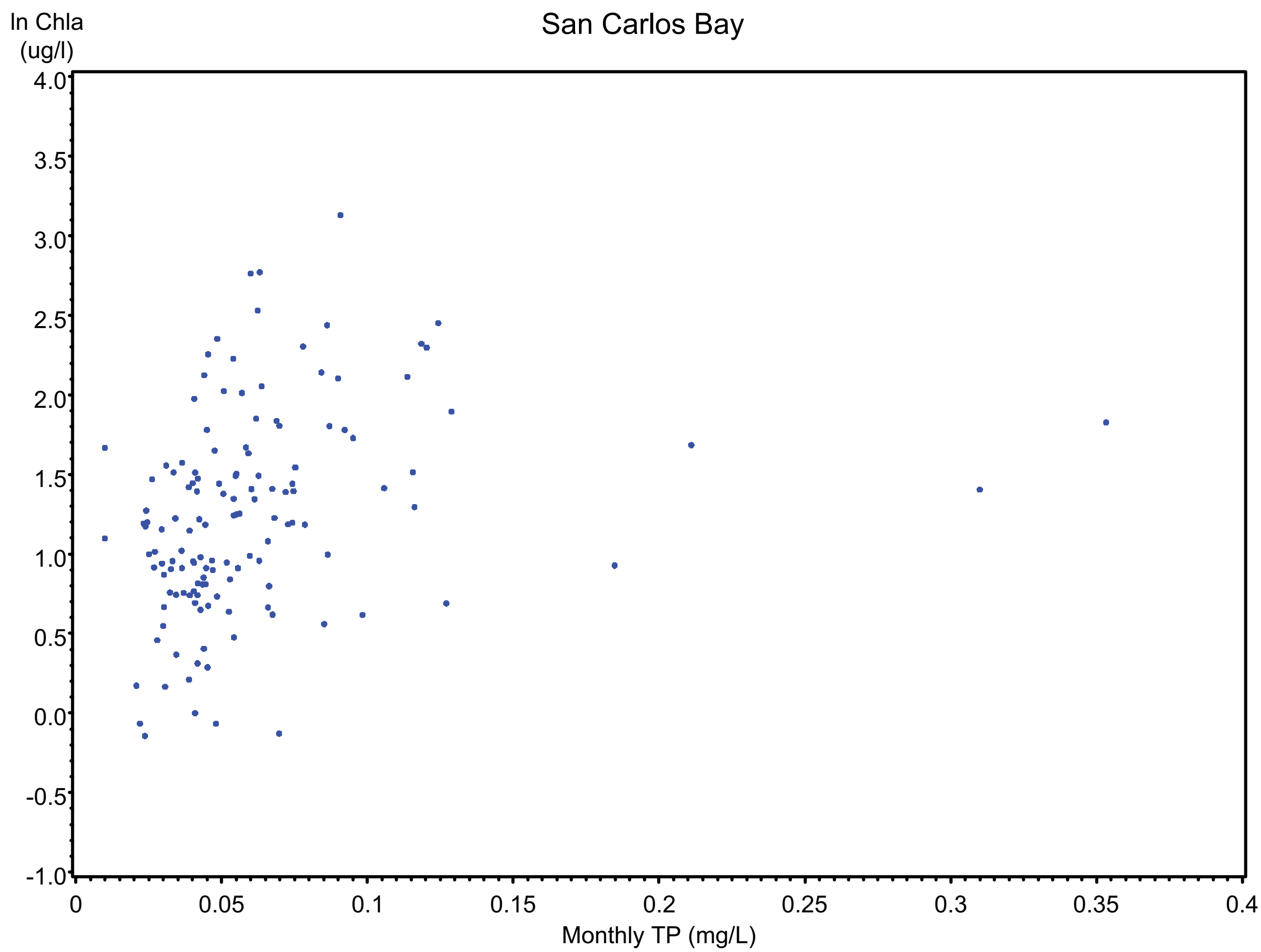
San Carlos Bay
Chla (ug/l)
0
5
10
15
20
25
30
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 3-month TP (mg/L)

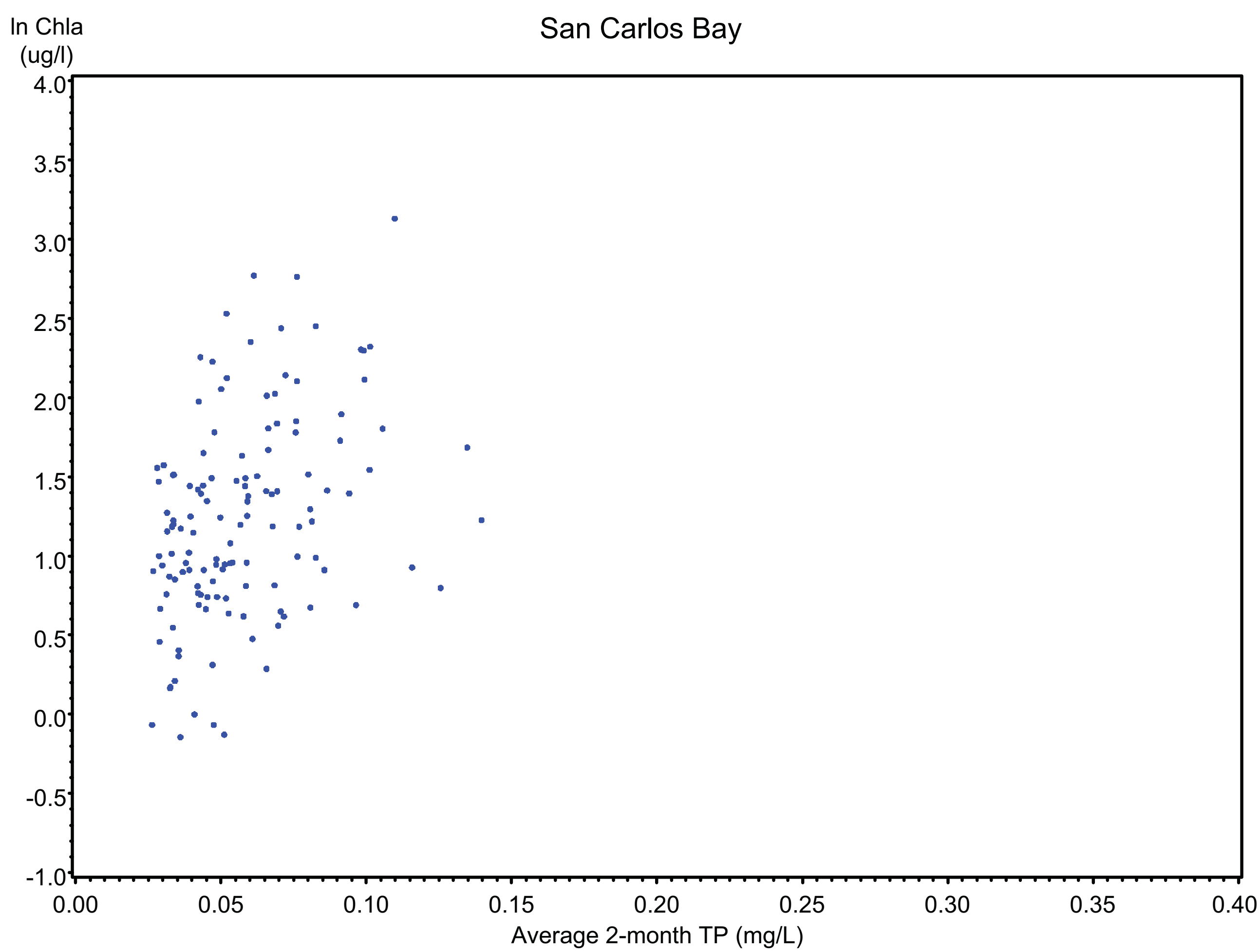


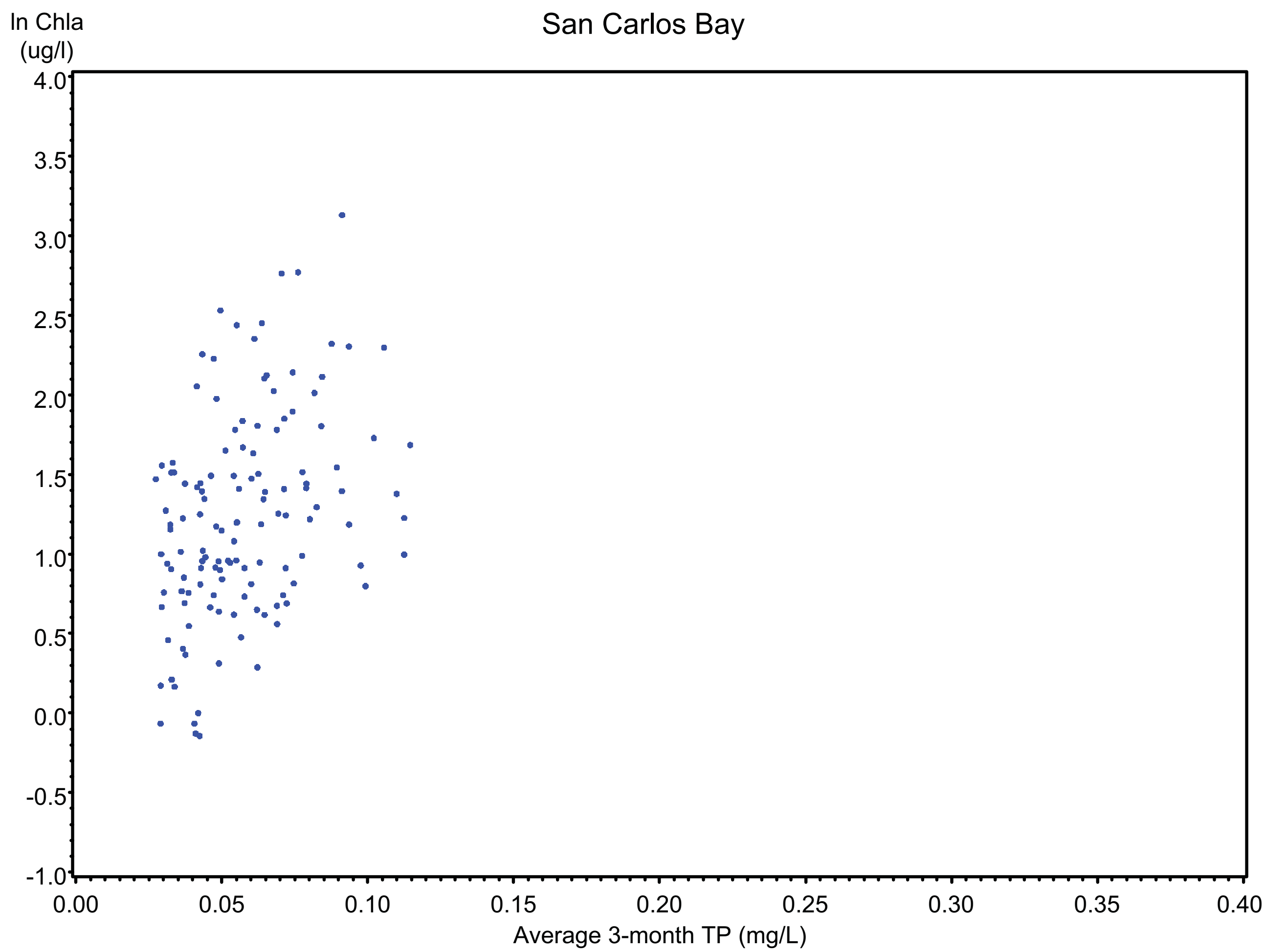
San Carlos Bay
Chla (ug/l)
0
5
10
15
20
25
30
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

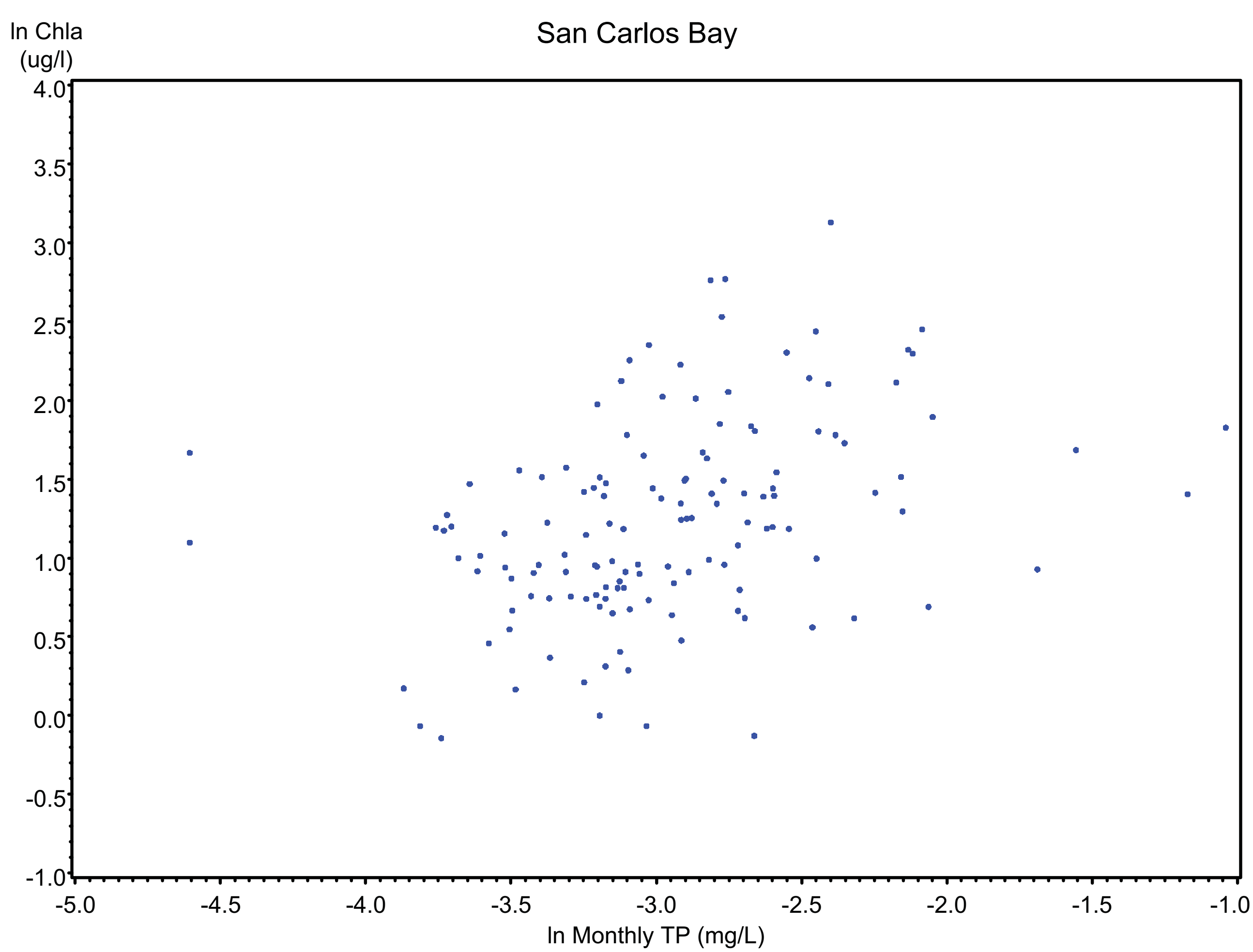

San Carlos Bay
Chla
(ug/l)
30
25
20
15
10
5
0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

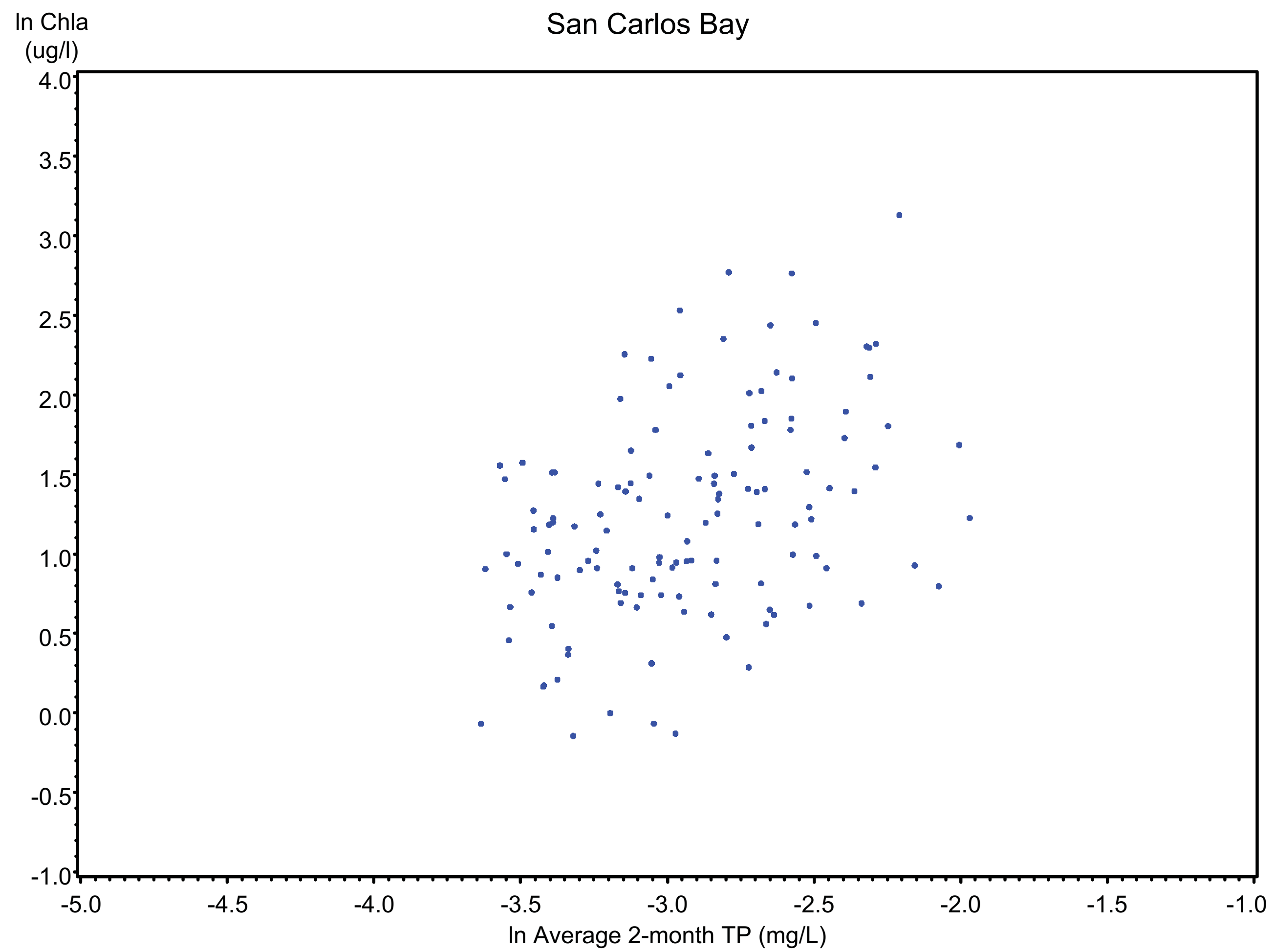

San Carlos Bay
Chla
(ug/l)
30
25
20
15
10
5
0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)

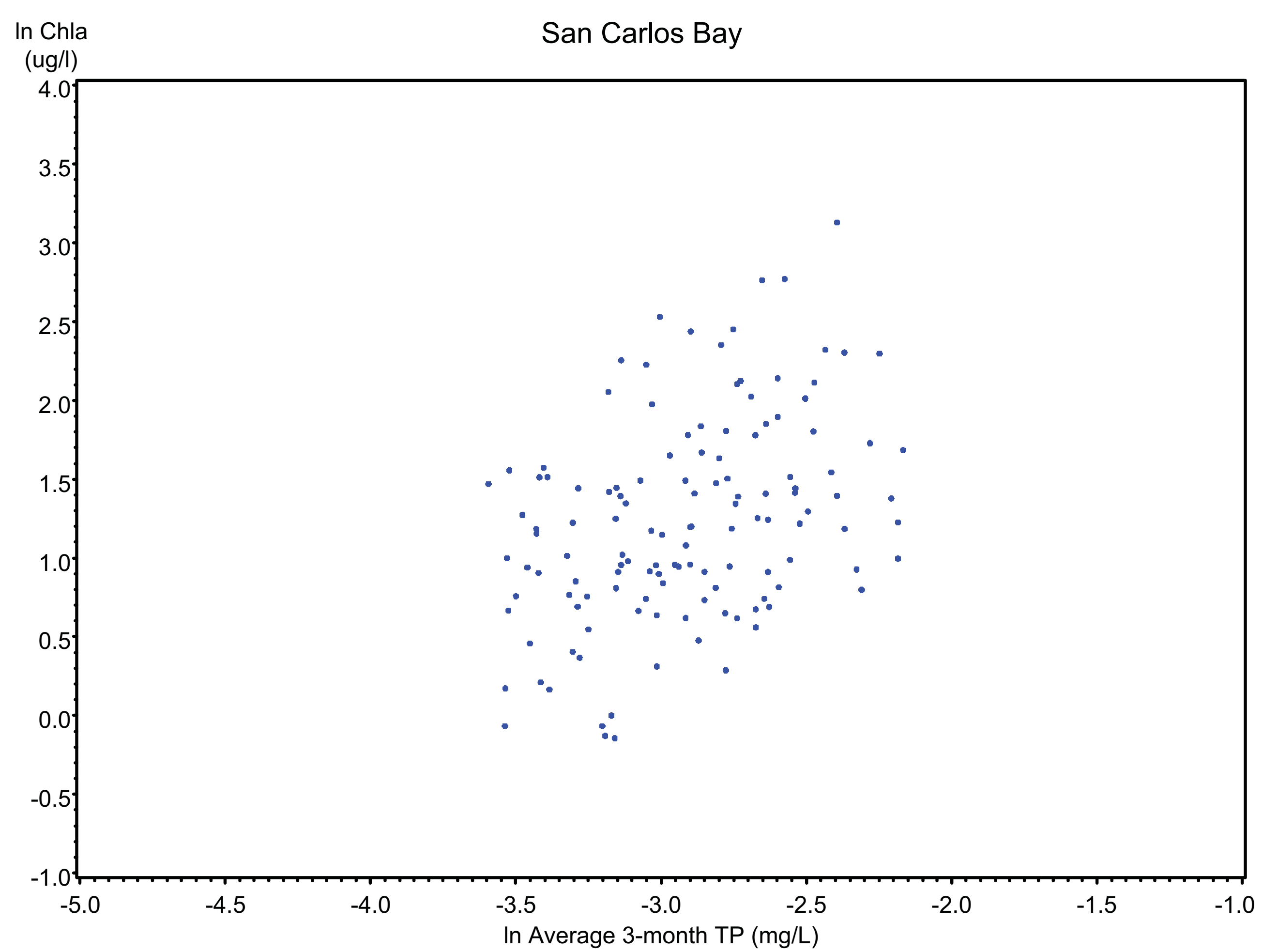

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
Monthly TP (mg/L)

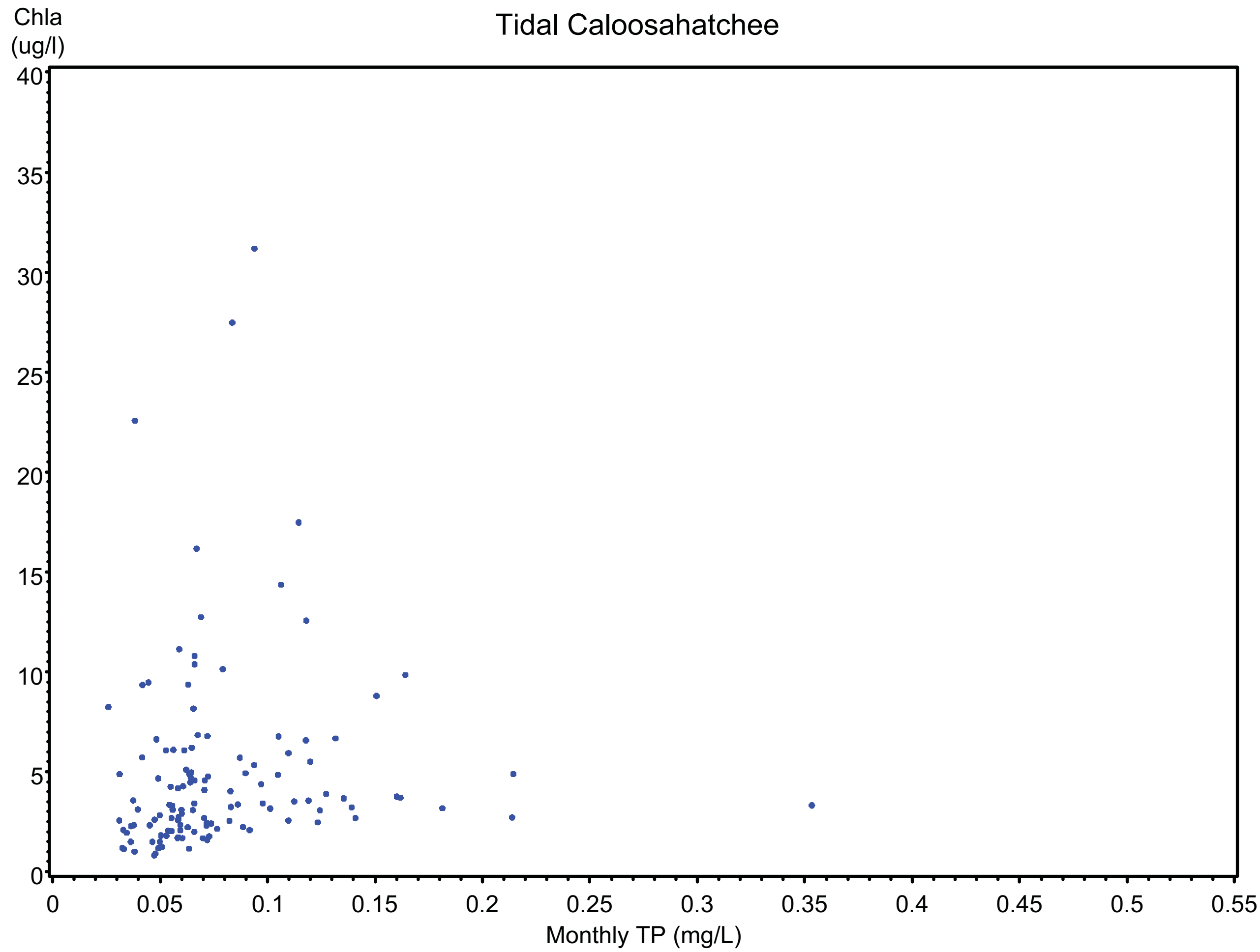

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 2-month TP (mg/L)

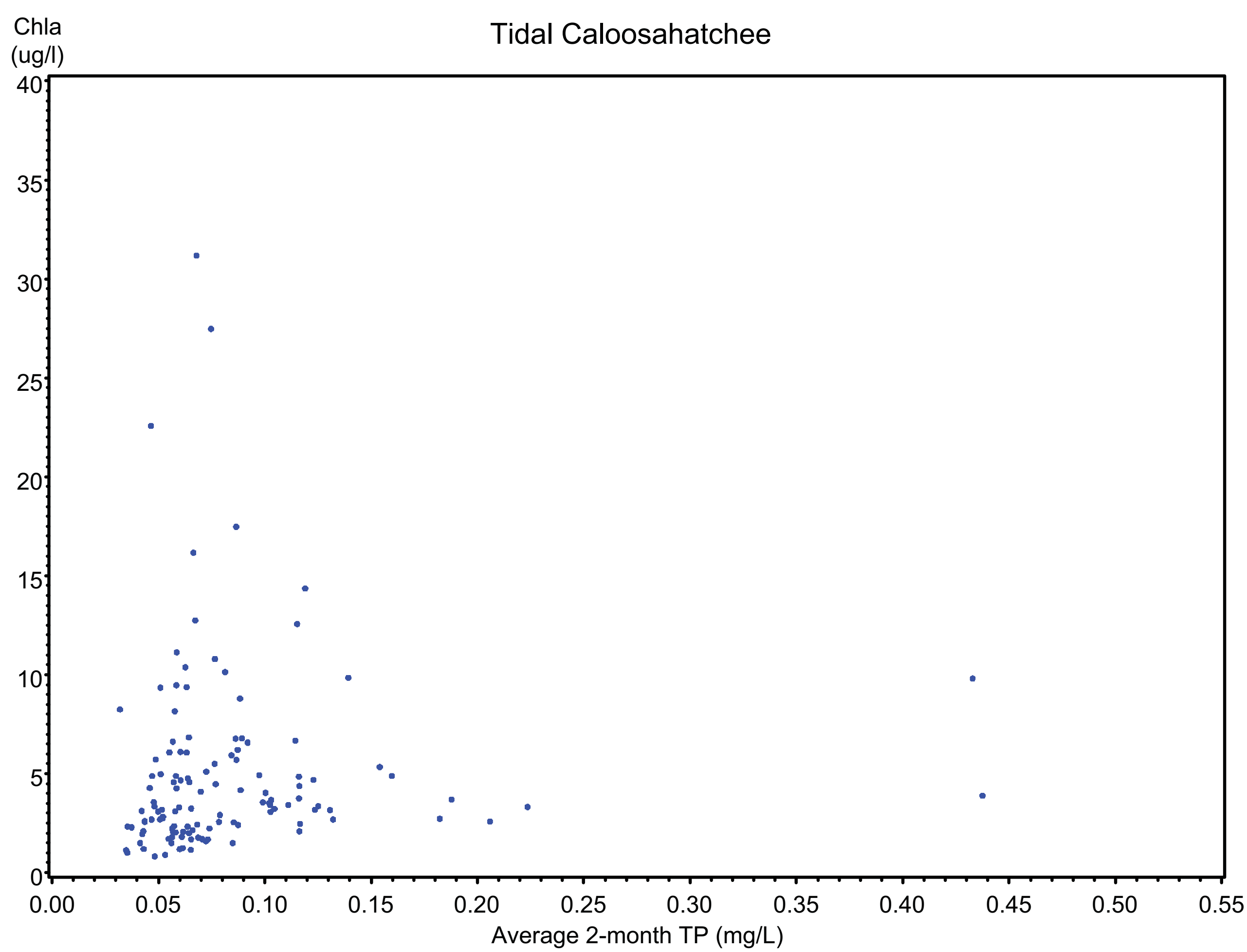

San Carlos Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
Average 3-month TP (mg/L)

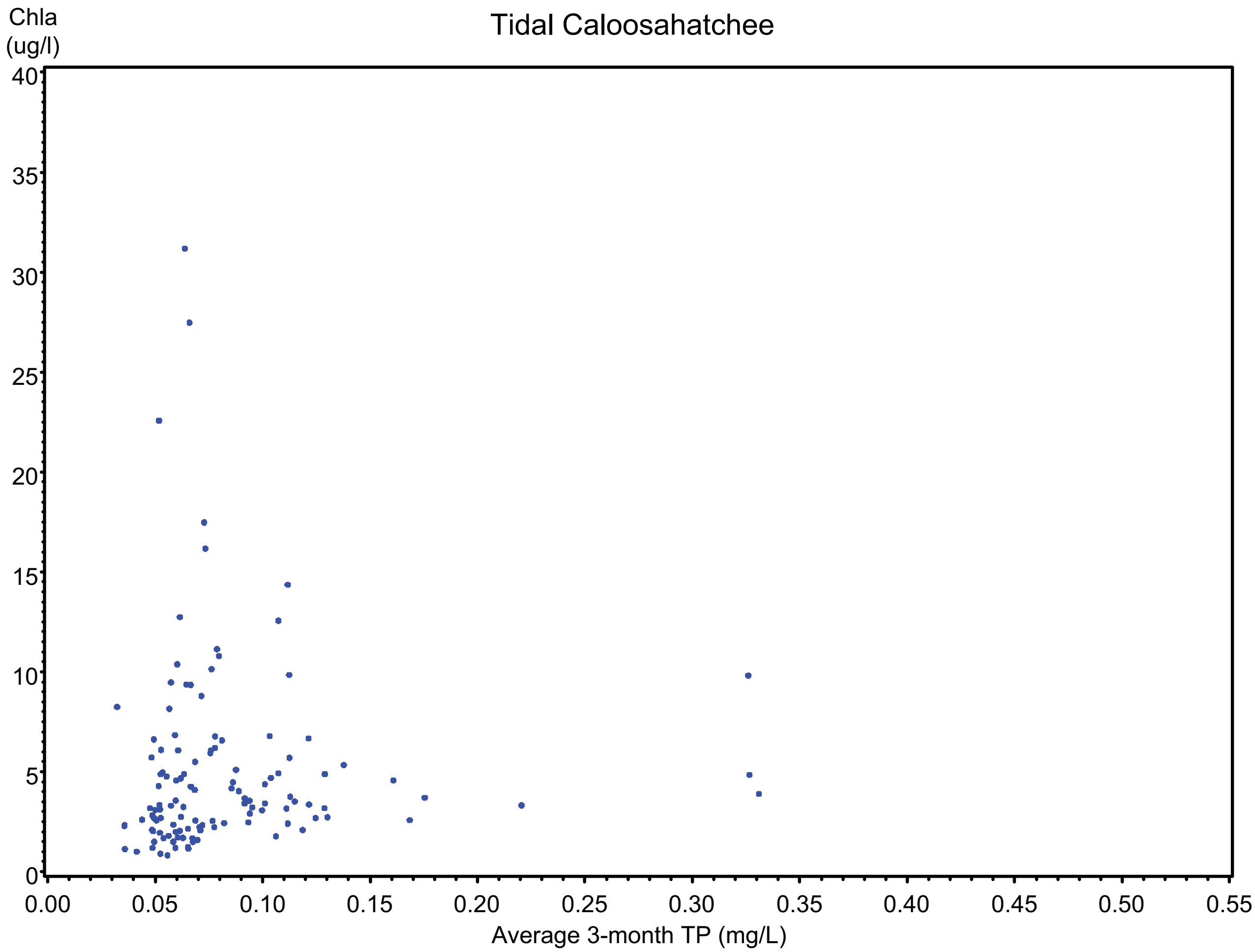

San Carlos Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

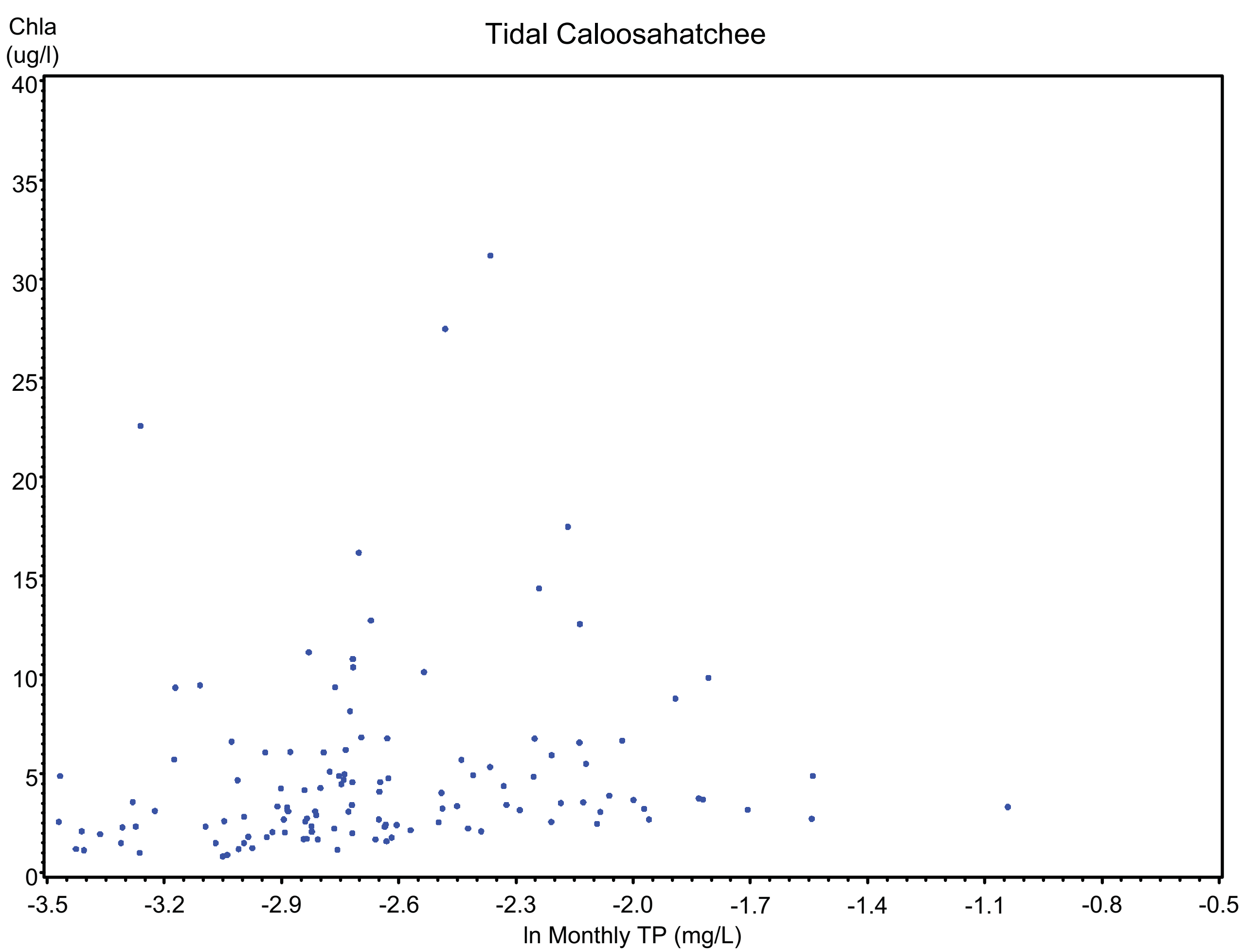

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

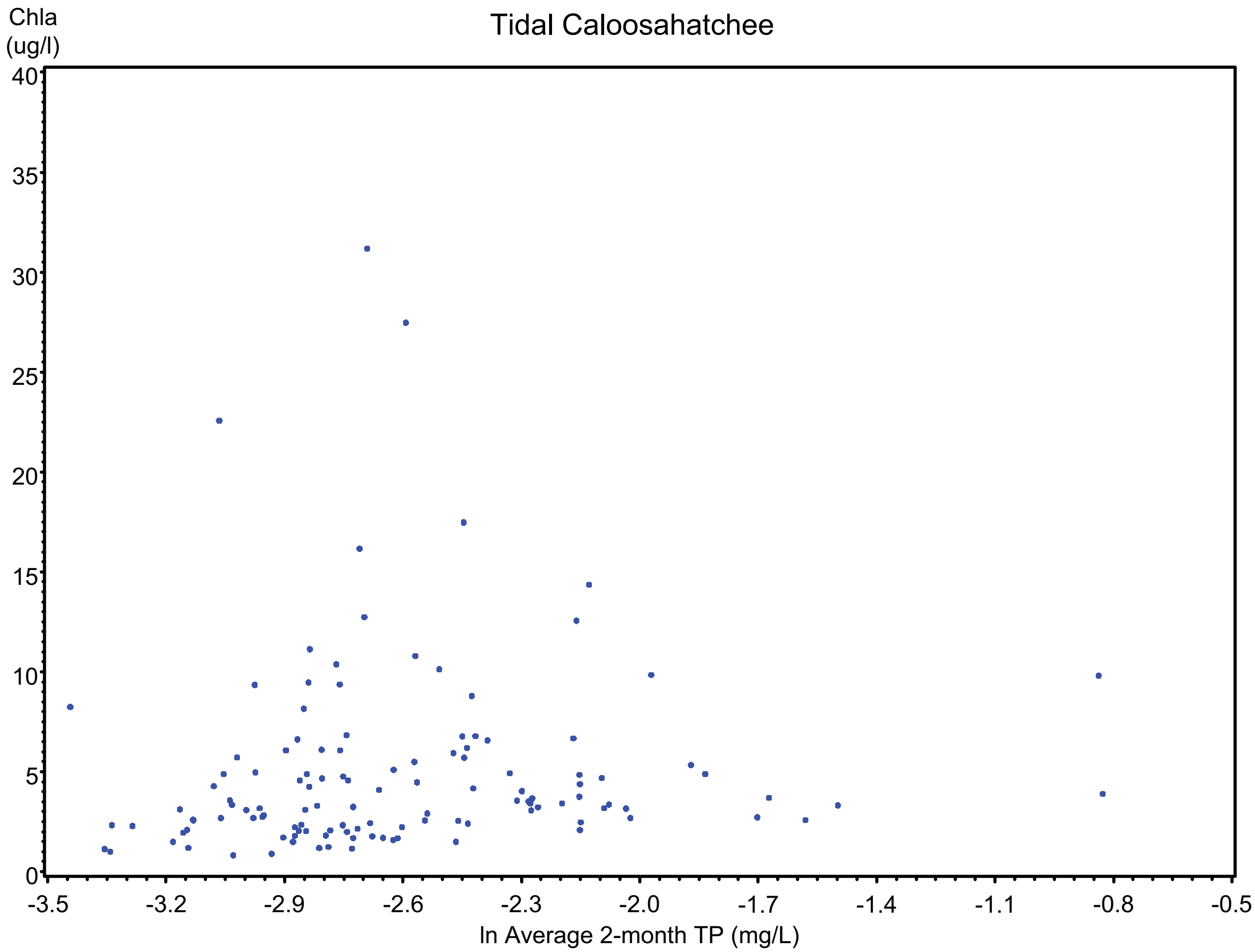

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)

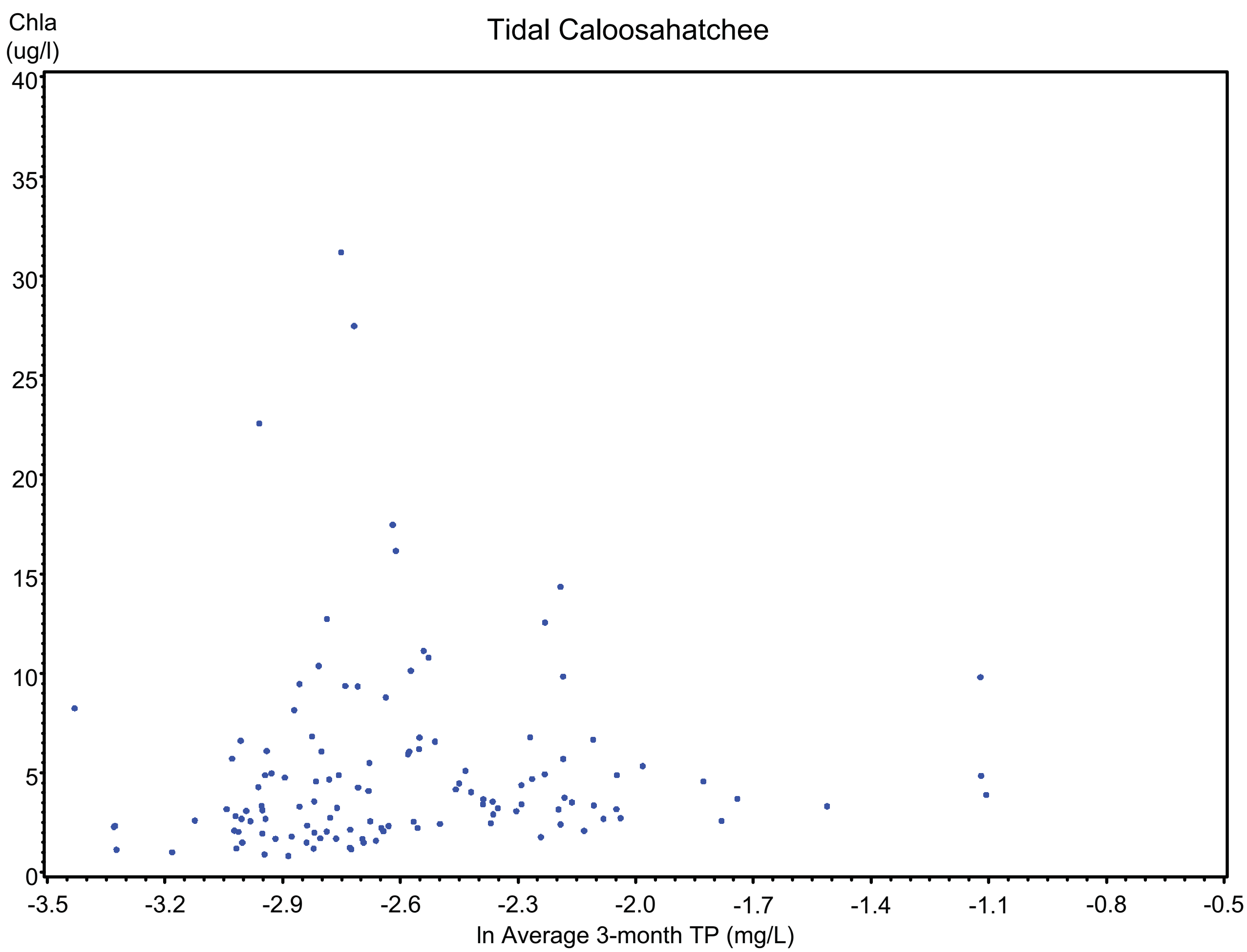

Chla
(ug/l)
Tidal Caloosahatchee
40
35
30
25
20
15
10
5
0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
Monthly TP (mg/L)

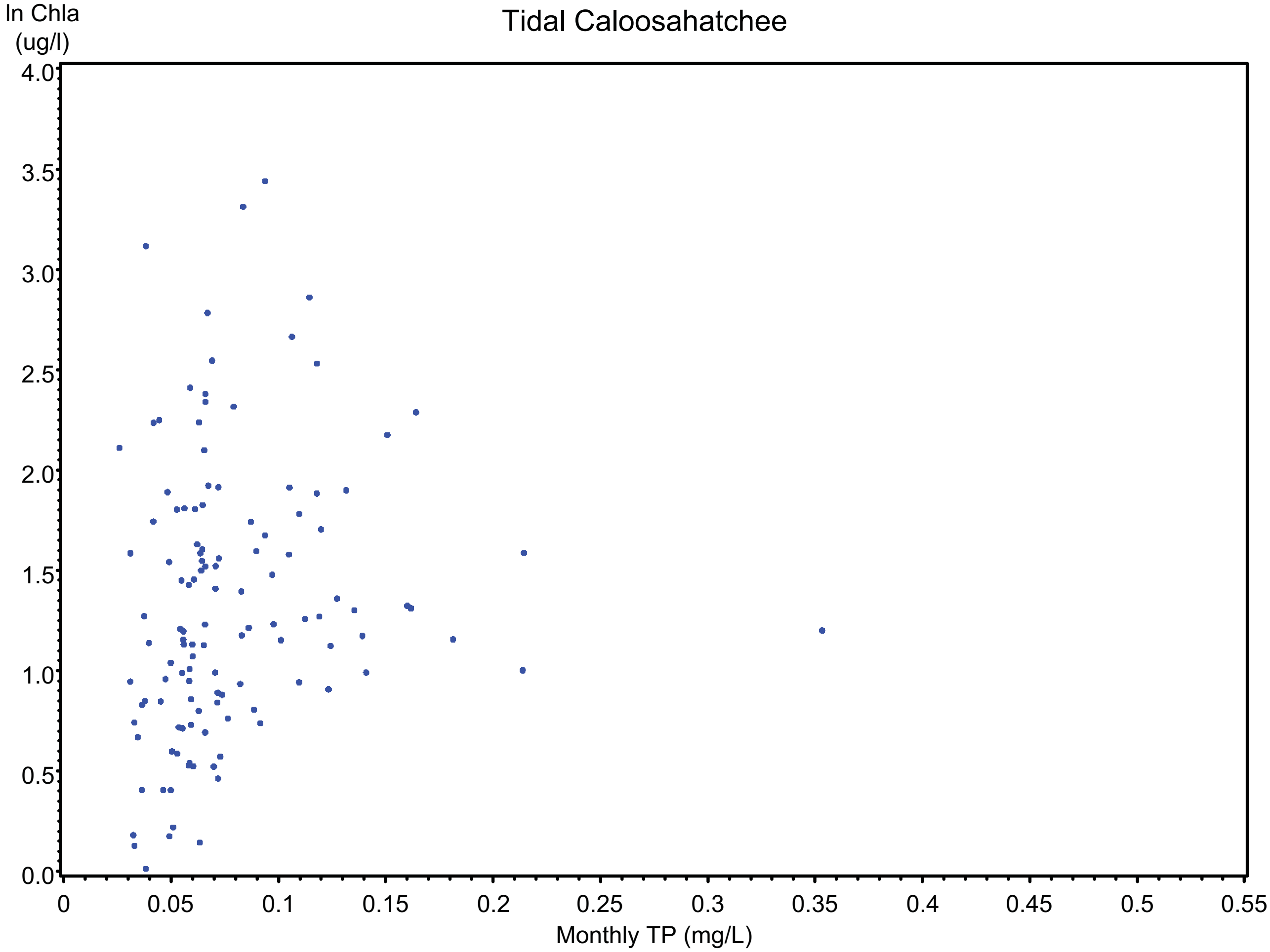

Chla
(ug/l)
Tidal Caloosahatchee
40
35
30
25
20
15
10
5
0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
Average 2-month TP (mg/L)

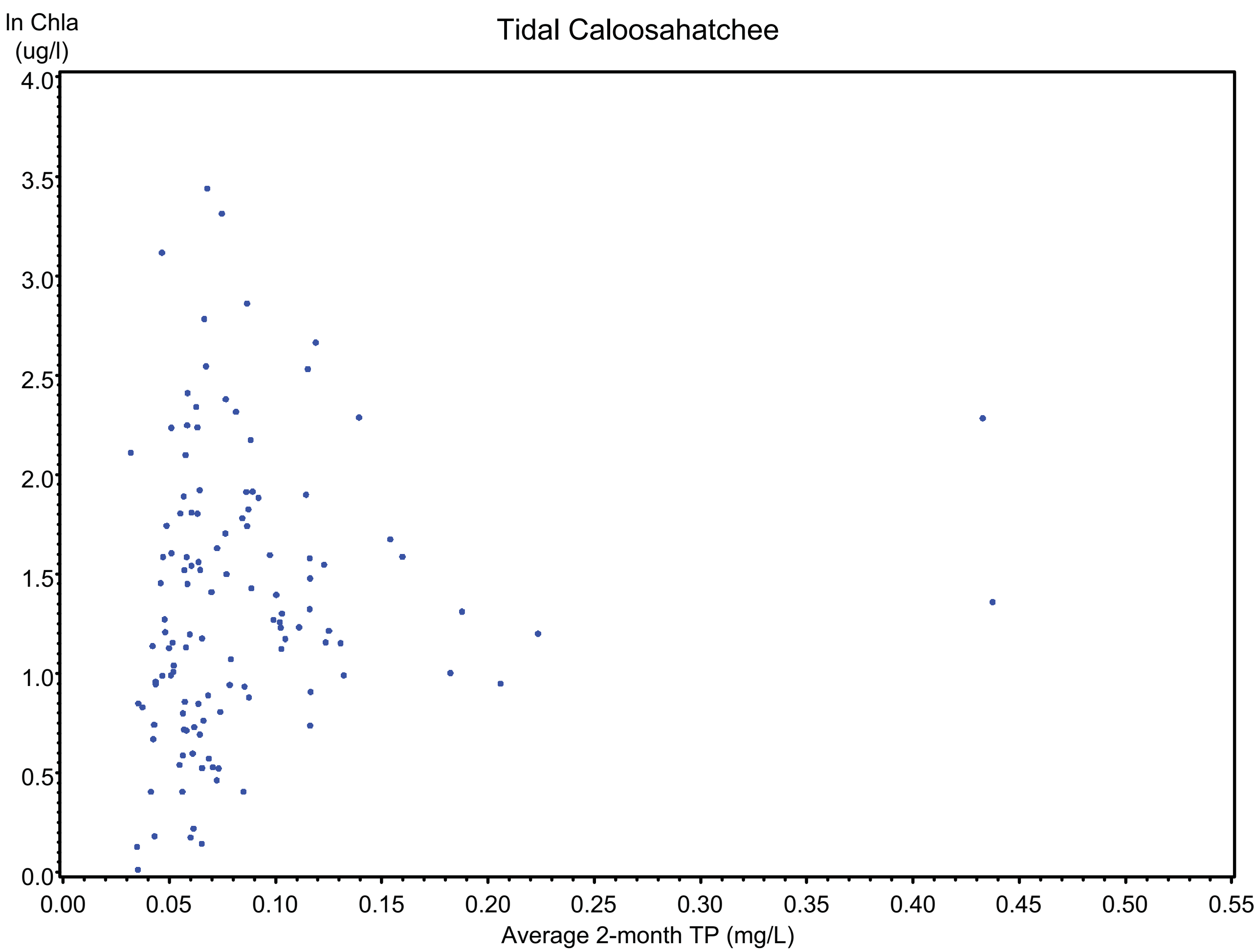

Tidal Caloosahatchee
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
Average 3-month TP (mg/L)

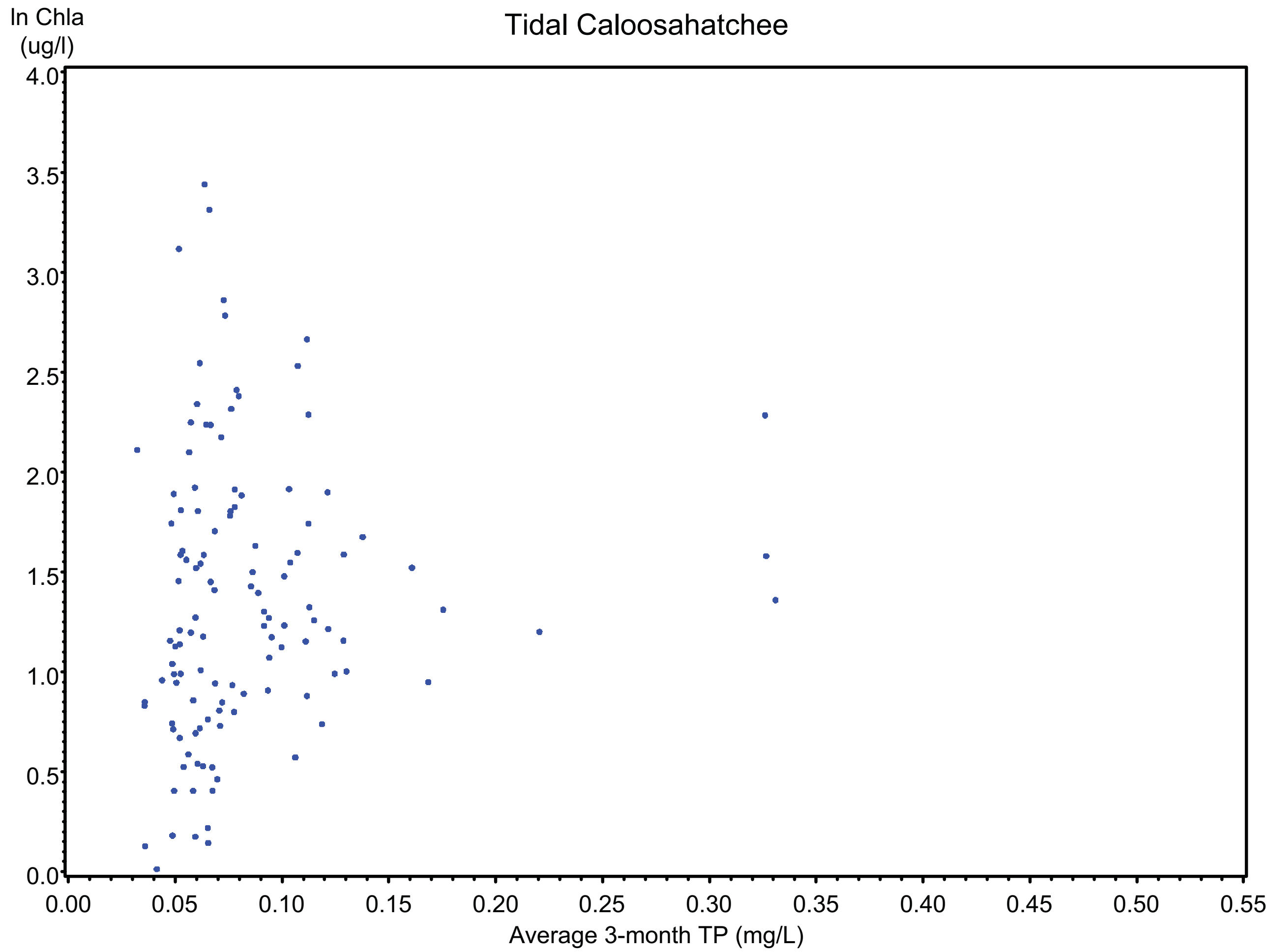

Tidal Caloosahatchee
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Monthly TP (mg/L)


Tidal Caloosahatchee
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Average 2-month TP (mg/L)

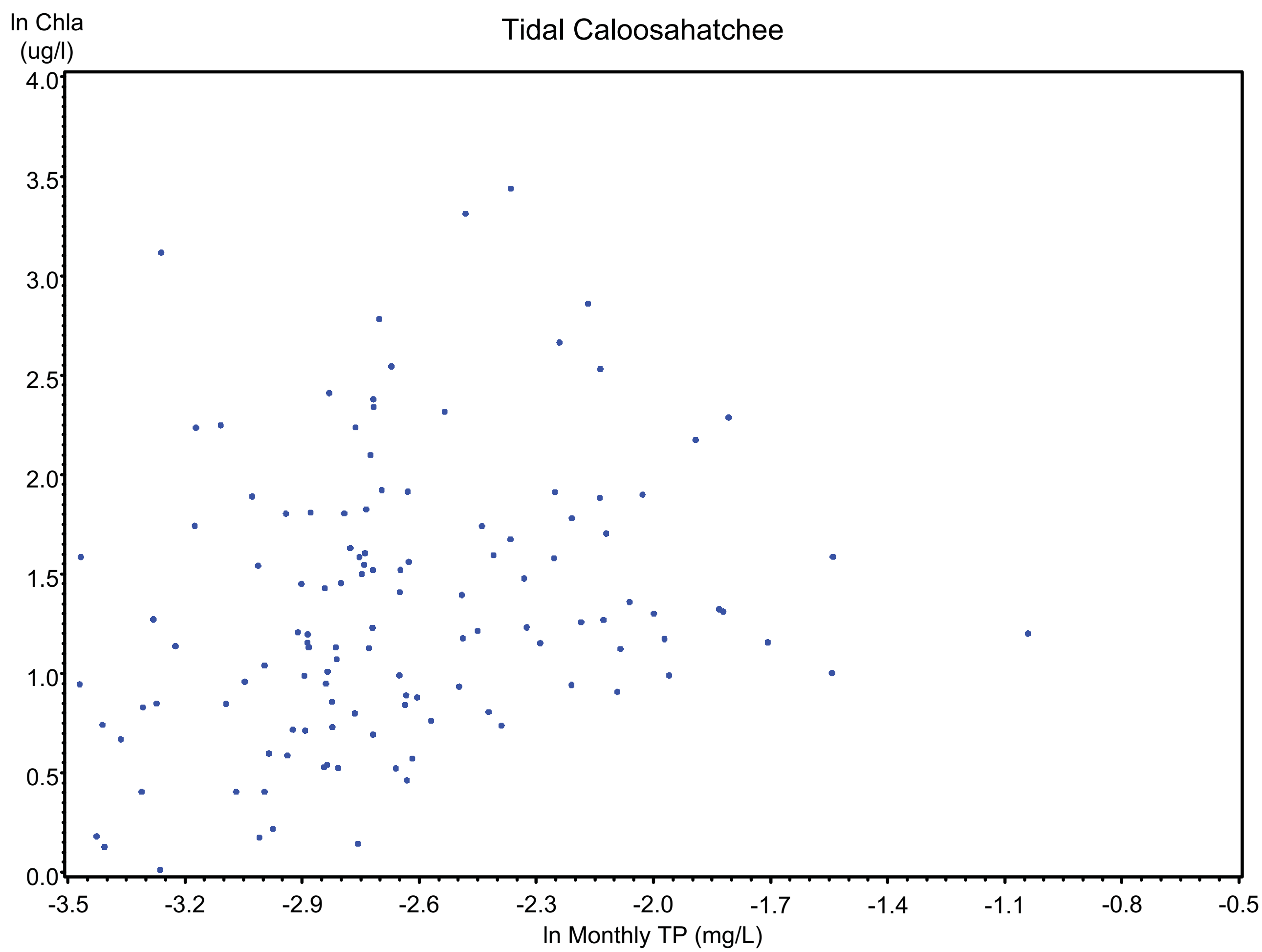

Tidal Caloosahatchee
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Average 3-month TP (mg/L)


ln Chla
(ug/l)
Tidal Caloosahatchee
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
Monthly TP (mg/L)

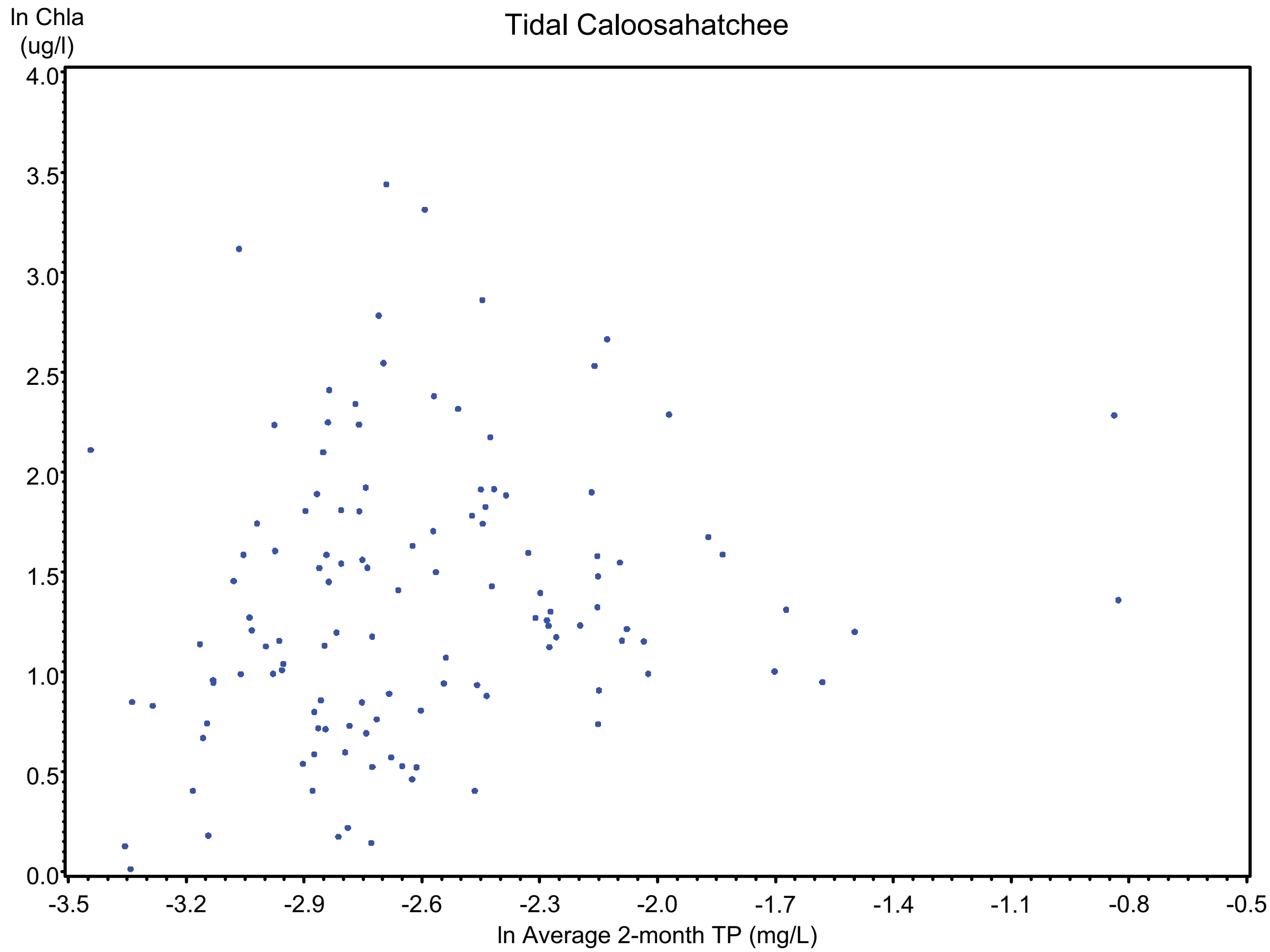

ln Chla
(ug/l)
Tidal Caloosahatchee
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
Average 2-month TP (mg/L)

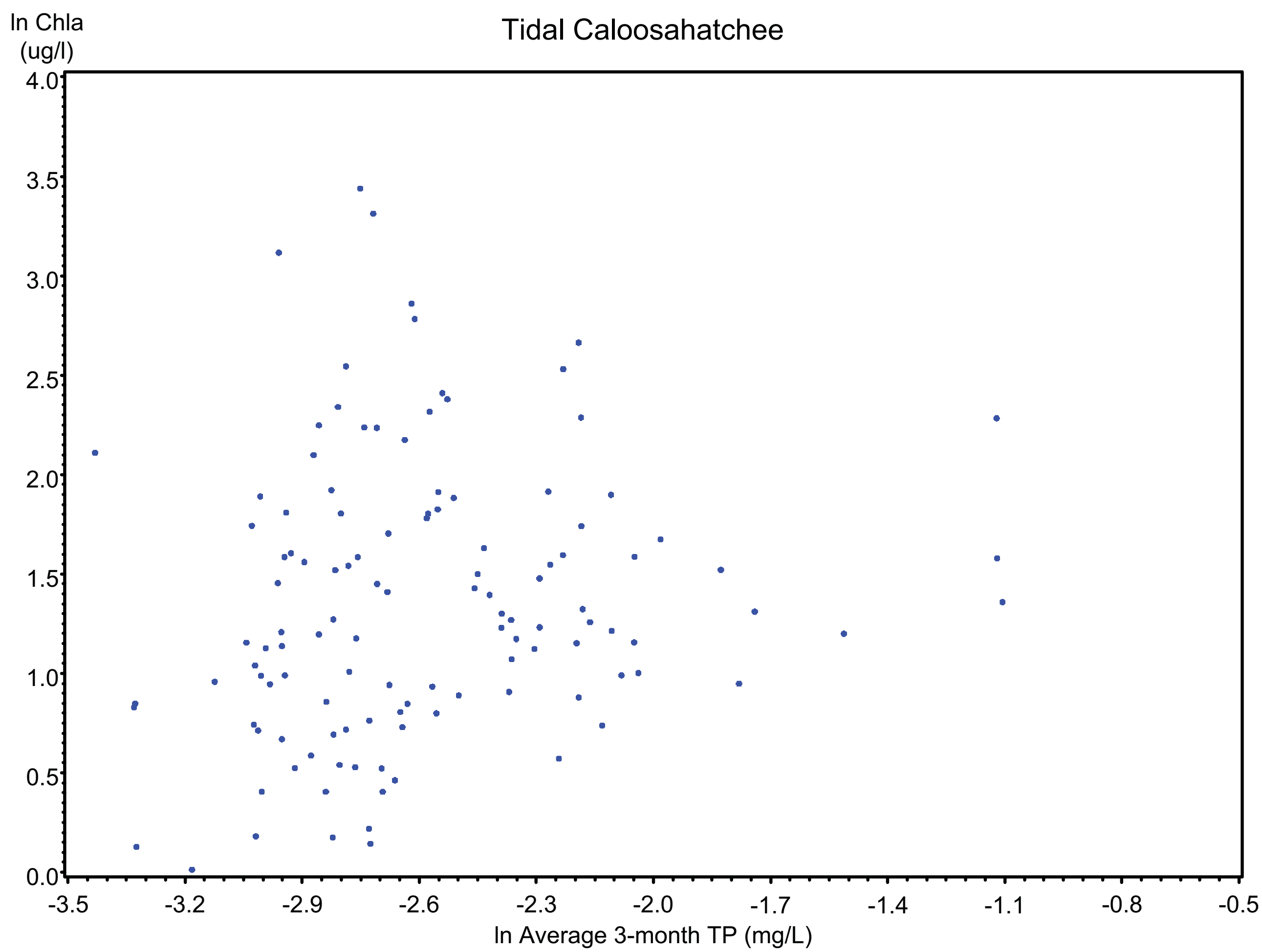


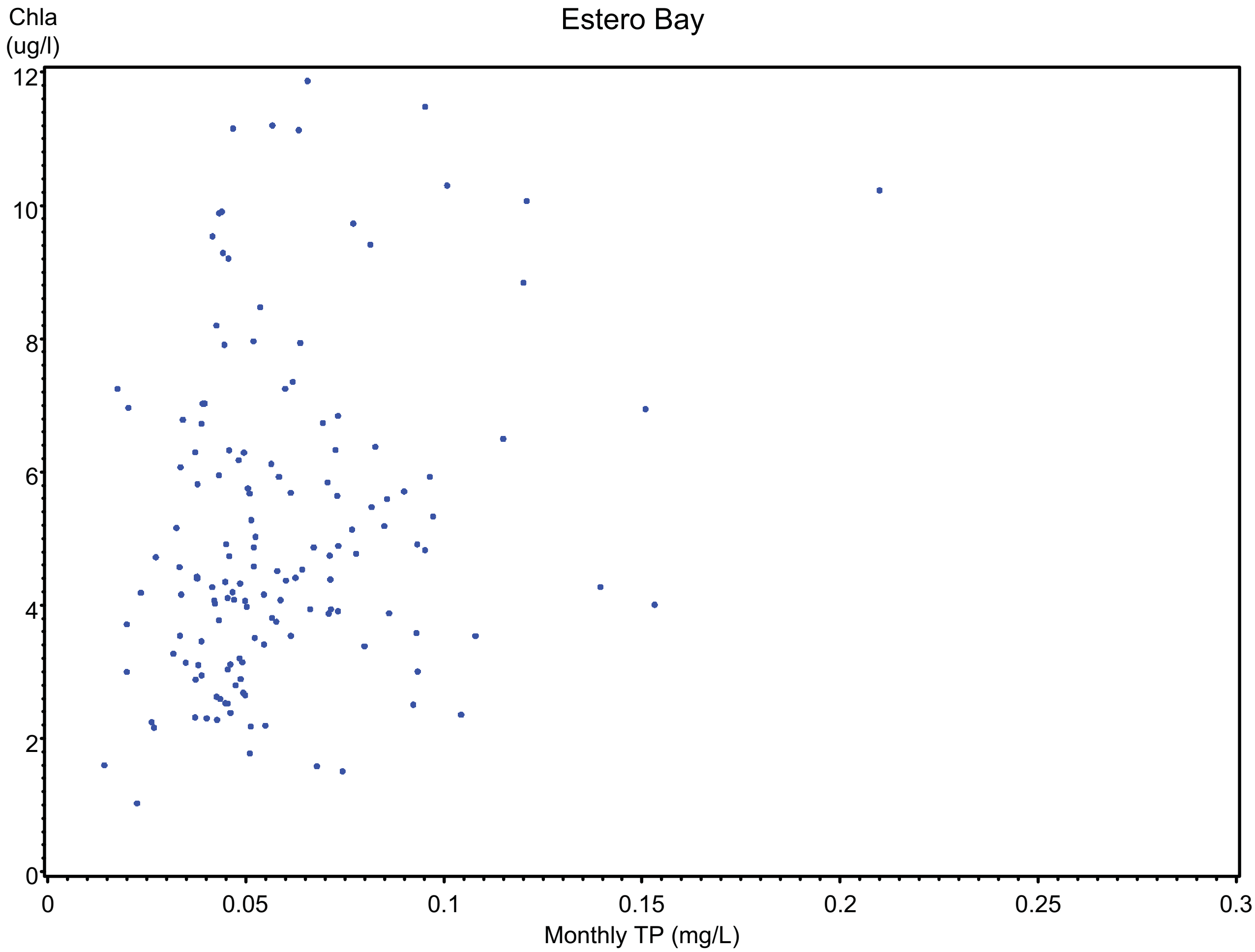
Tidal Caloosahatchee
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0.55
Average 3-month TP (mg/L)

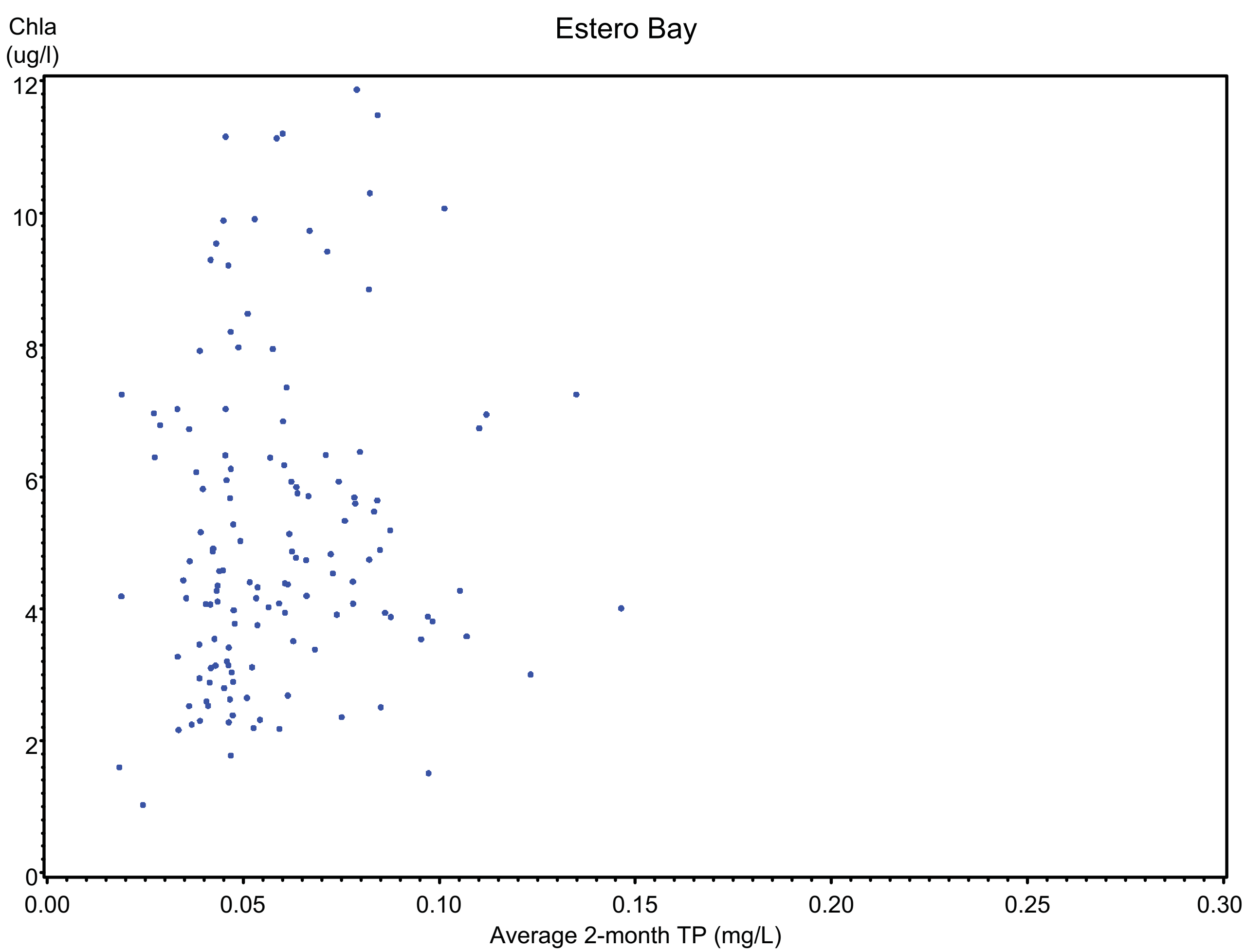


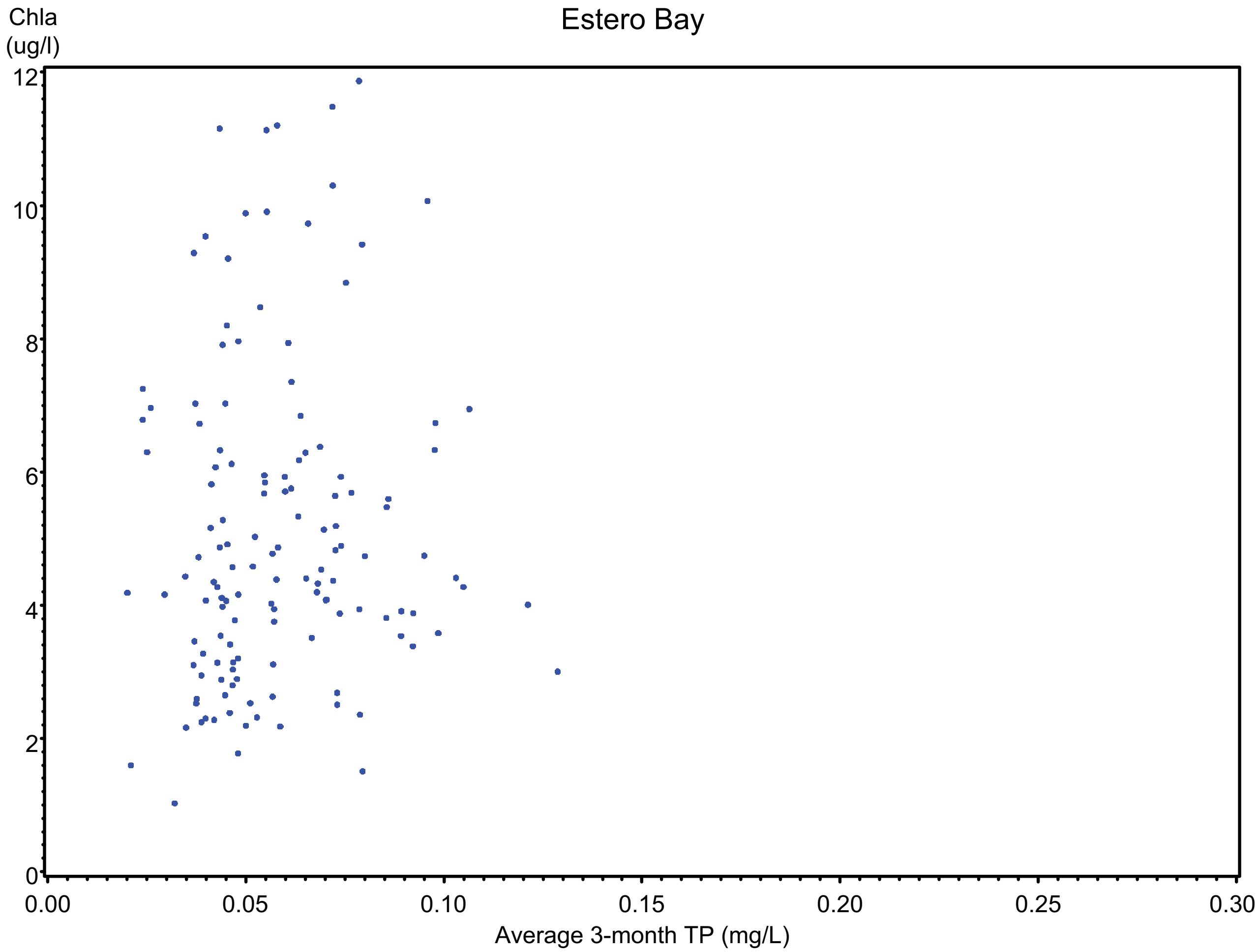
Tidal Caloosahatchee
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Monthly TP (mg/L)

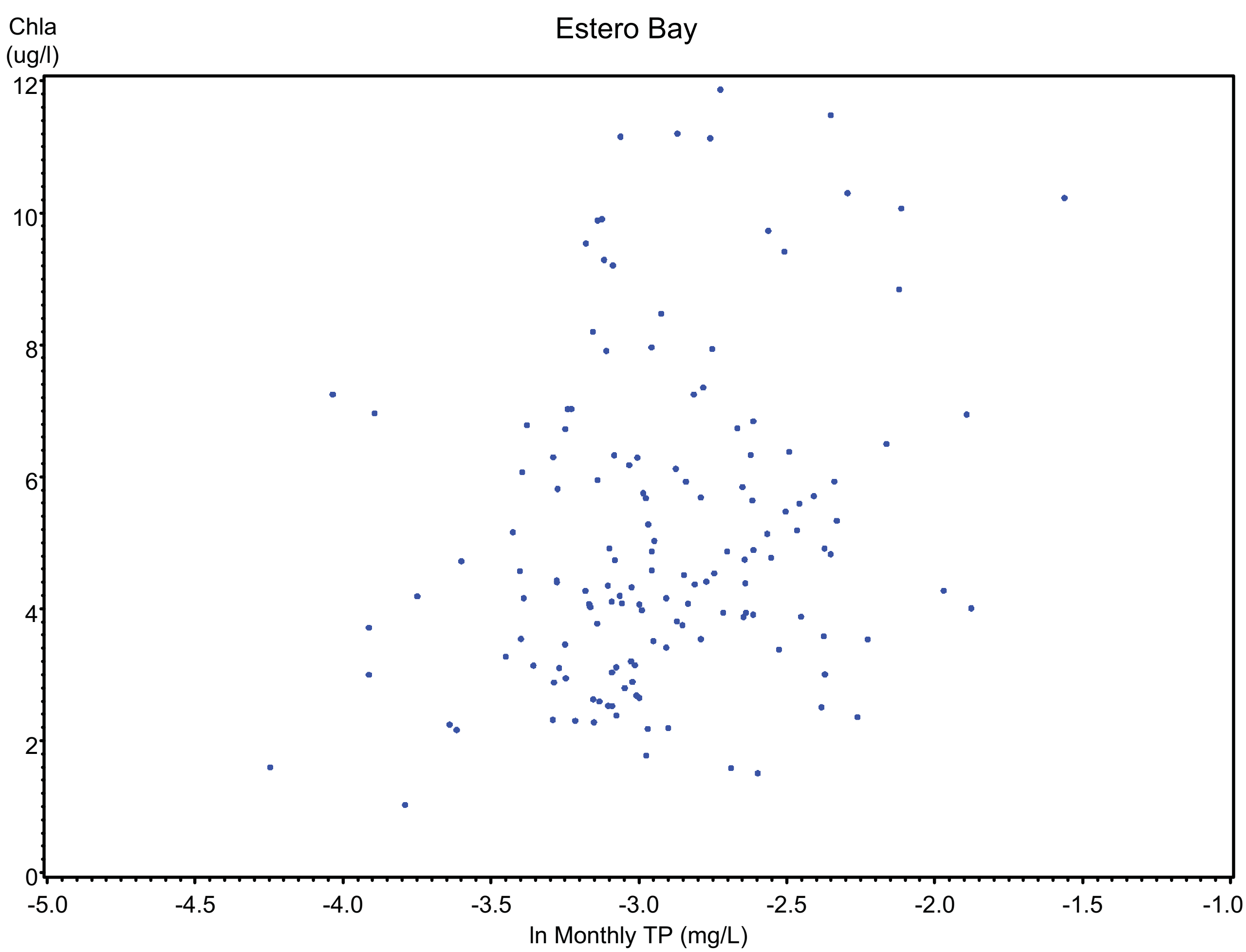

Tidal Caloosahatchee
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Average 2-month TP (mg/L)

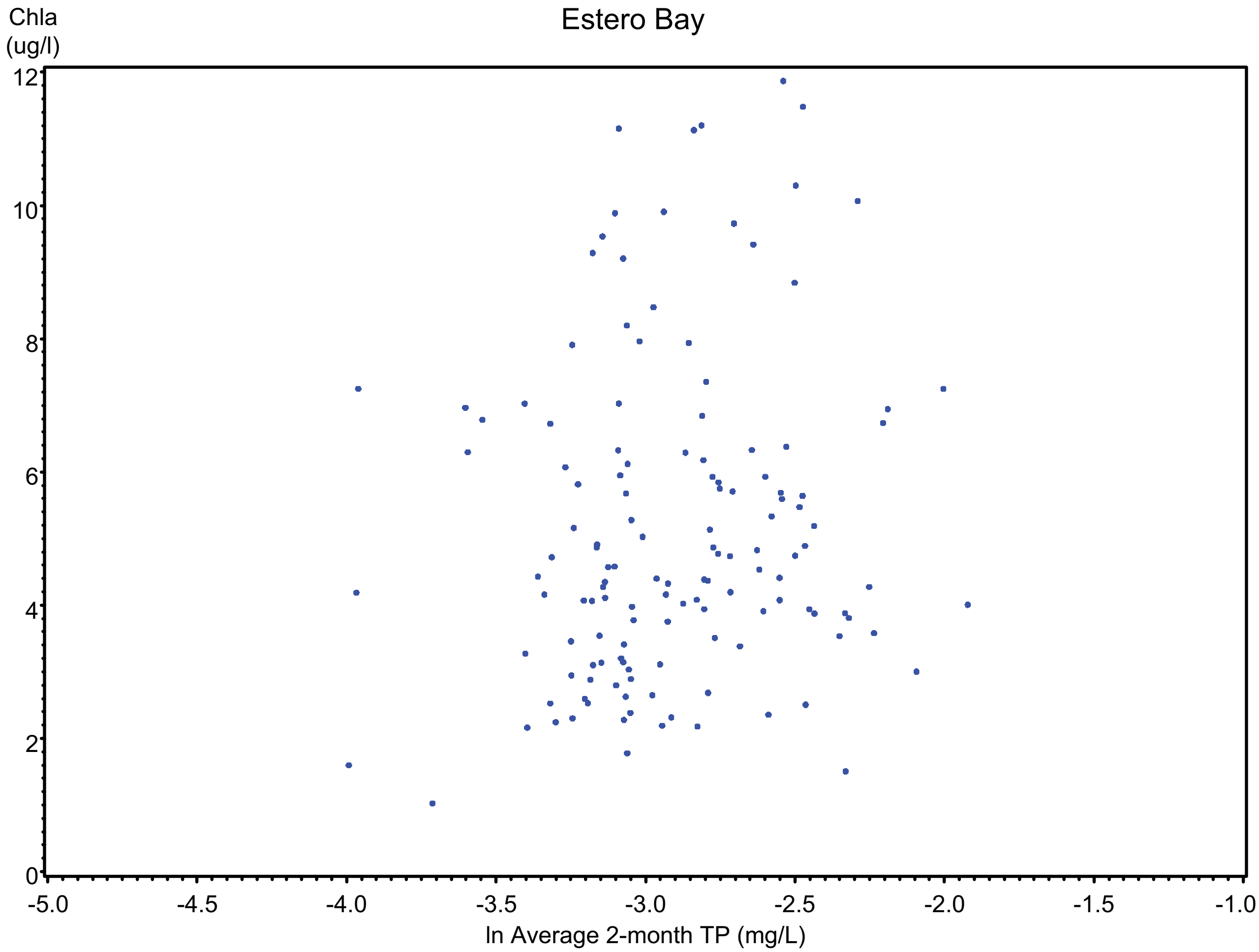

Tidal Caloosahatchee
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3.5
-3.2
-2.9
-2.6
-2.3
-2.0
-1.7
-1.4
-1.1
-0.8
-0.5
ln Average 3-month TP (mg/L)

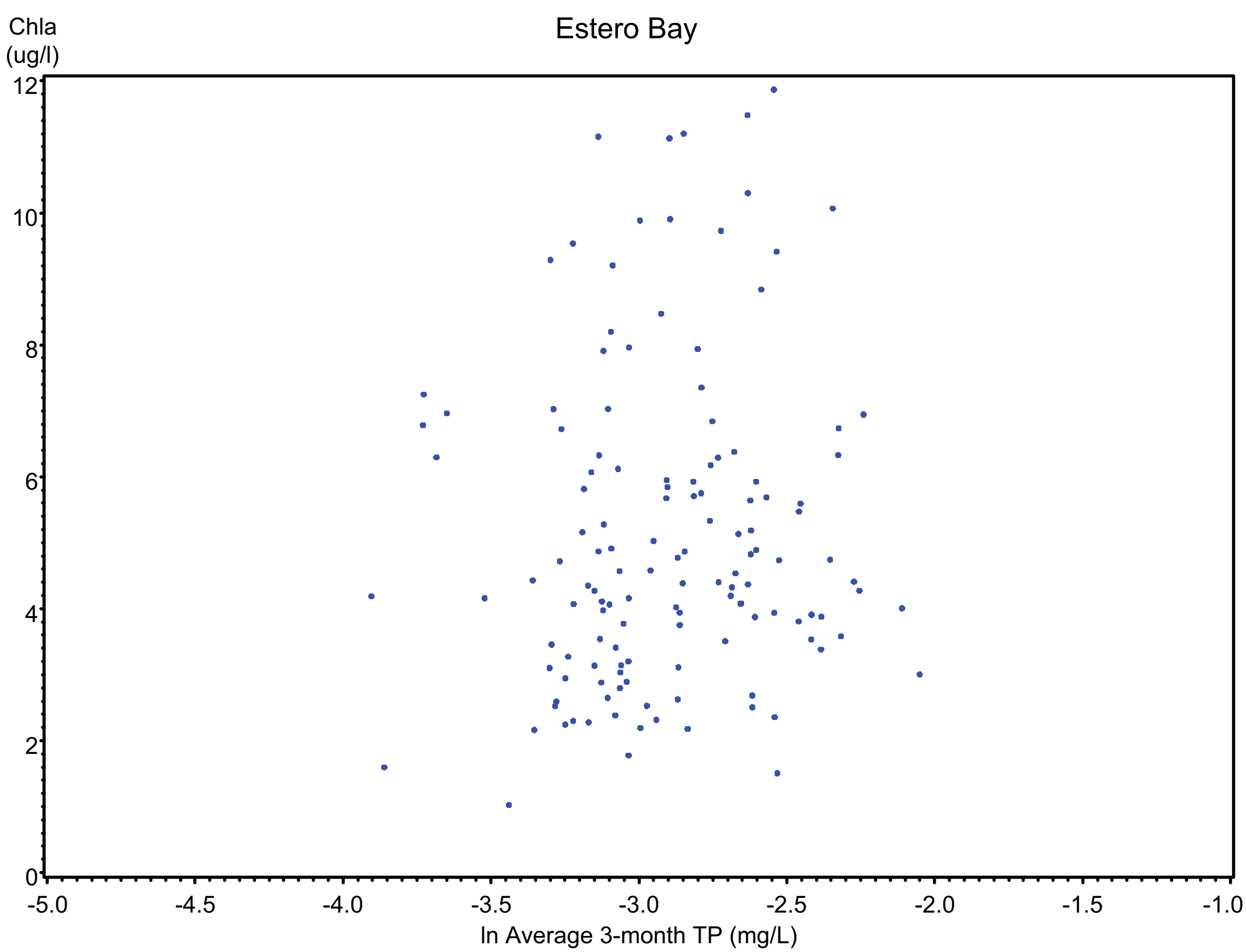

Estero Bay
Chla
(ug/l)
Monthly TP (mg/L)

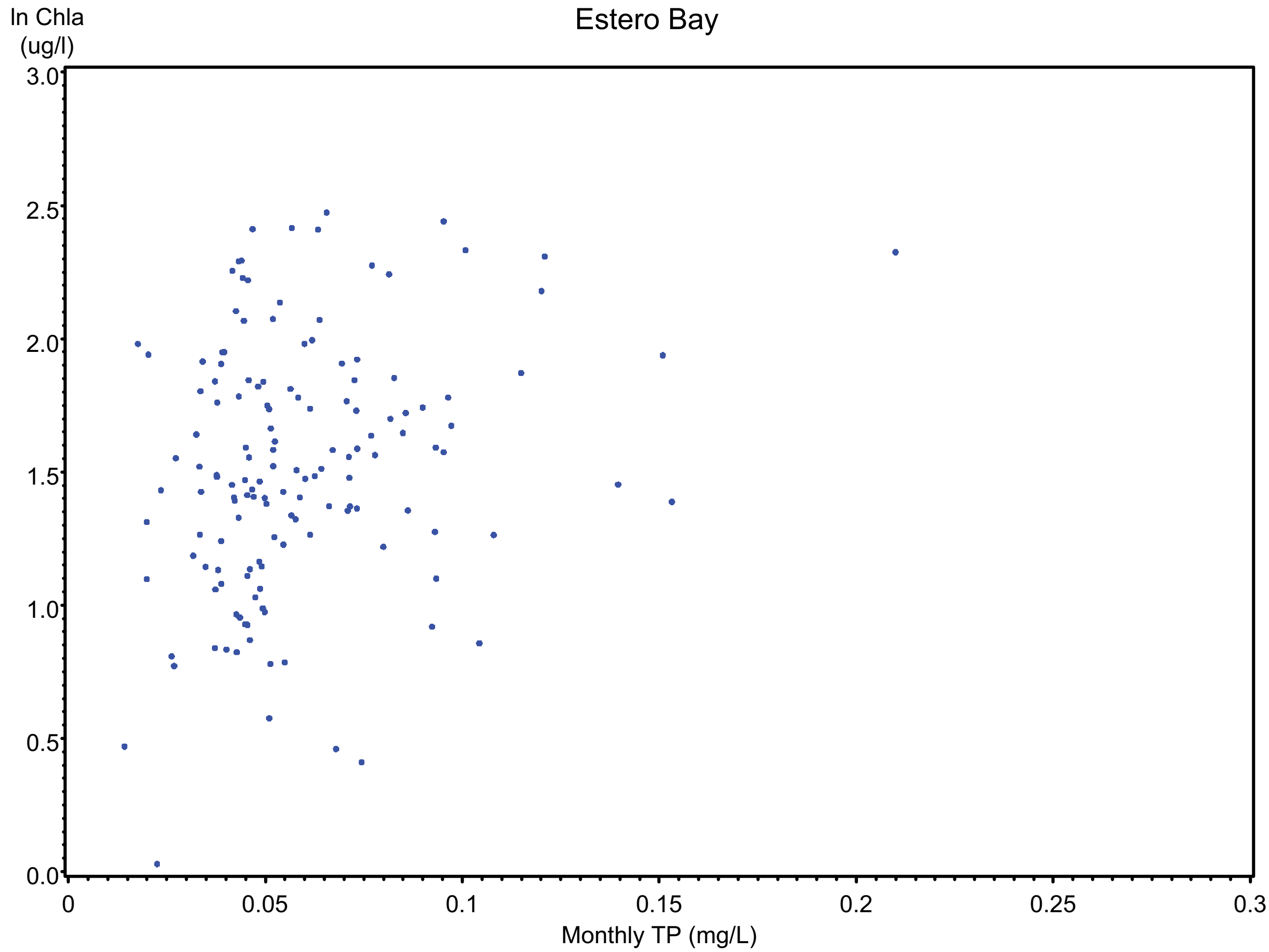

Estero Bay
Chla
(ug/l)
Average 2-month TP (mg/L)

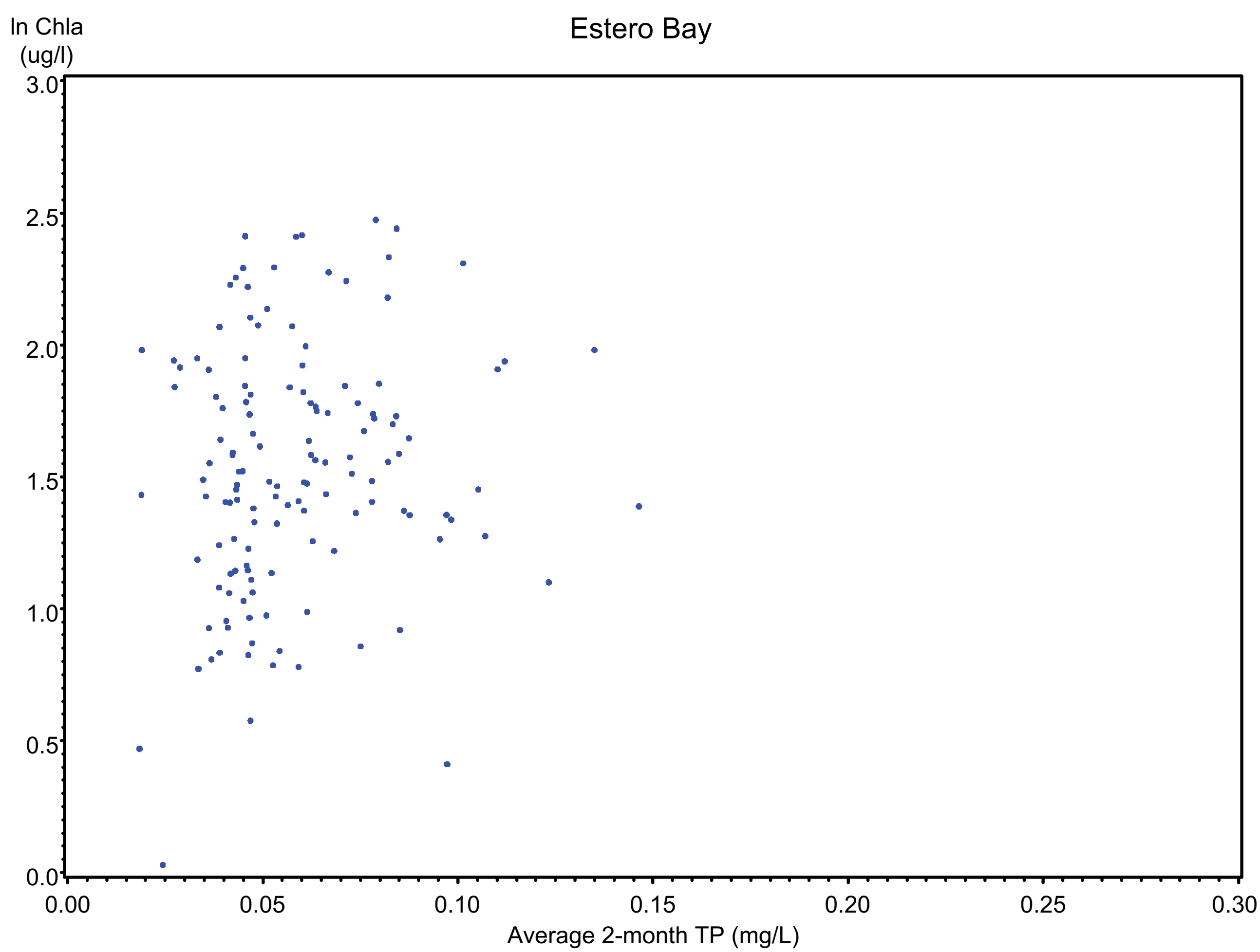

Chla
(ug/l)
Estero Bay
0
2
4
6
8
10
12
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)

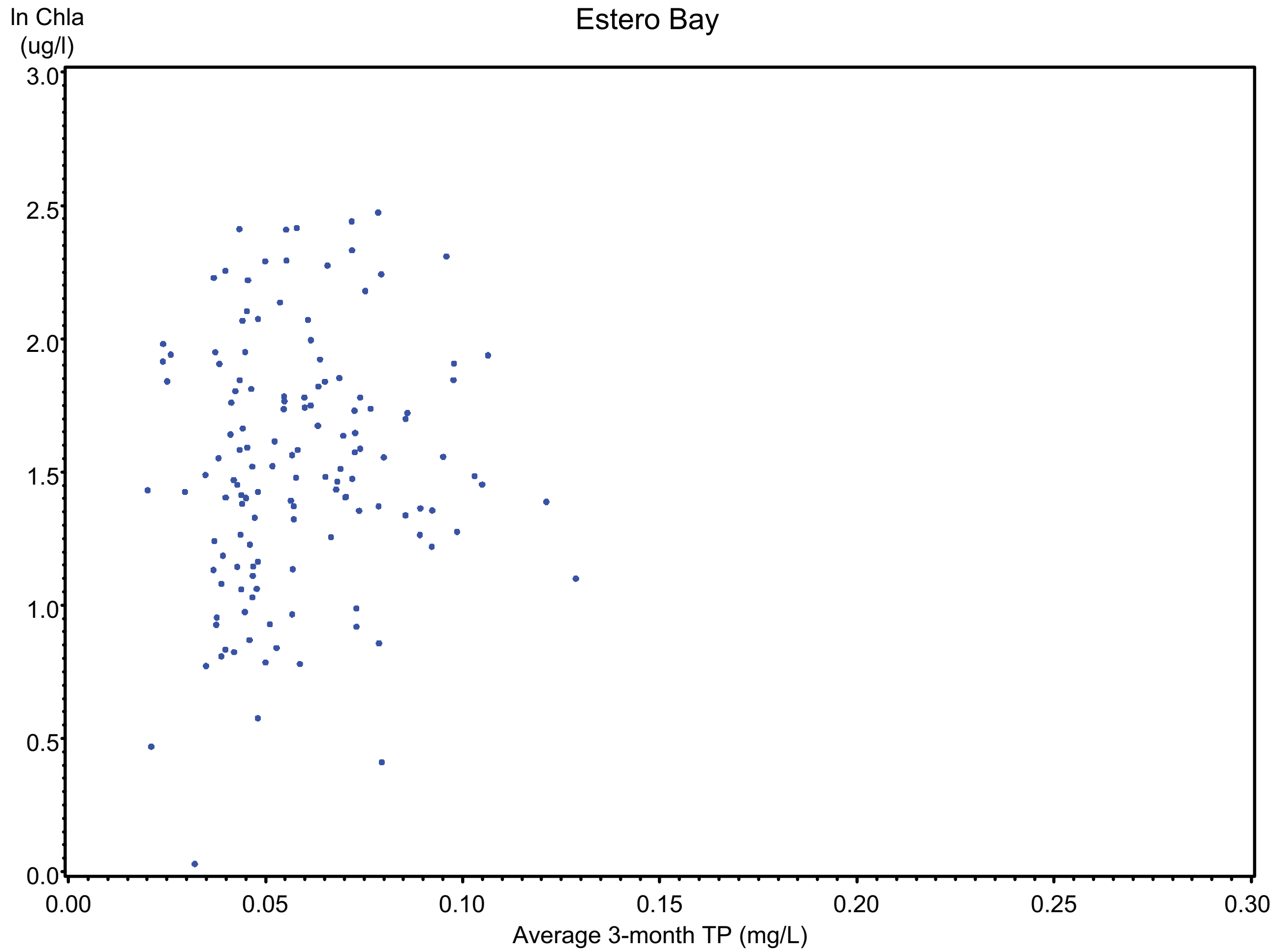

Chla
(ug/l)
Estero Bay
0
2
4
6
8
10
12
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

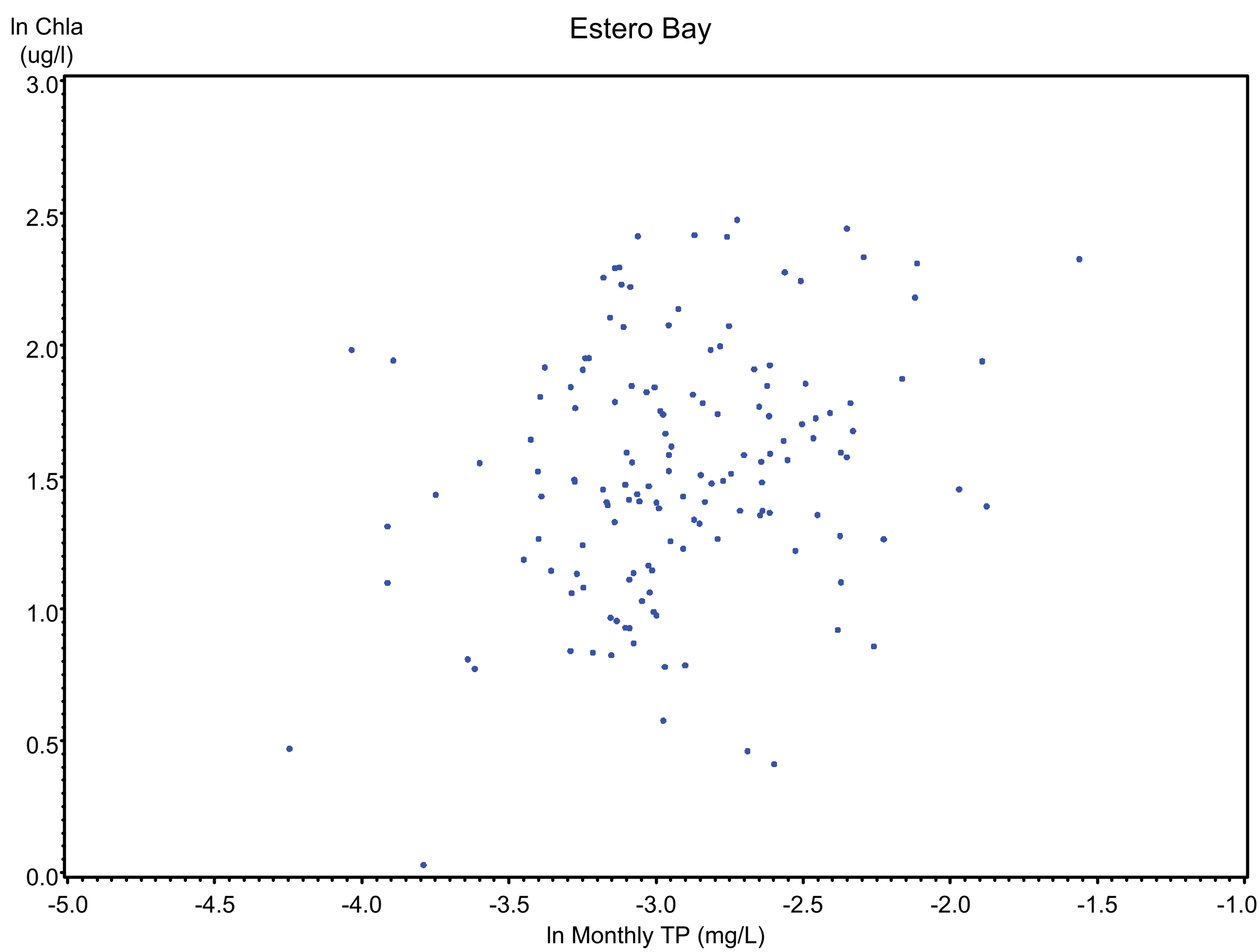

Estero Bay
Chla
(ug/l)
0
2
4
6
8
10
12
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

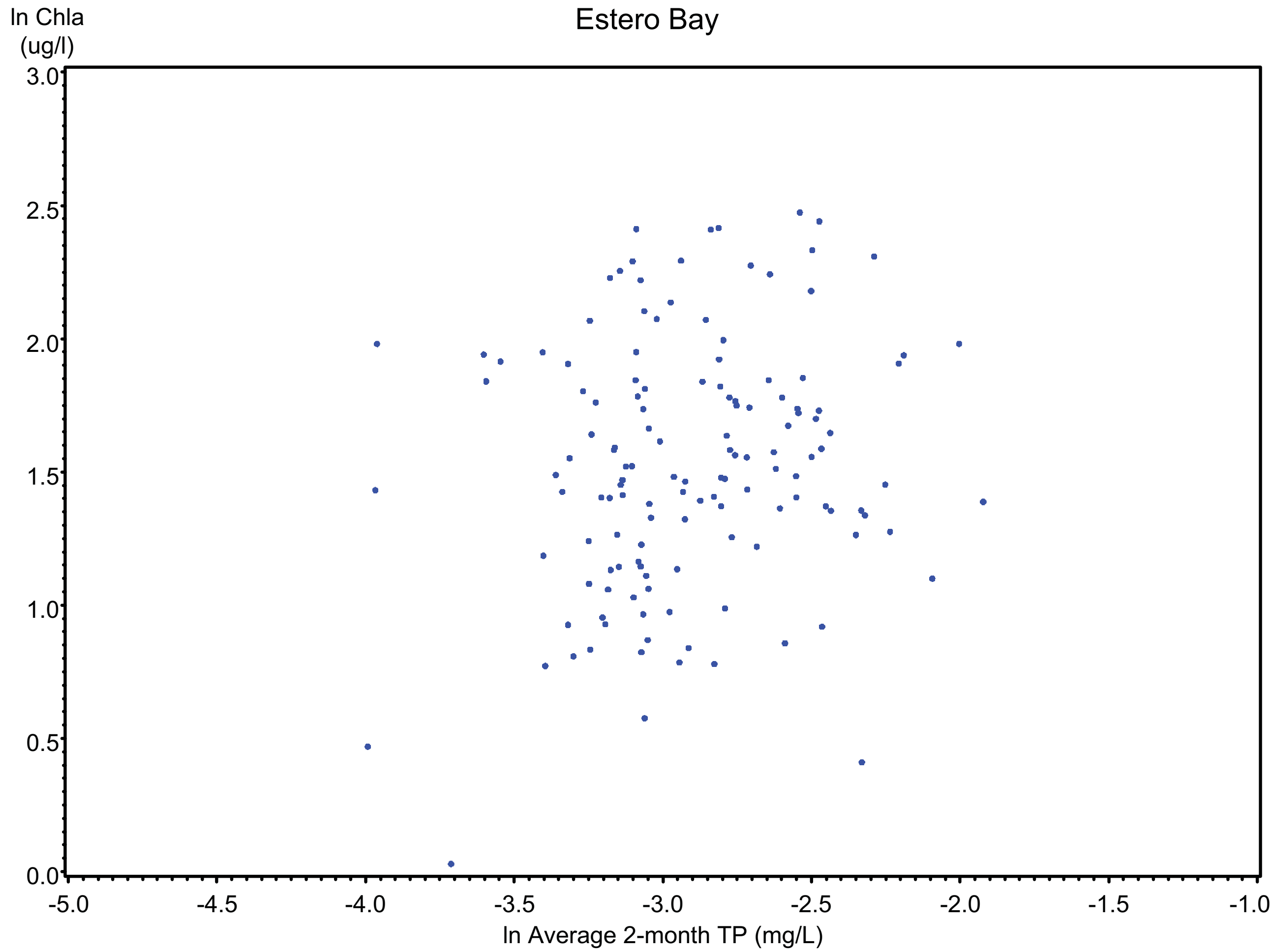

Estero Bay
Chla
(ug/l)
0
2
4
6
8
10
12
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)


Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
0.05
0.1
0.15
0.2
0.25
0.3
Monthly TP (mg/L)

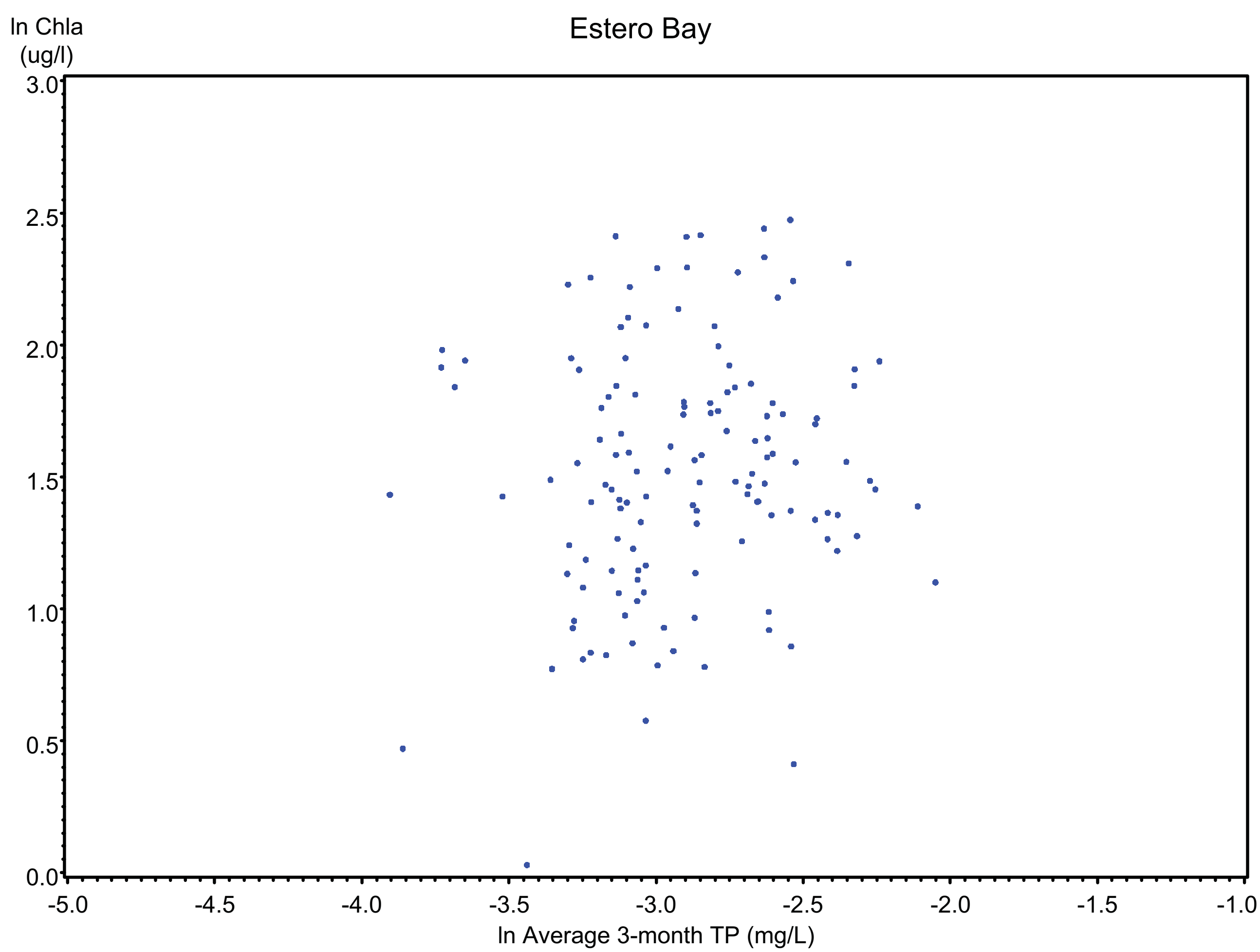

Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 2-month TP (mg/L)


Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.00
0.05
0.10
0.15
0.20
0.25
0.30
Average 3-month TP (mg/L)


Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Monthly TP (mg/L)

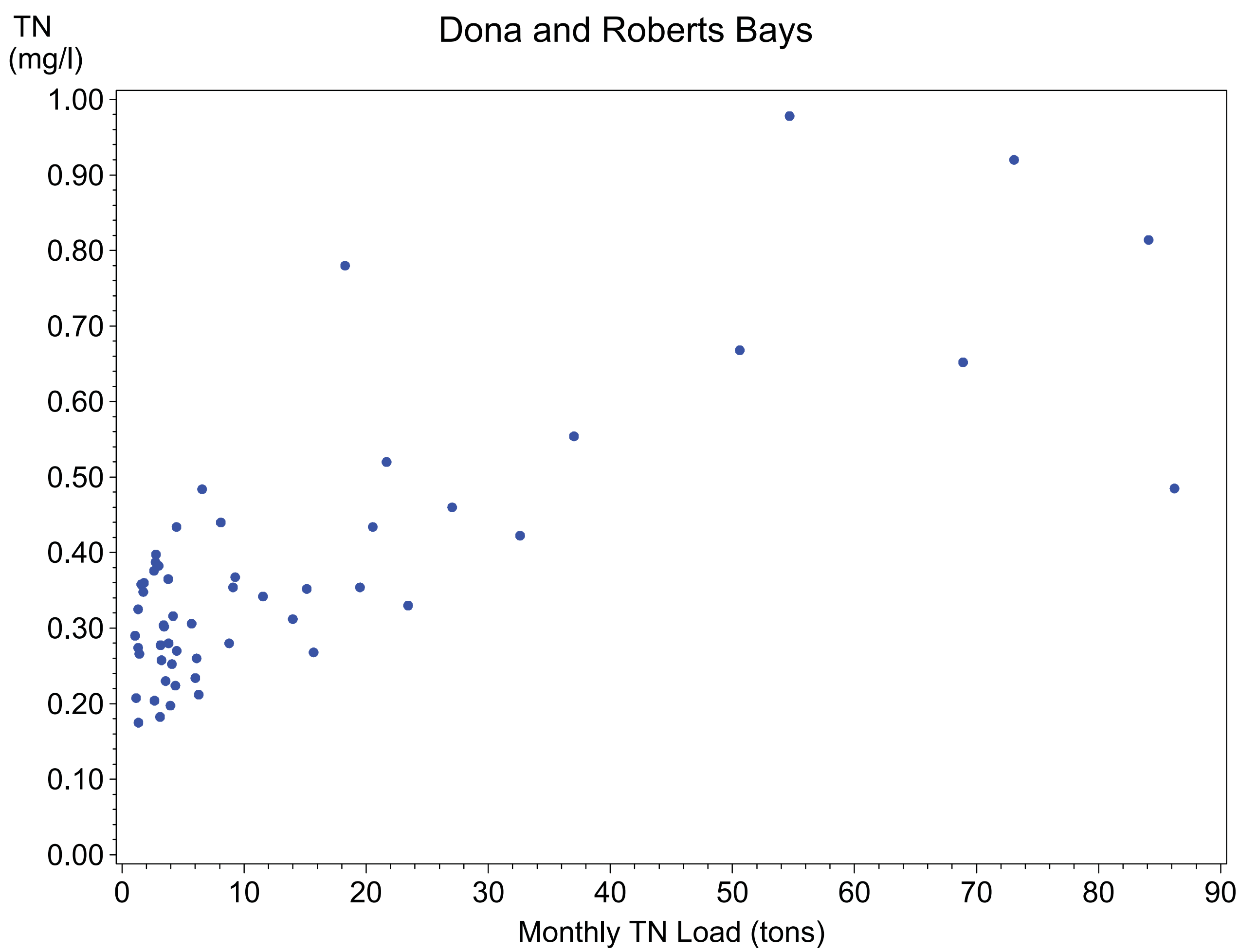


ln Chla
(ug/l)
Estero Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 2-month TP (mg/L)

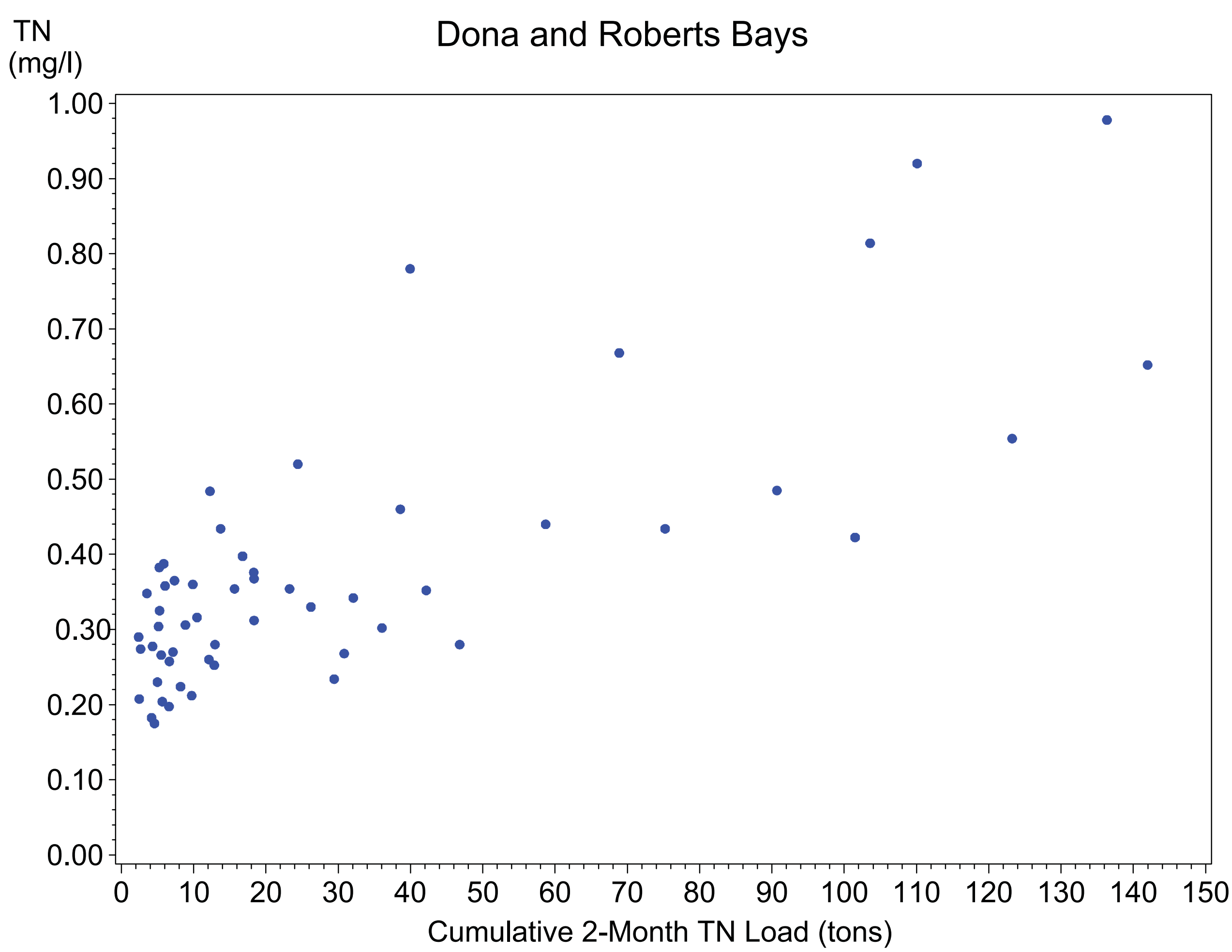


ln Chla
(ug/l)
Estero Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-5.0
-4.5
-4.0
-3.5
-3.0
-2.5
-2.0
-1.5
-1.0
ln Average 3-month TP (mg/L)

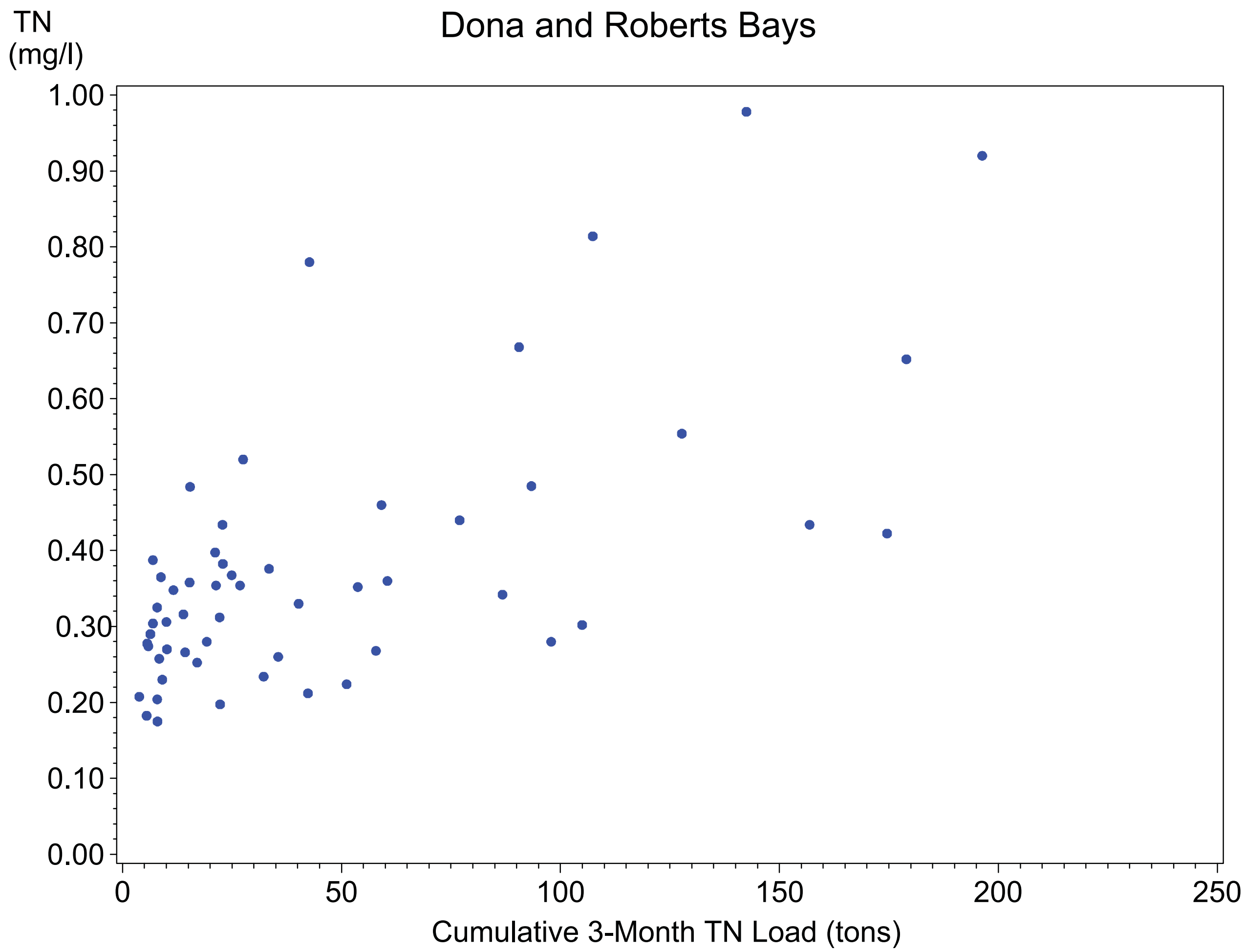
Attachment 3
TN concentration as a function of TN load

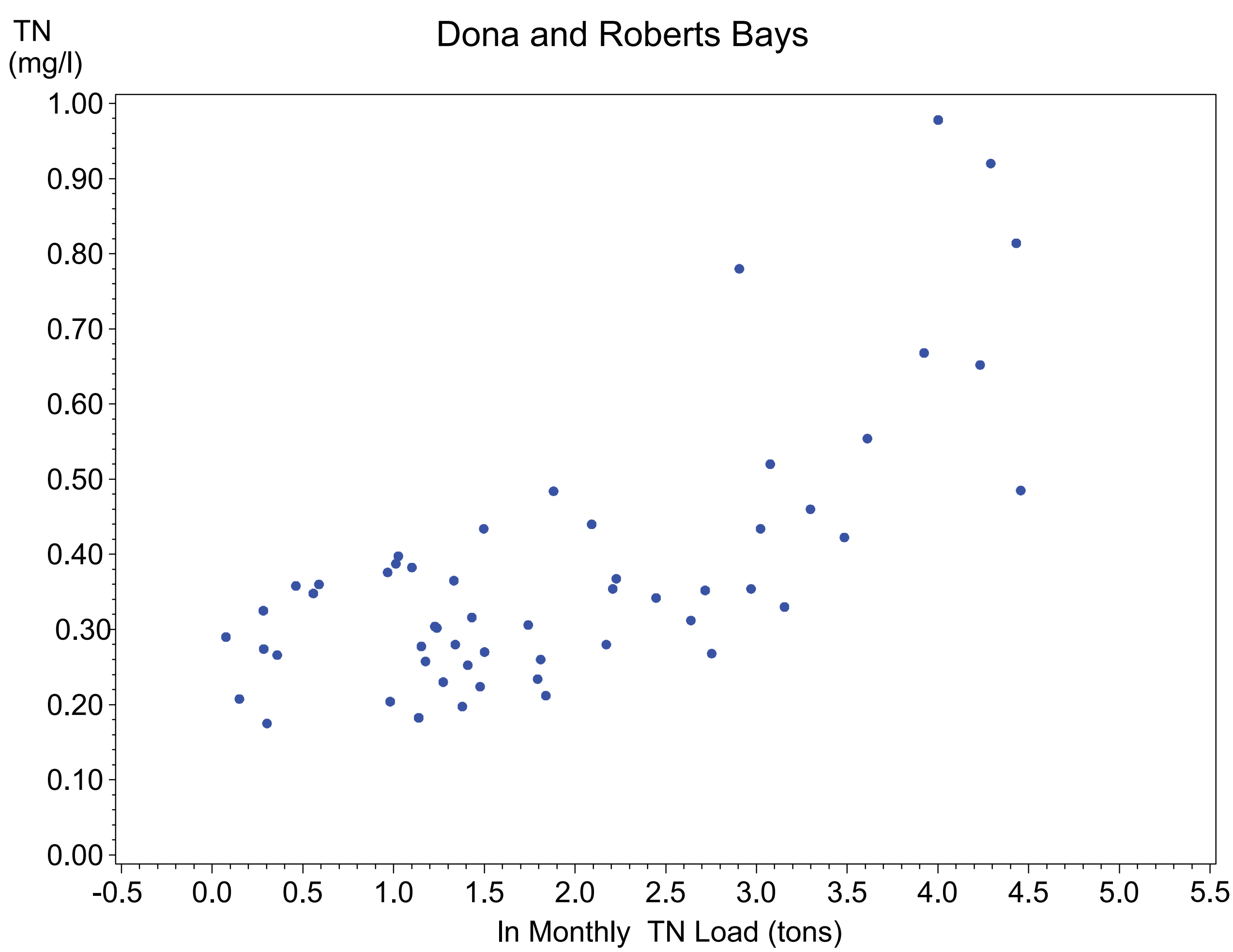


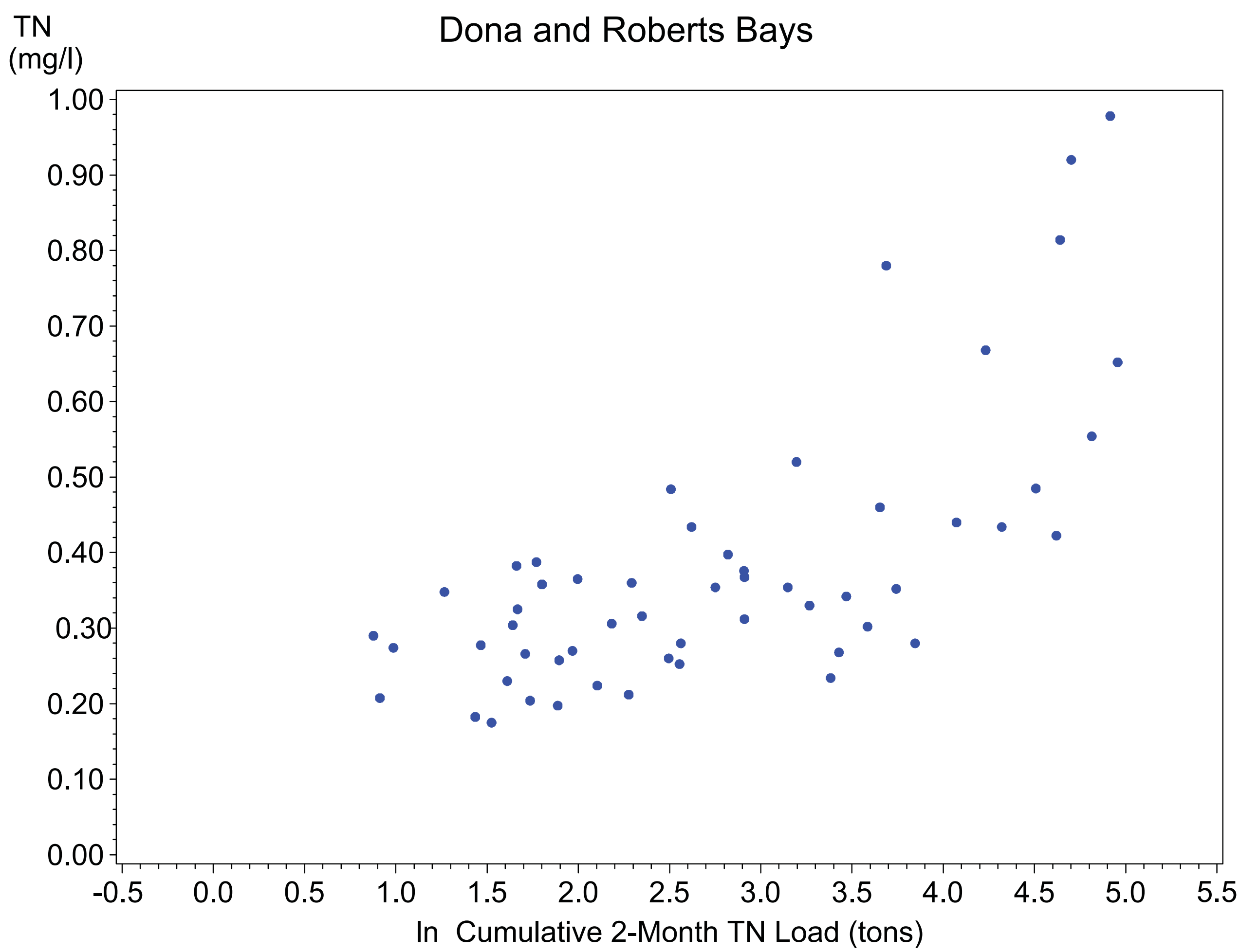
TN
(mg/l)
Dona and Roberts Bays
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
90
Monthly TN Load (tons)



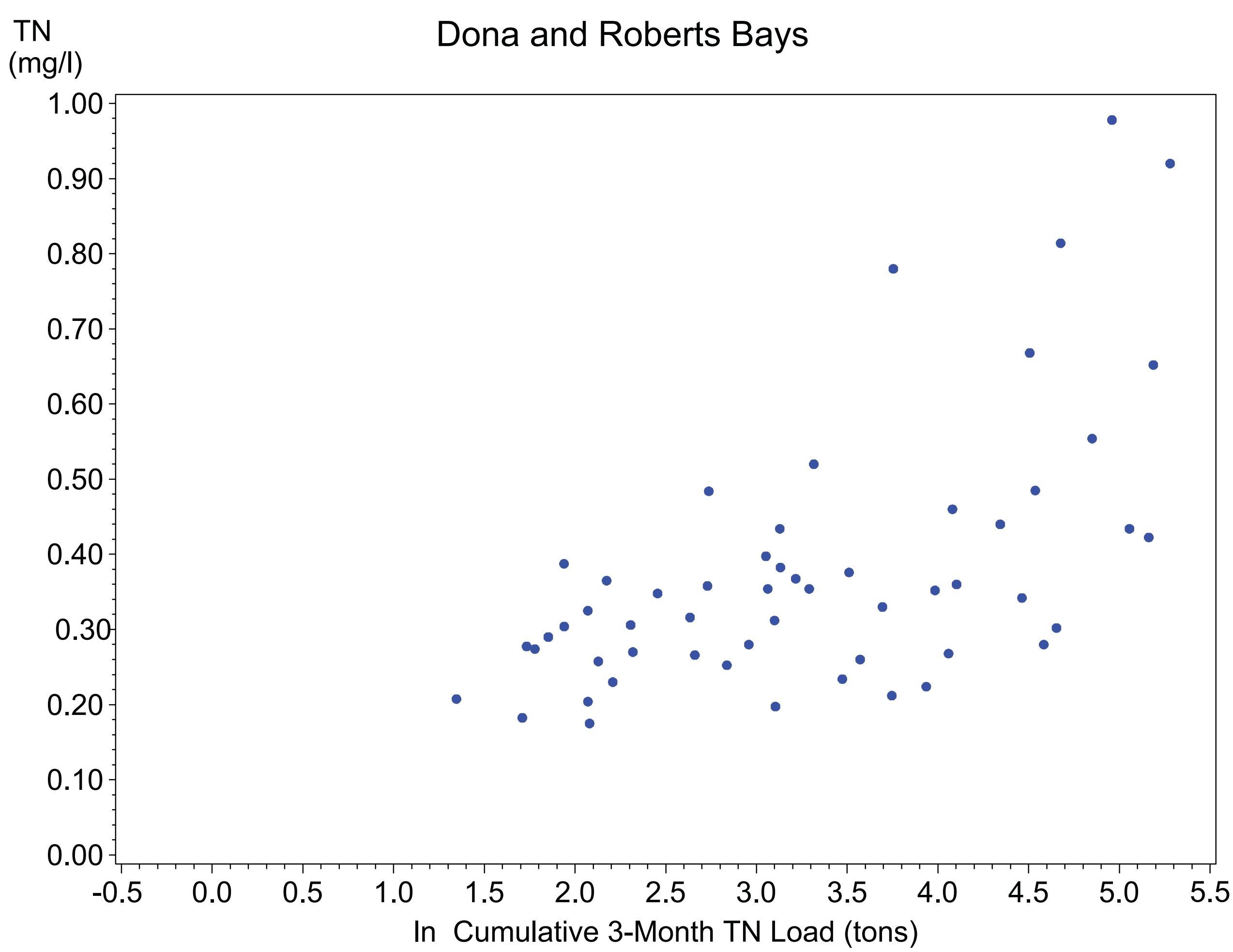
TN
(mg/l)
Dona and Roberts Bays
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Cumulative 2-Month TN Load (tons)


Dona and Roberts Bays
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
50
100
150
200
250
Cumulative 3-Month TN Load (tons)

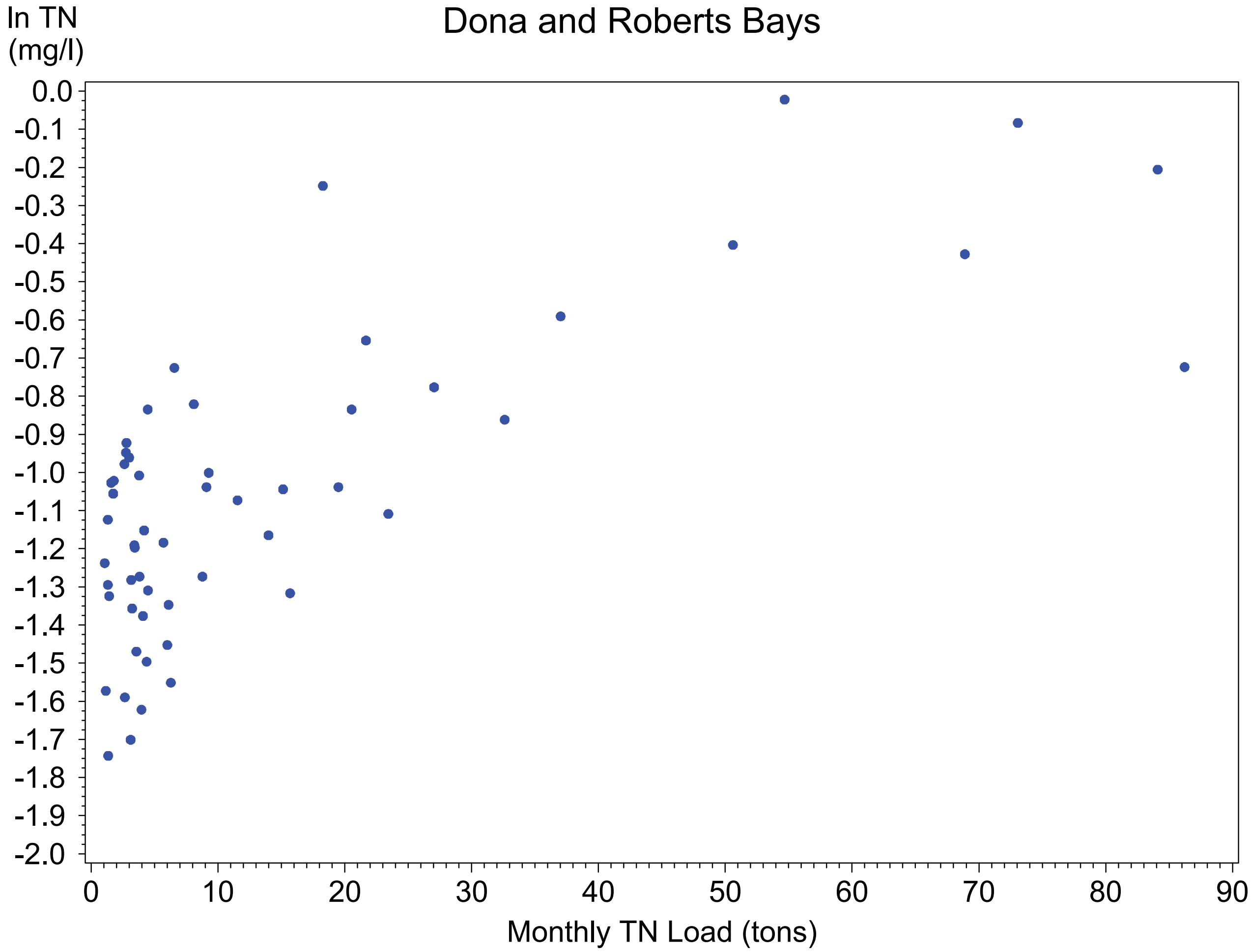

Dona and Roberts Bays
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

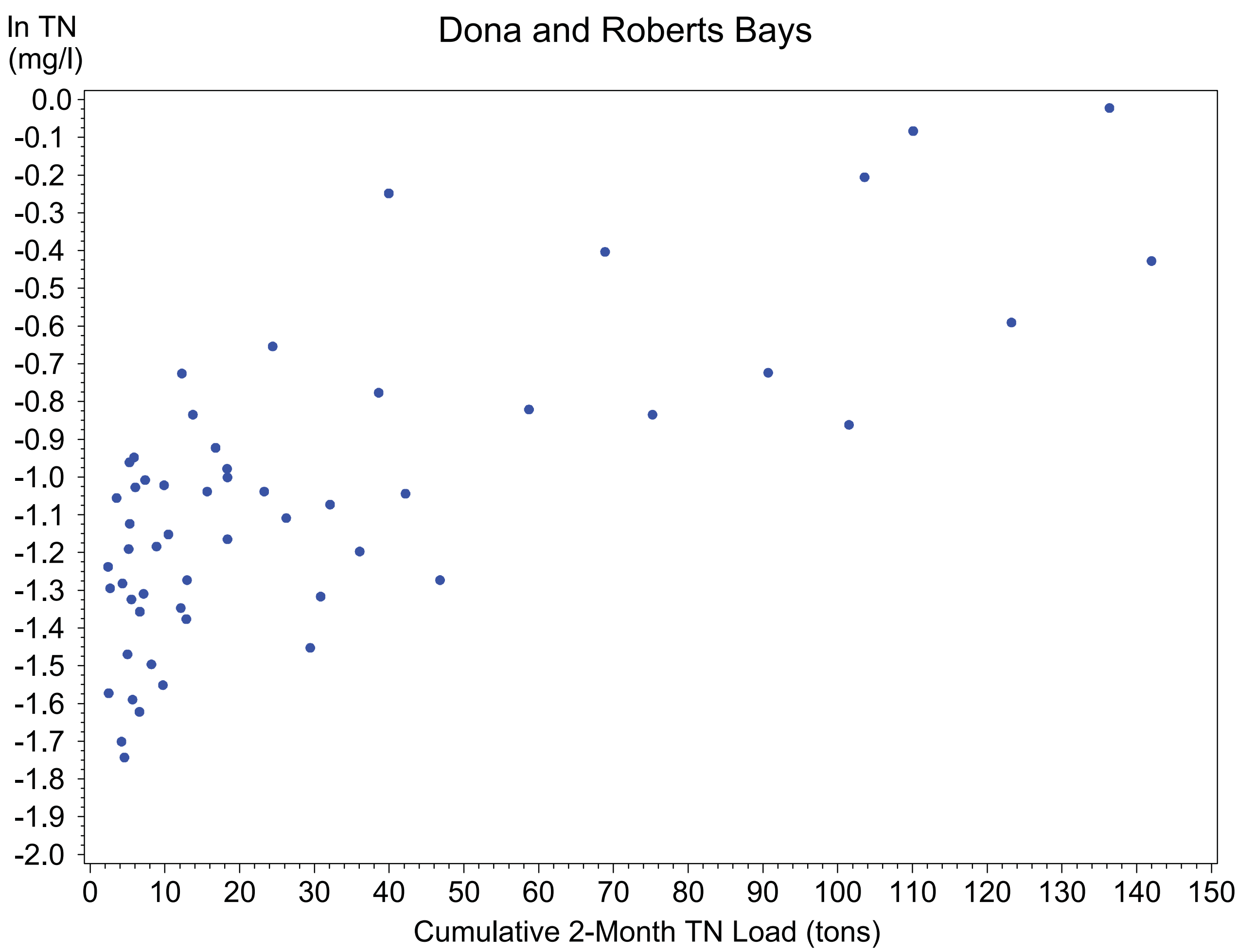


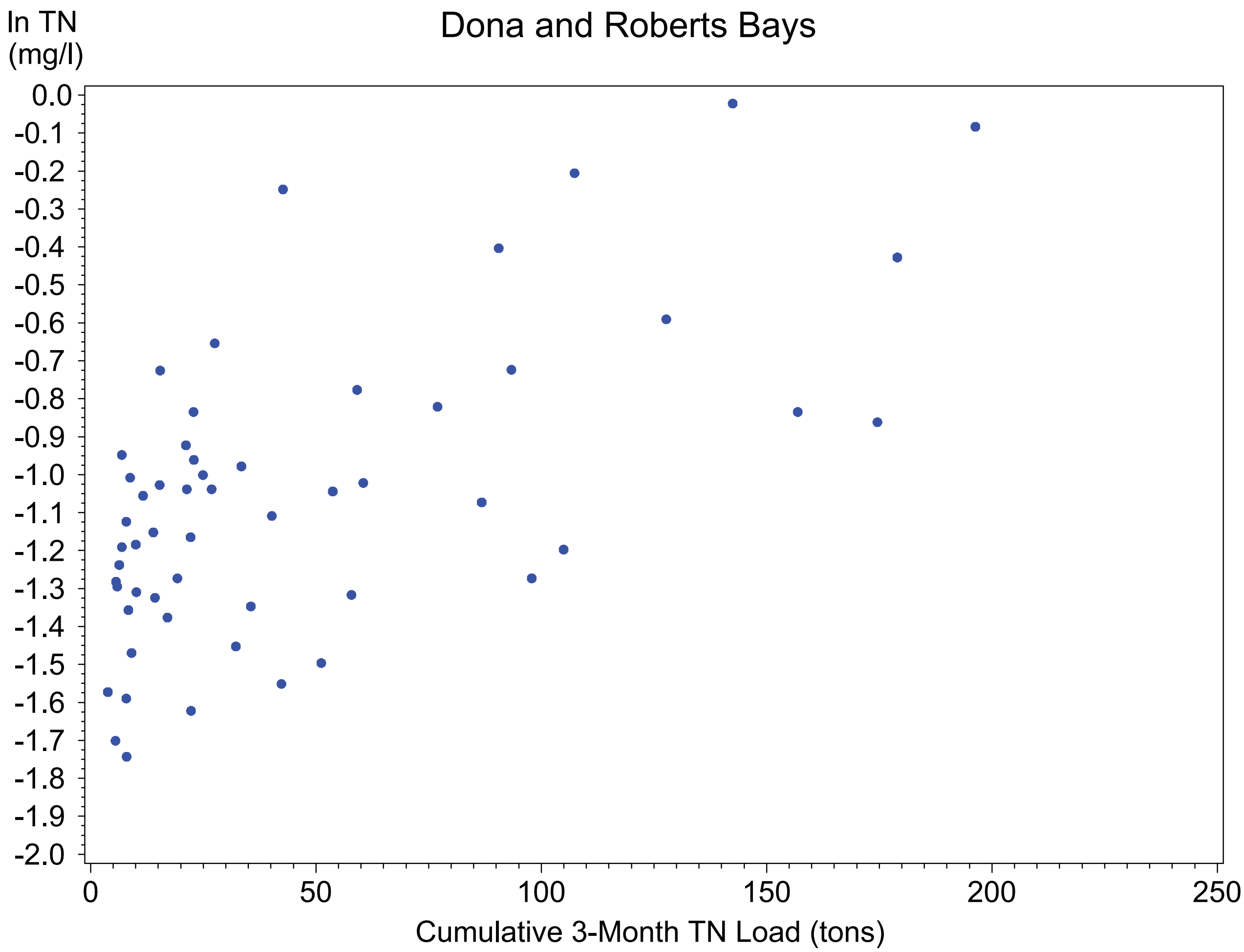
Dona and Roberts Bays
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TN Load (tons)



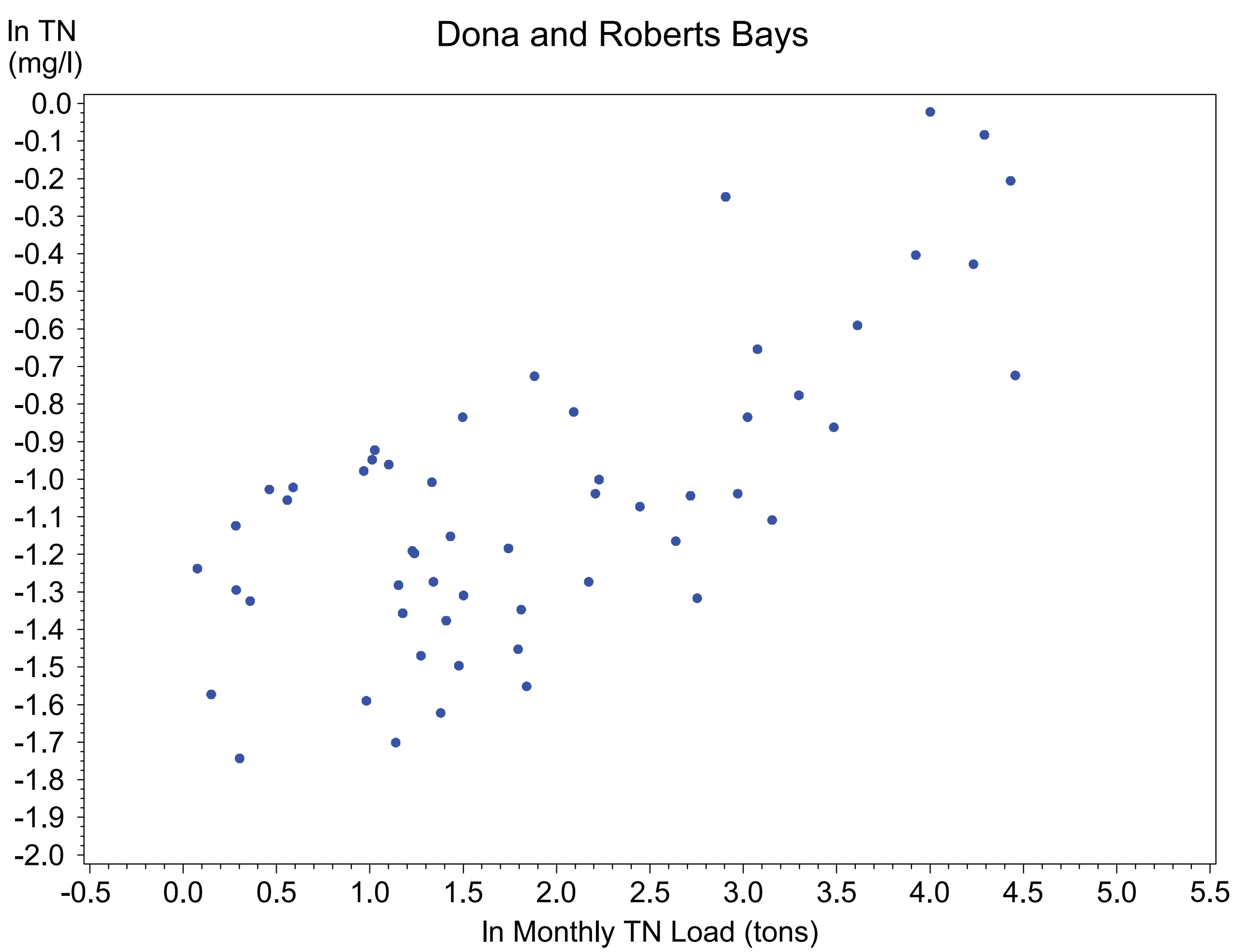
Dona and Roberts Bays
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 3-Month TN Load (tons)


Dona and Roberts Bays
ln TN (mg/l)
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
0 10 20 30 40 50 60 70 80 90
Monthly TN Load (tons)

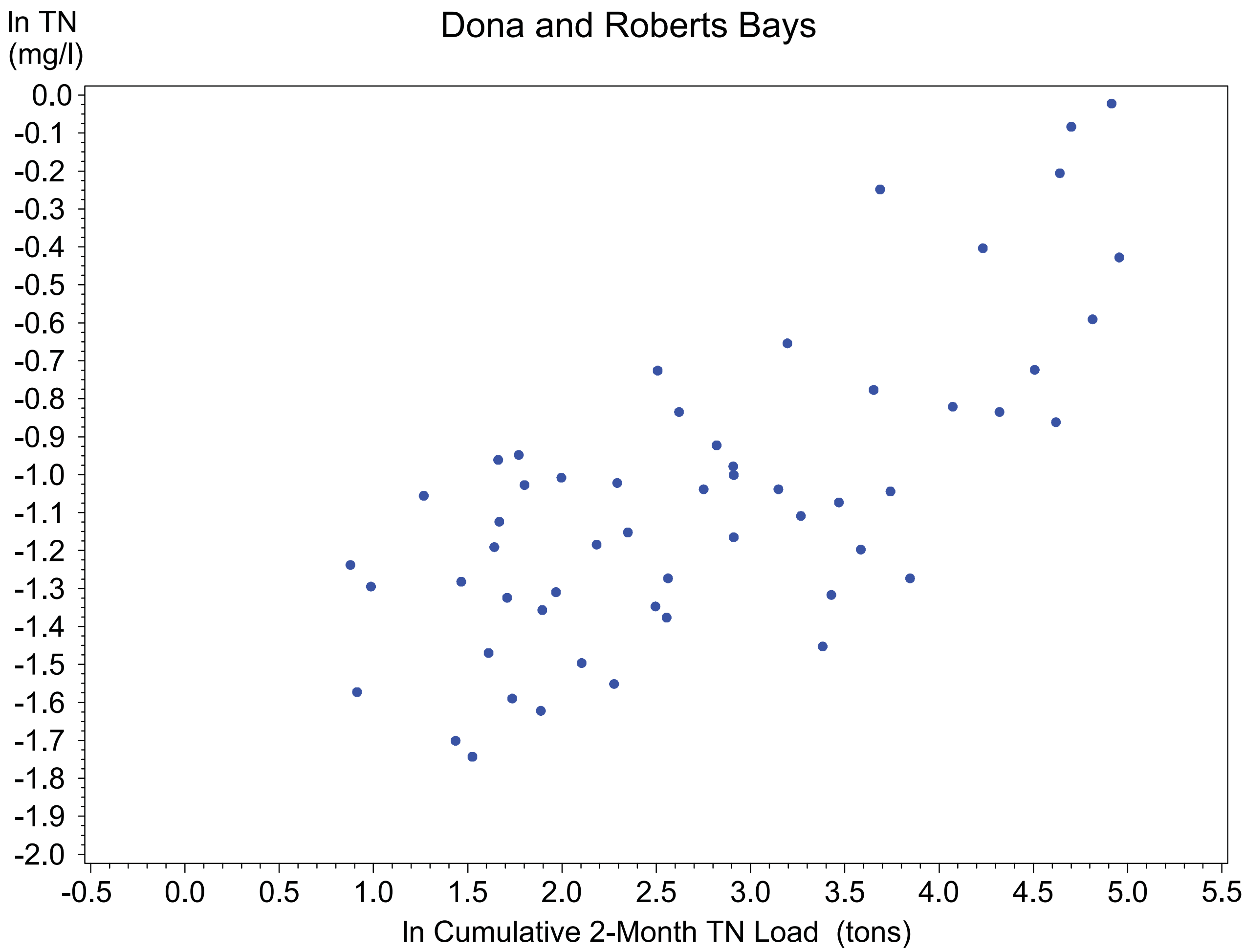

Dona and Roberts Bays
ln TN (mg/l)
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Cumulative 2-Month TN Load (tons)



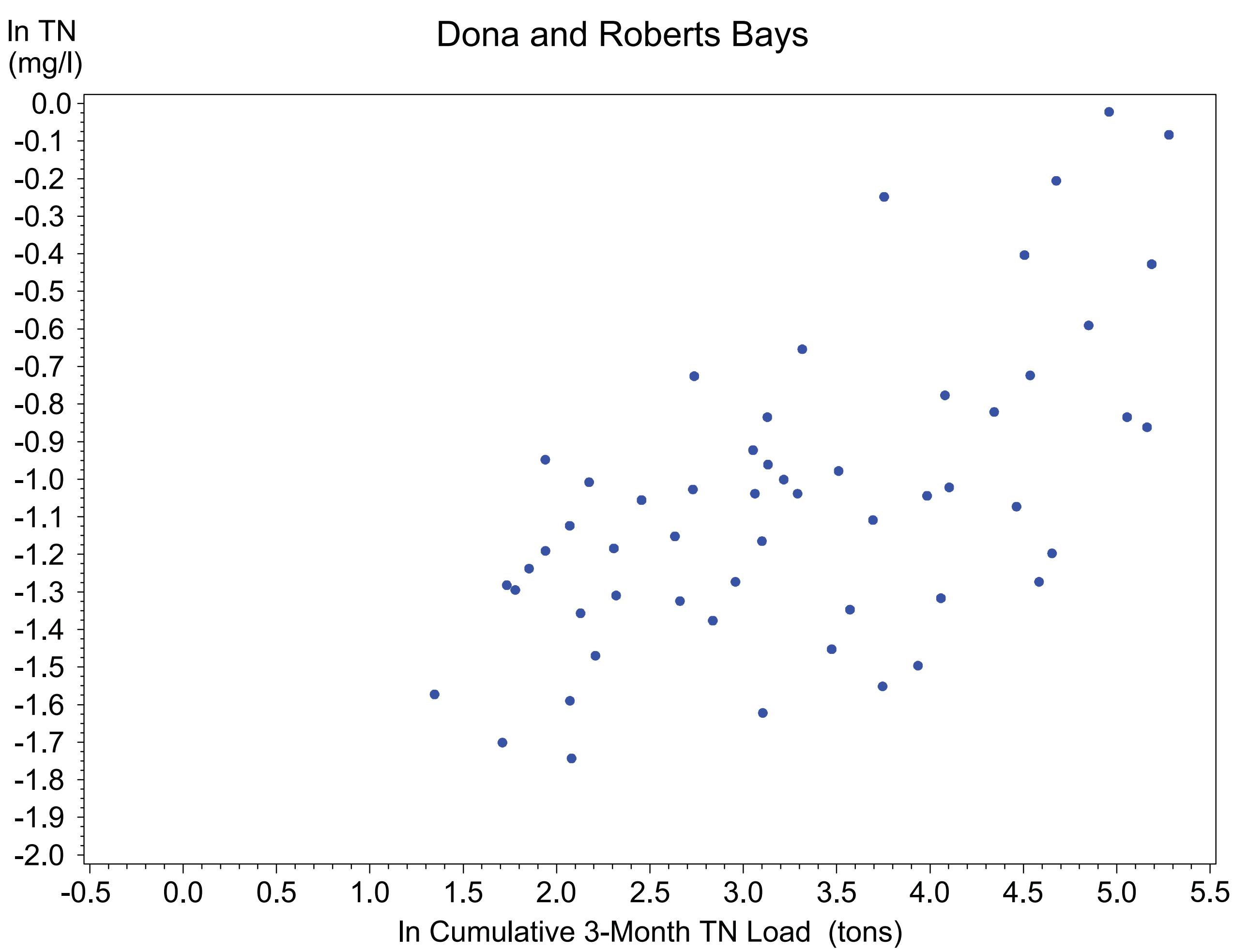
Dona and Roberts Bays
ln TN
(mg/l)
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
0
50
100
150
200
250
Cumulative 3-Month TN Load (tons)



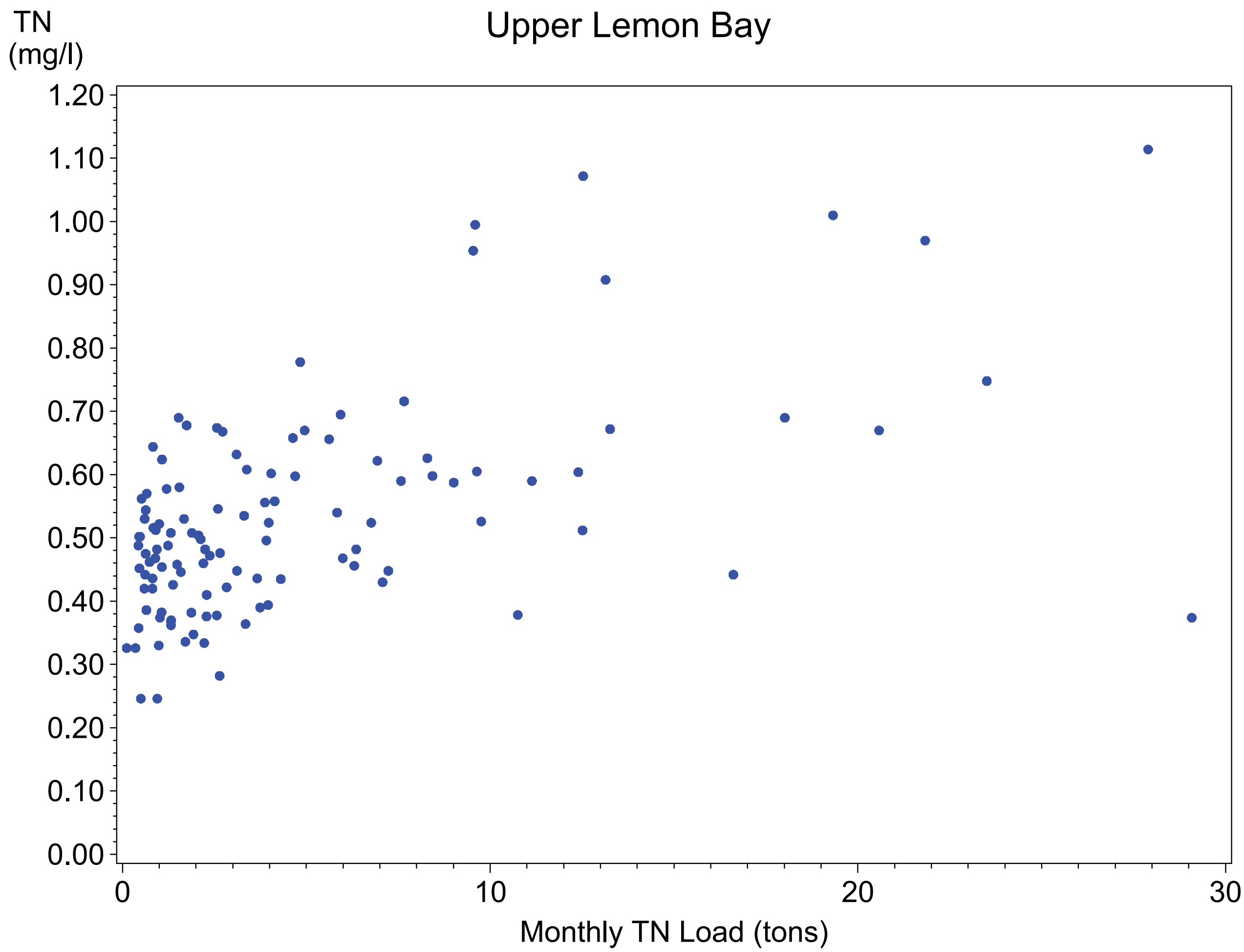
Dona and Roberts Bays
ln TN
(mg/l)
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

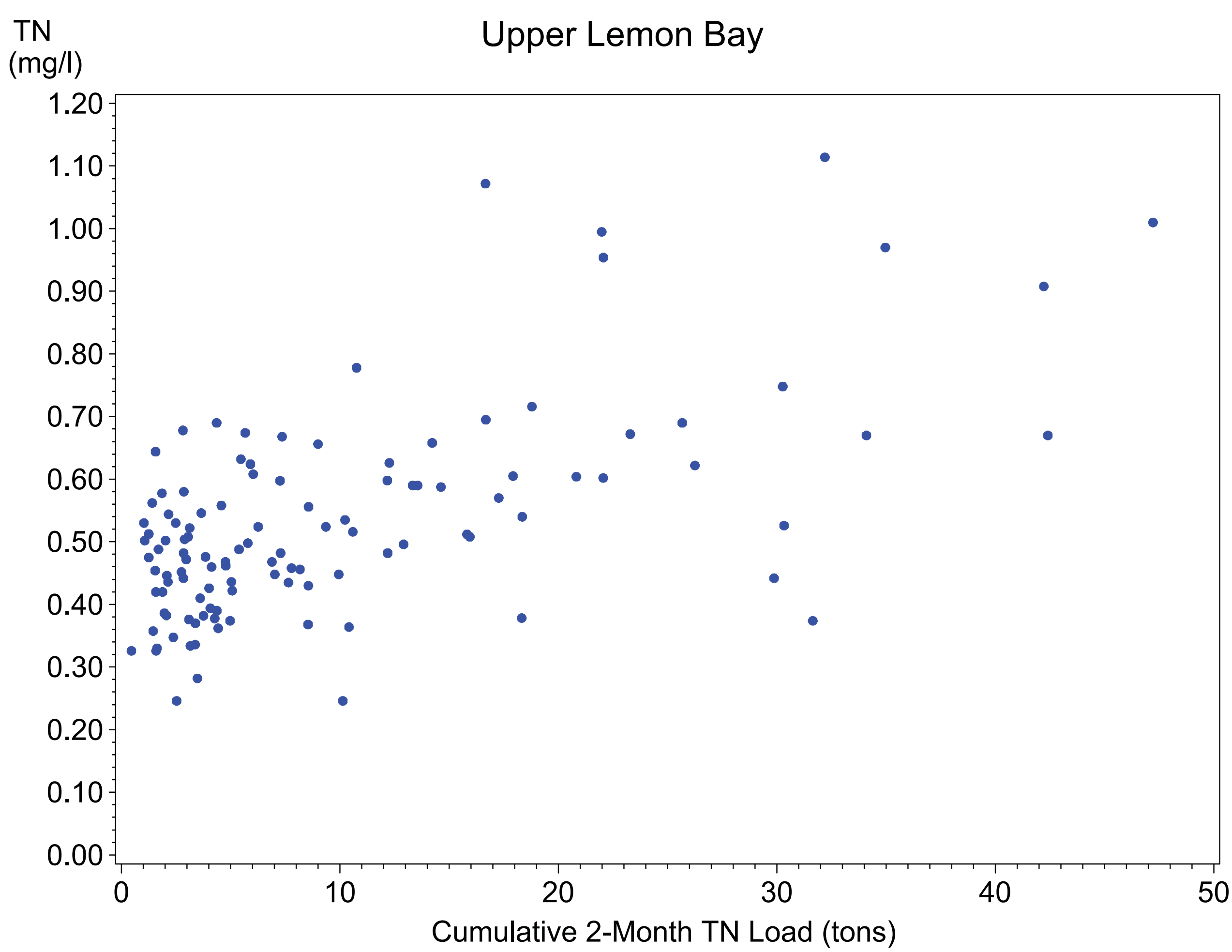


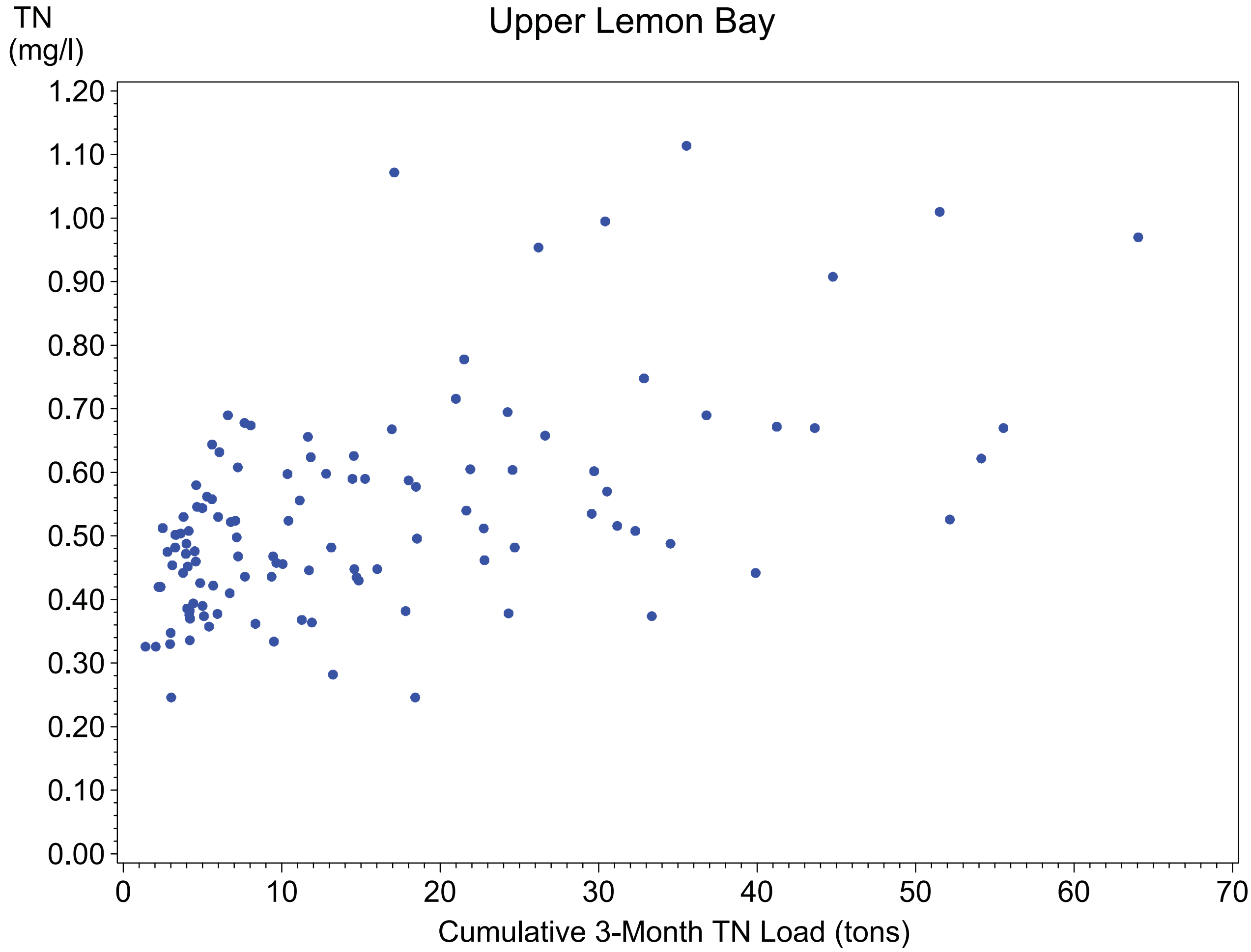
ln TN
(mg/l)
Dona and Roberts Bays
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TN Load (tons)

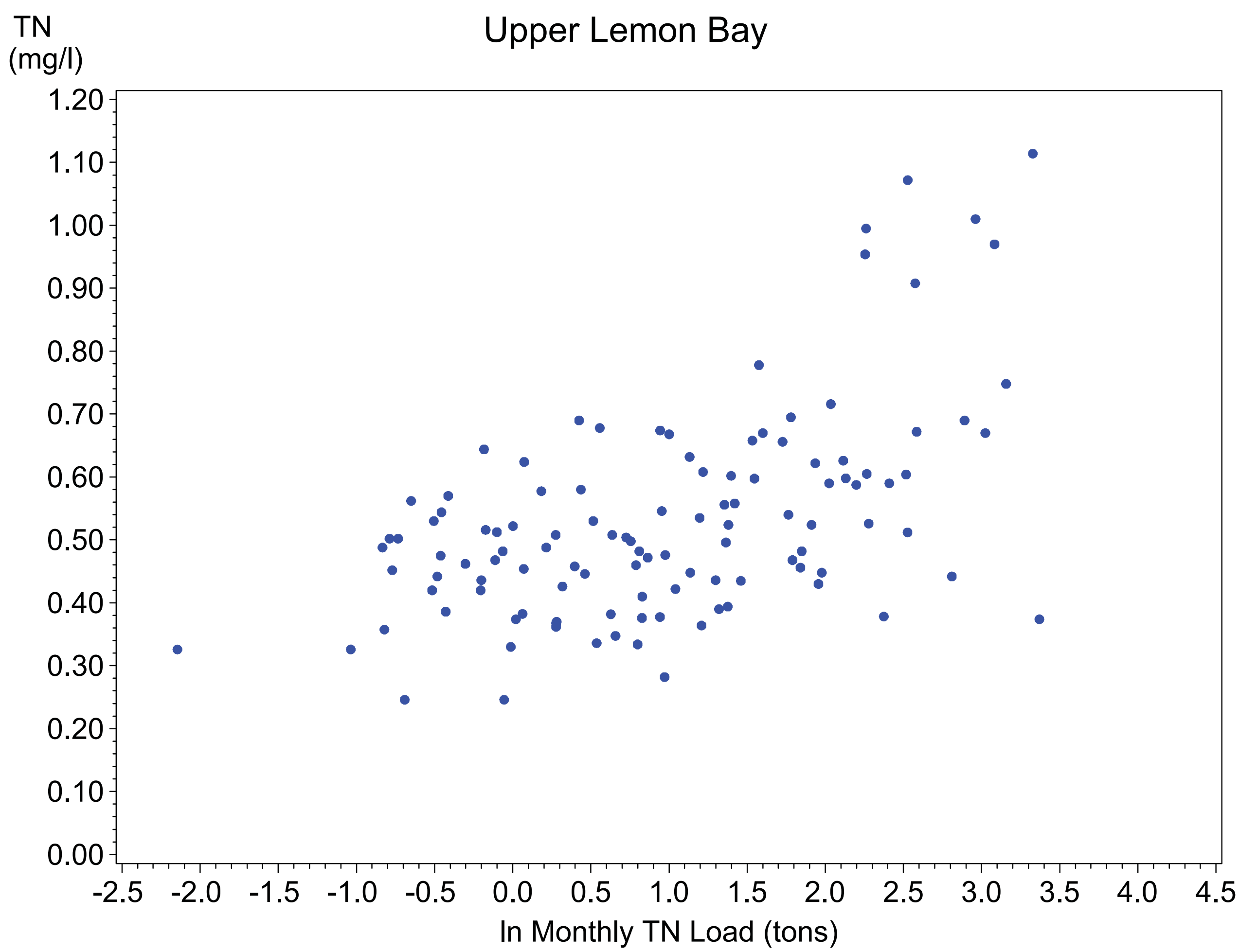


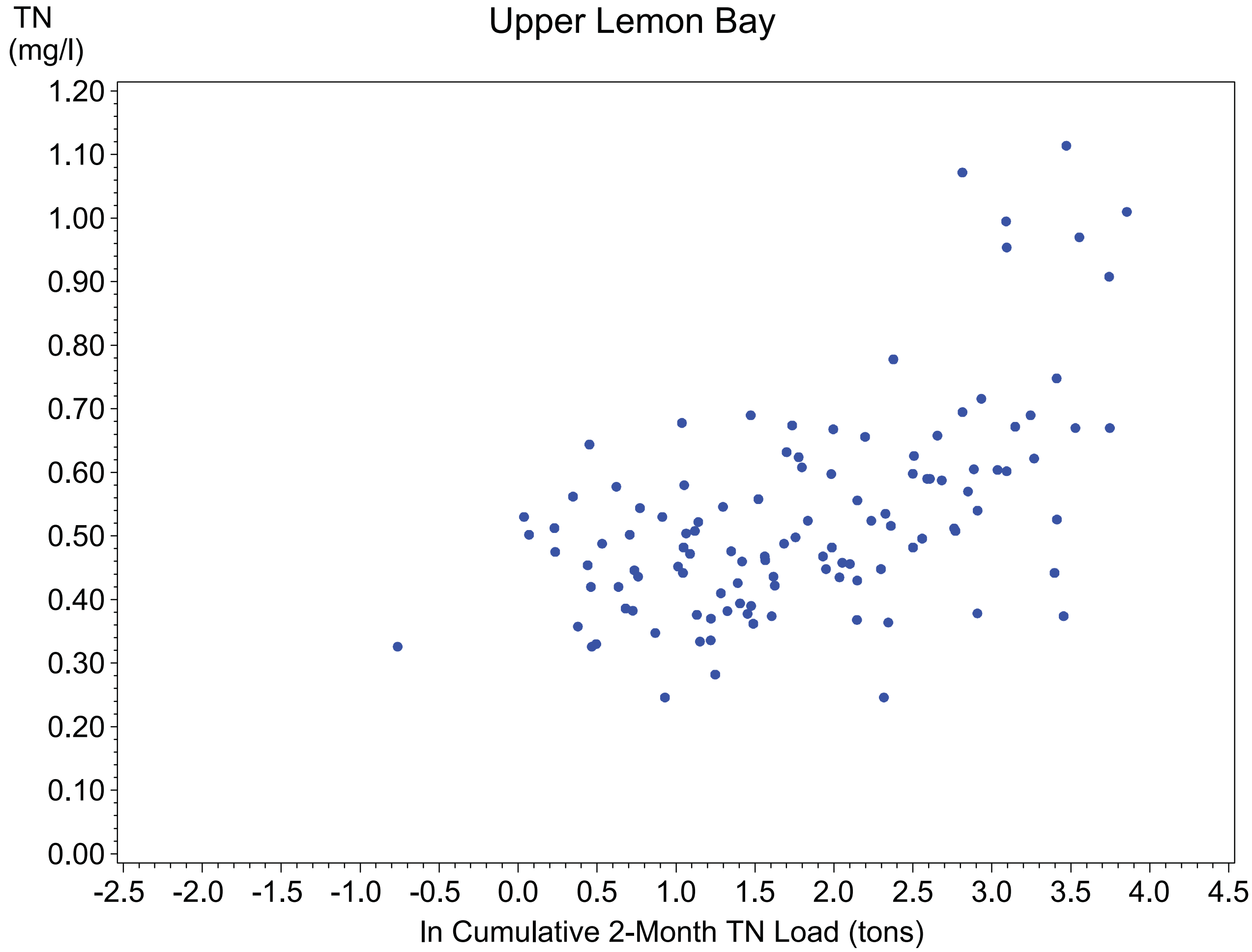
ln TN
(mg/l)
Dona and Roberts Bays
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 3-Month TN Load (tons)

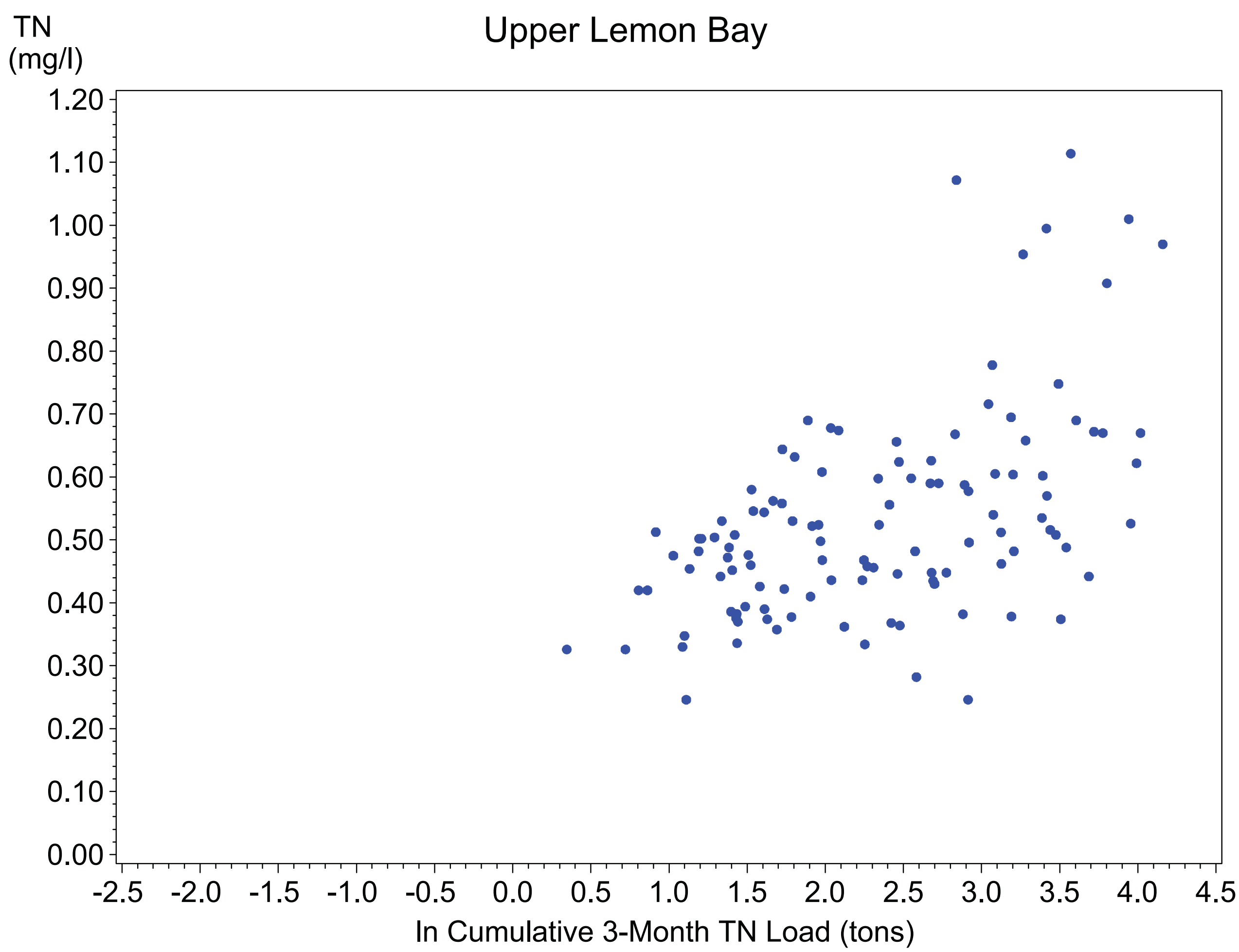

TN
(mg/l)
Upper Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
Monthly TN Load (tons)

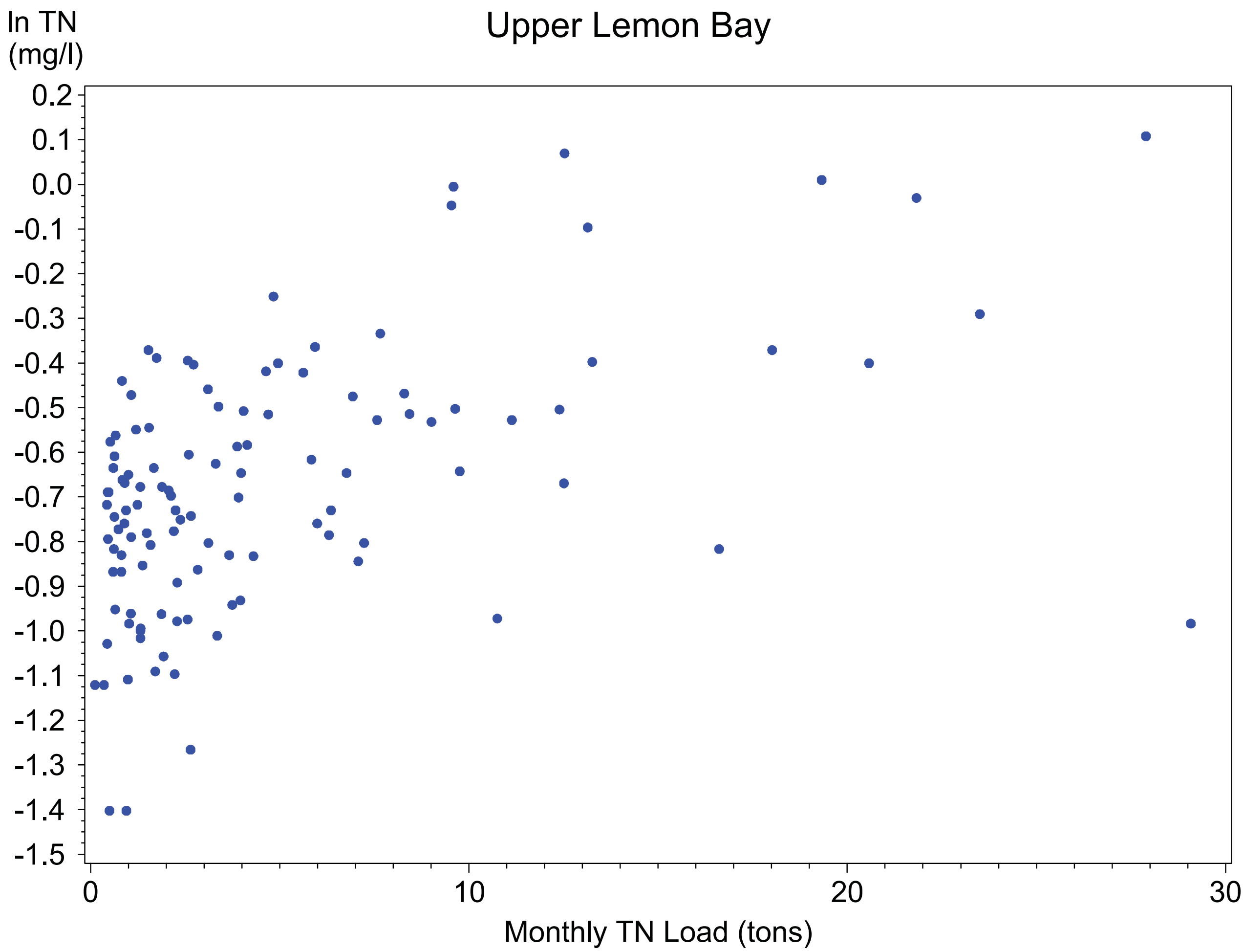

TN
(mg/l)
Upper Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
Cumulative 2-Month TN Load (tons)

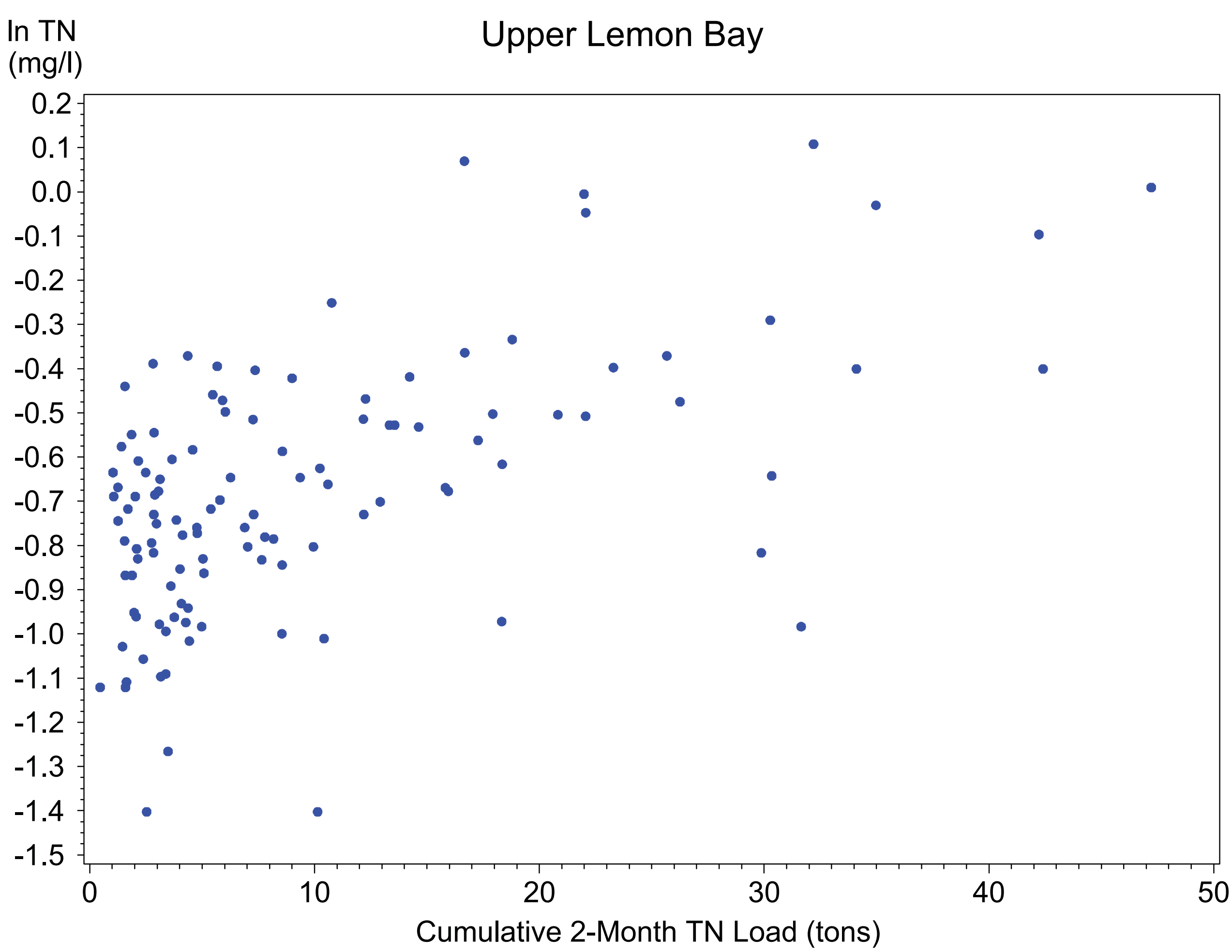

TN
(mg/l)
Upper Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
Cumulative 3-Month TN Load (tons)

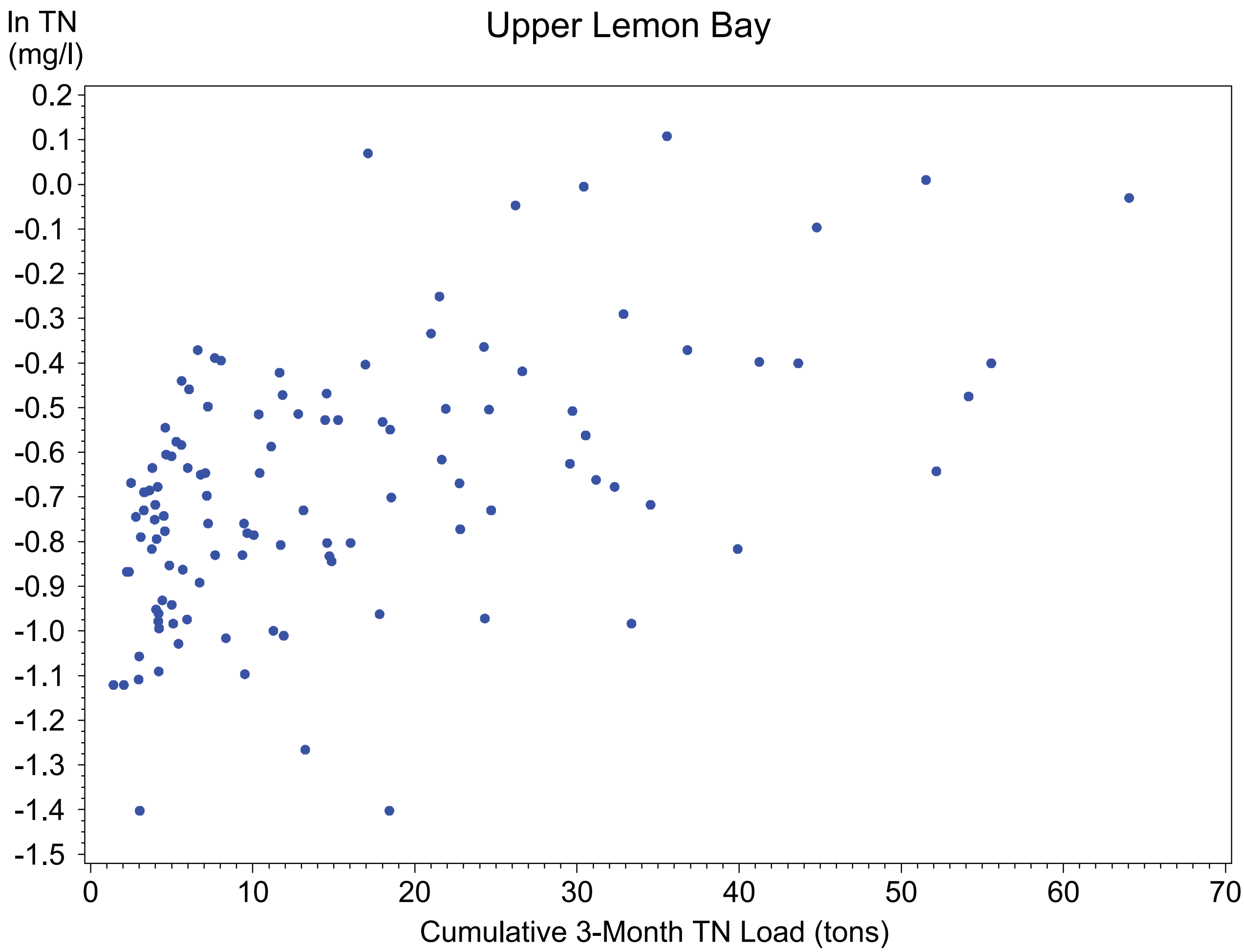

TN
(mg/l)
Upper Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Monthly TN Load (tons)

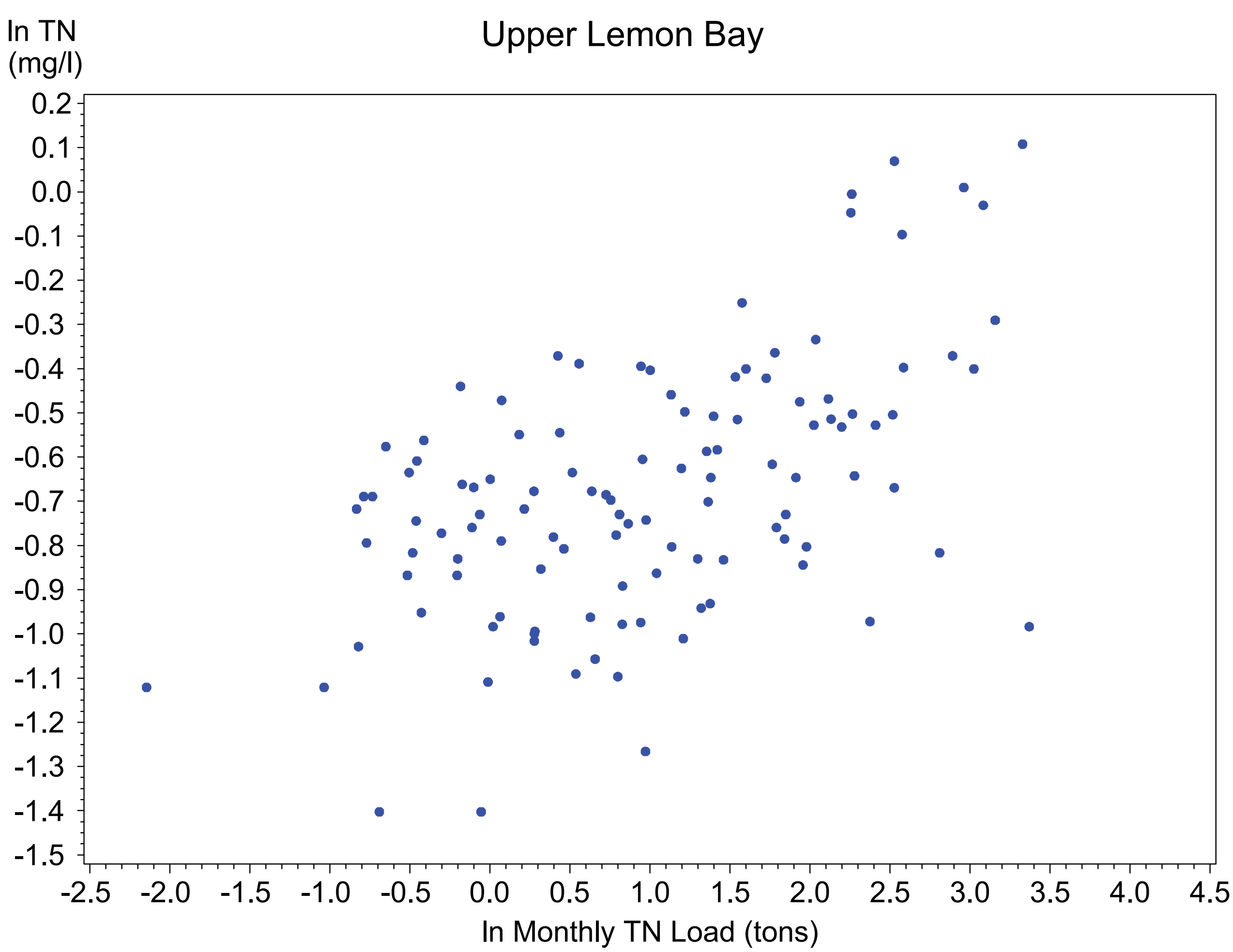

Upper Lemon Bay
TN
(mg/l)
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
ln Cumulative 2-Month TN Load (tons)

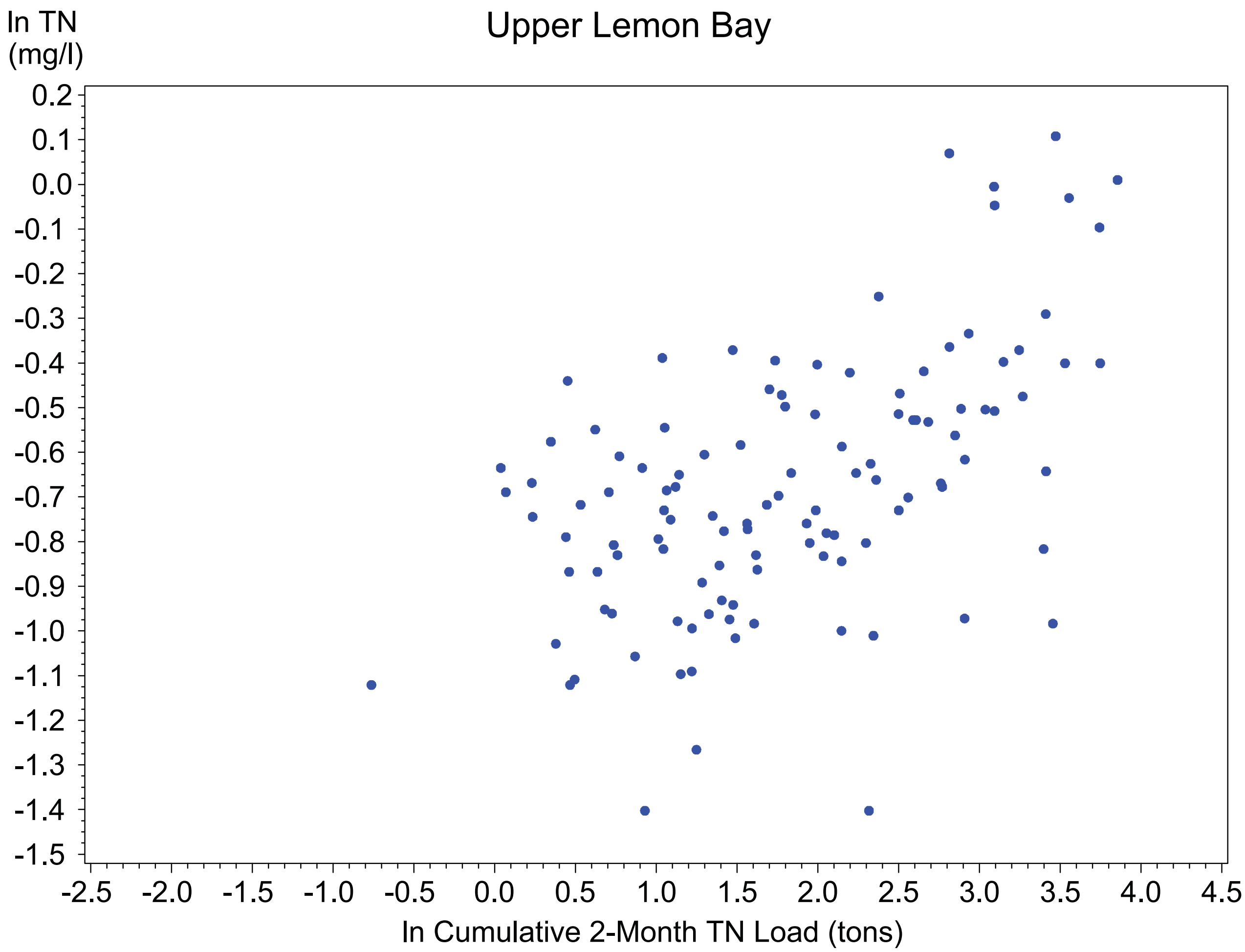

Upper Lemon Bay
TN
(mg/l)
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
ln Cumulative 3-Month TN Load (tons)

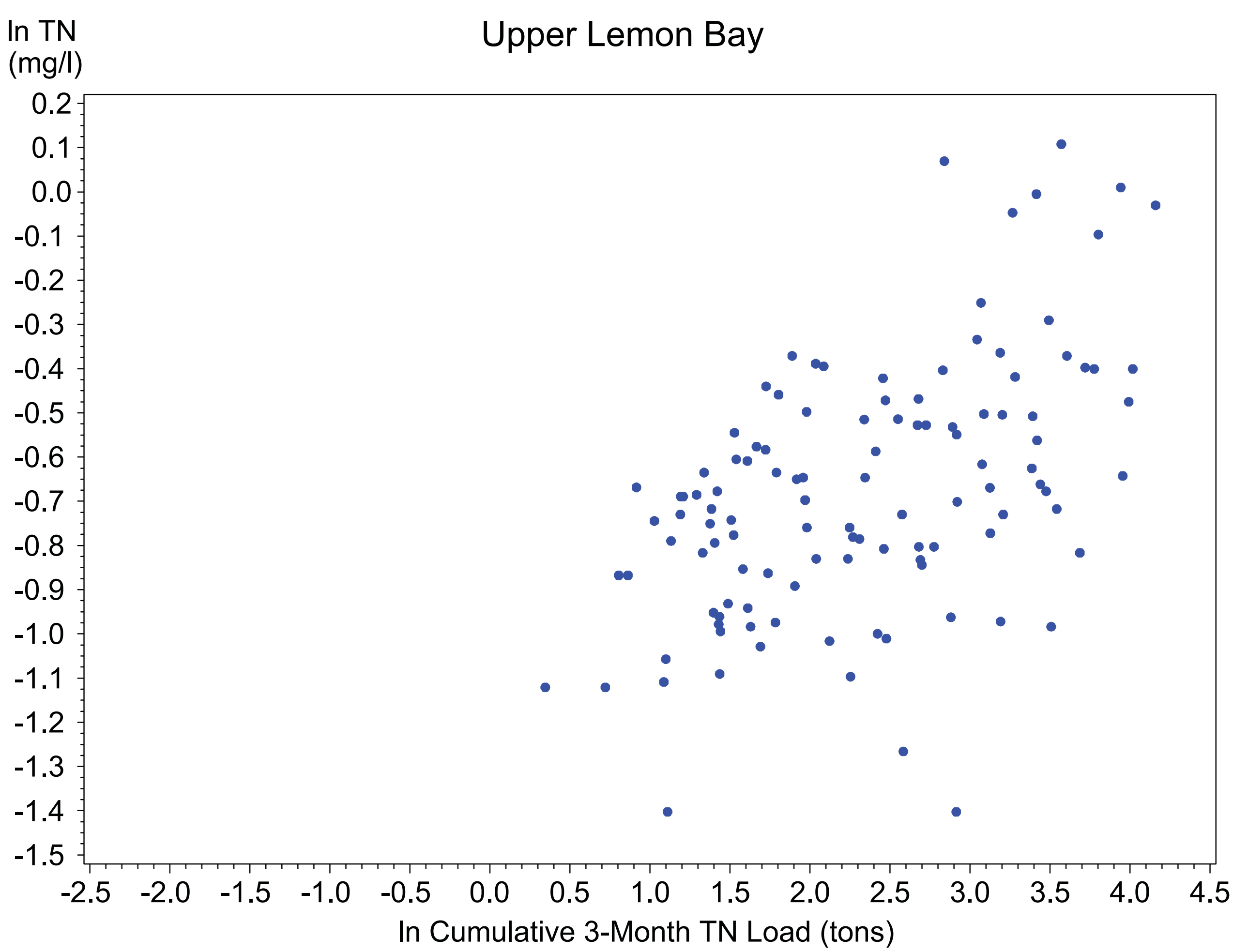

Upper Lemon Bay
ln TN
(mg/l)
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
10
20
30
Monthly TN Load (tons)

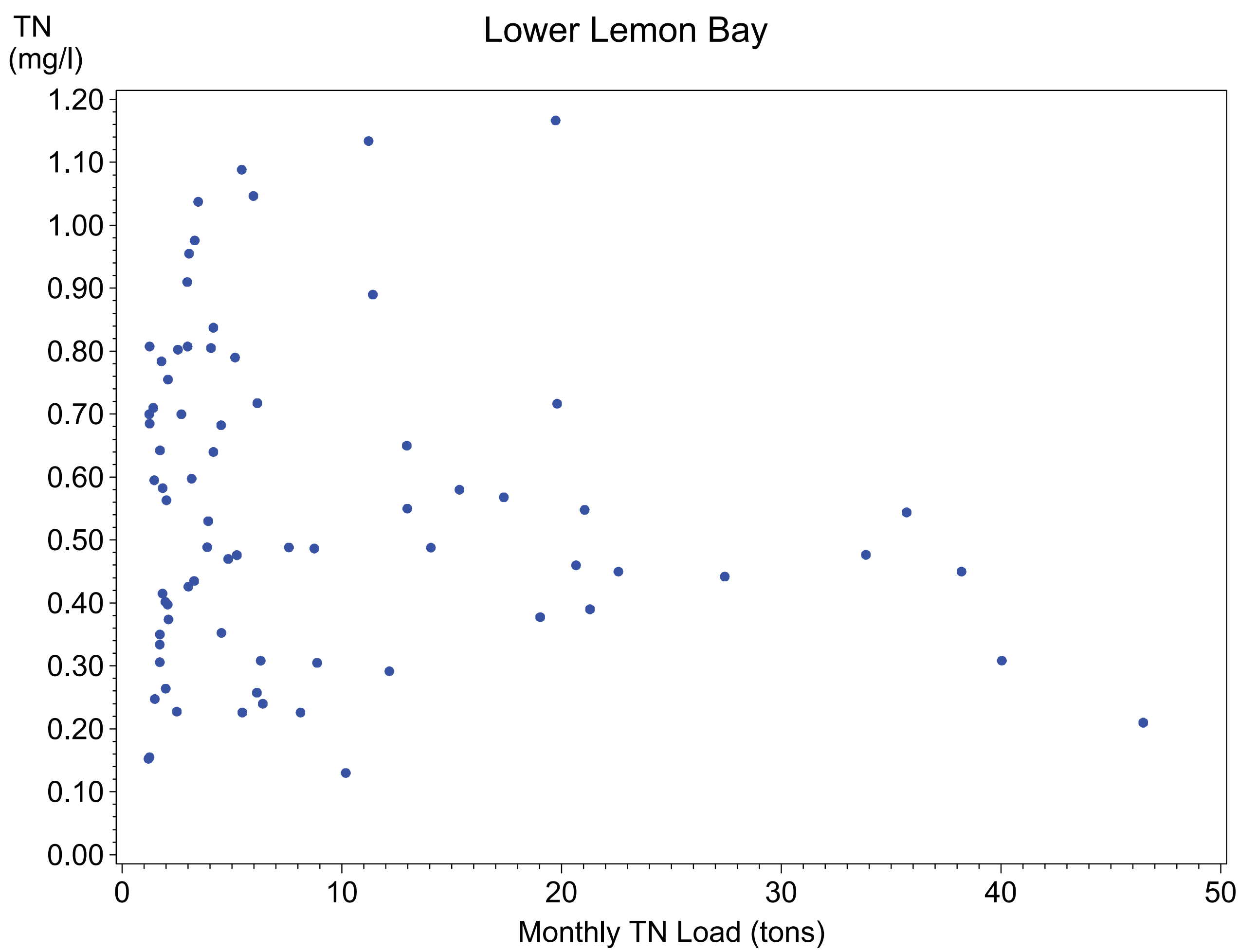

Upper Lemon Bay
ln TN
(mg/l)
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
10
20
30
40
50
Cumulative 2-Month TN Load (tons)

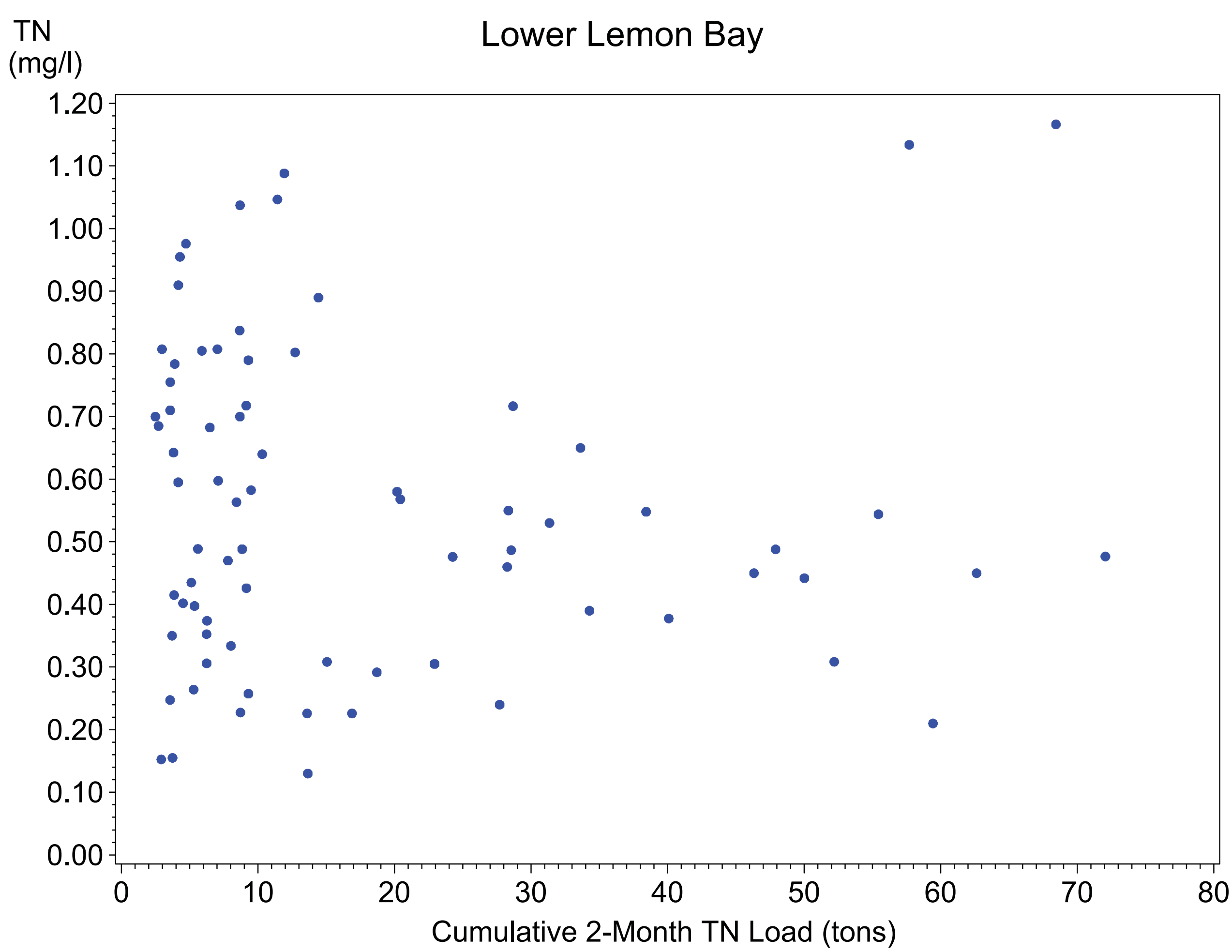

ln TN
(mg/l)
Upper Lemon Bay
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
10
20
30
40
50
60
70
Cumulative 3-Month TN Load (tons)

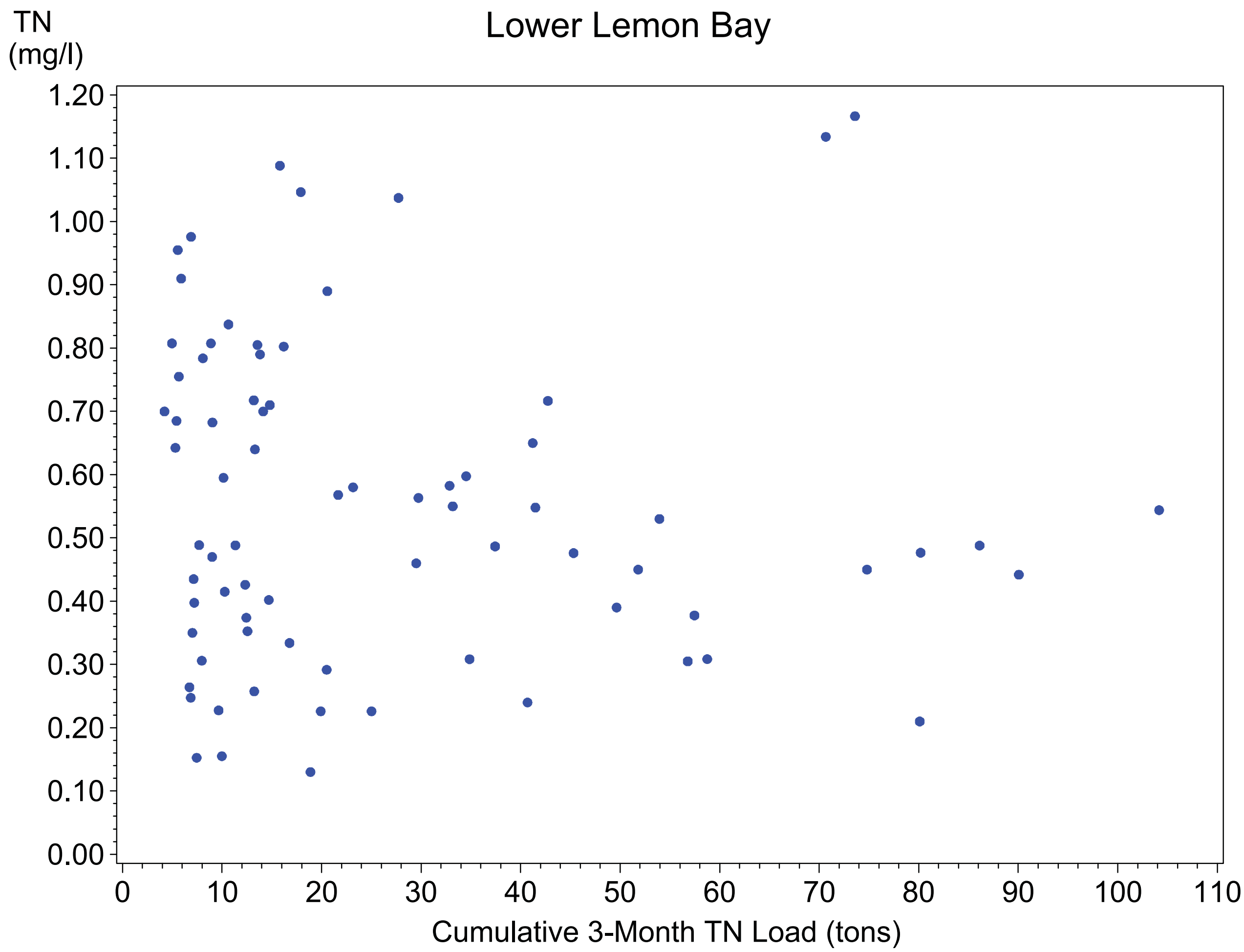

ln TN
(mg/l)
Upper Lemon Bay
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Monthly TN Load (tons)


ln TN
(mg/l)
Upper Lemon Bay
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
ln Cumulative 2-Month TN Load (tons)

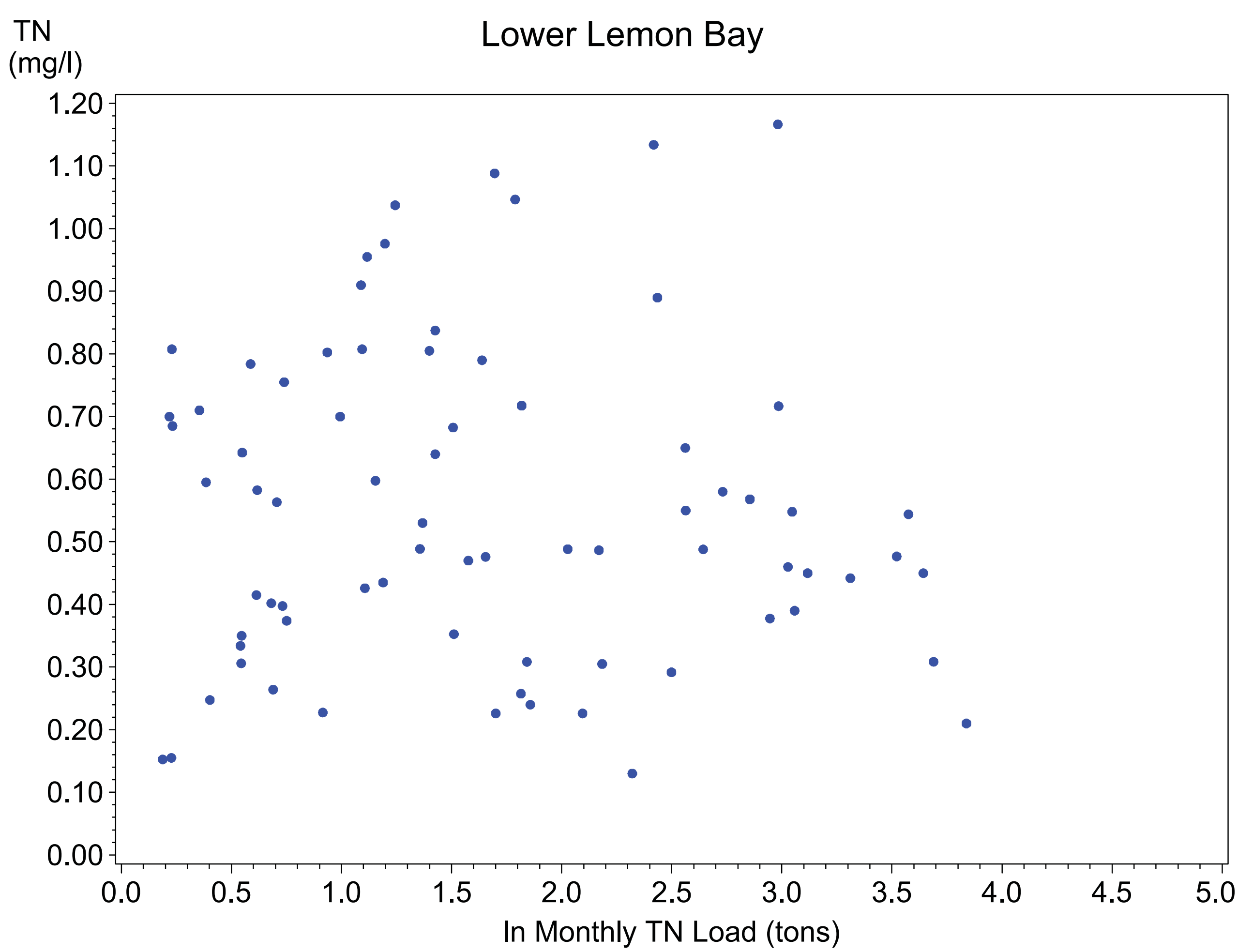

ln TN
(mg/l)
Upper Lemon Bay
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
ln Cumulative 3-Month TN Load (tons)


TN
(mg/l)
Lower Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
Monthly TN Load (tons)

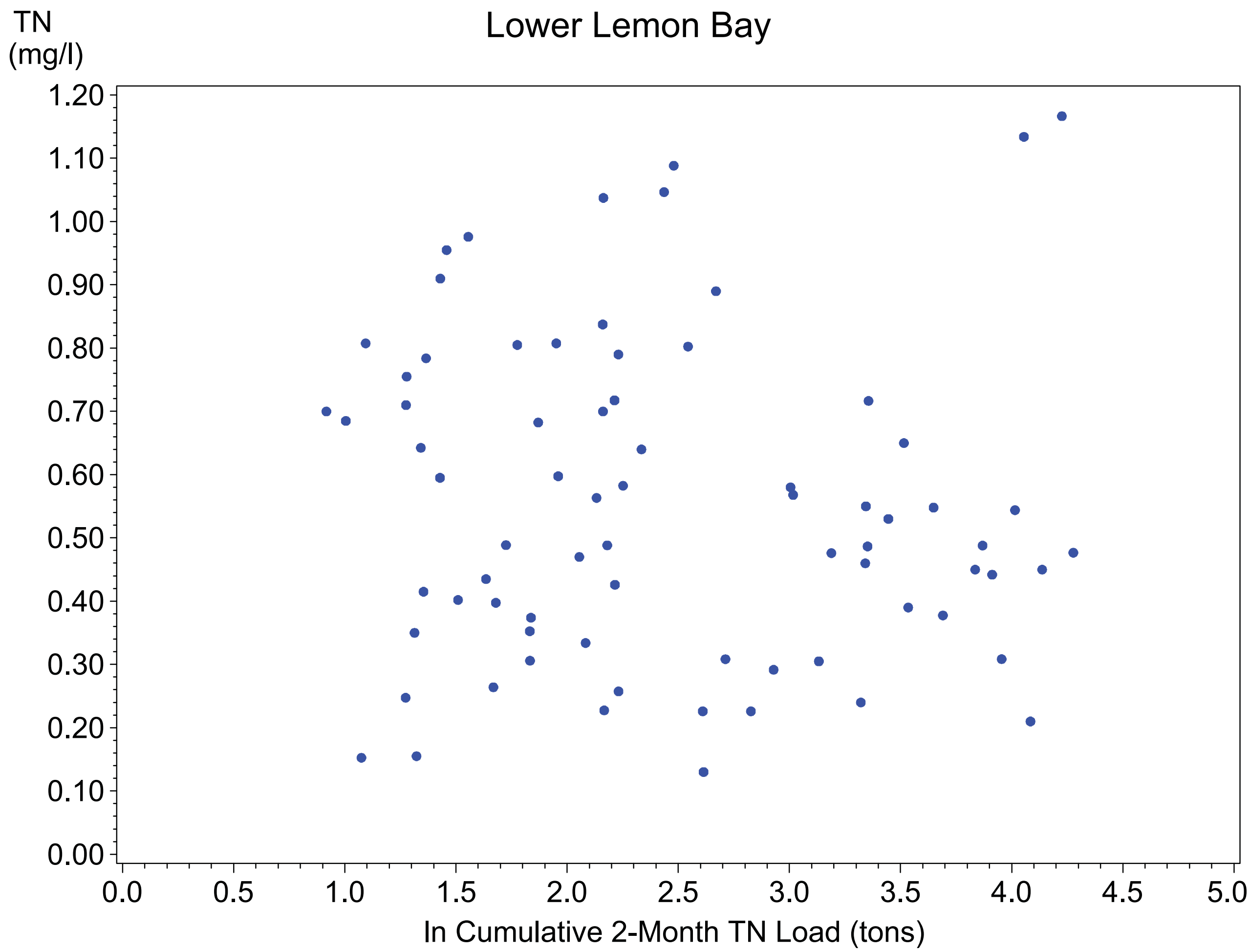

TN
(mg/l)
Lower Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)



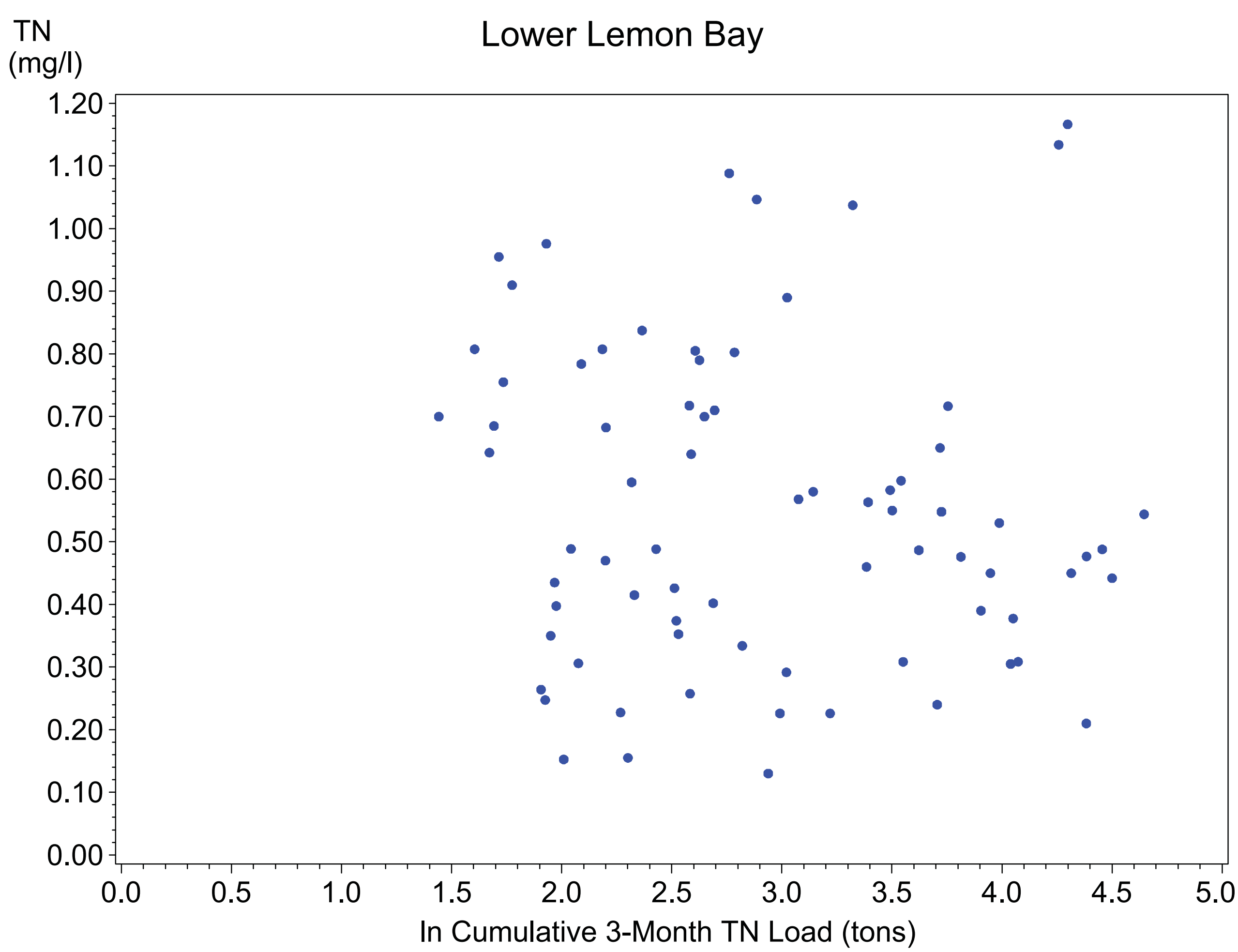
Lower Lemon Bay
TN (mg/l)
Cumulative 3-Month TN Load (tons)



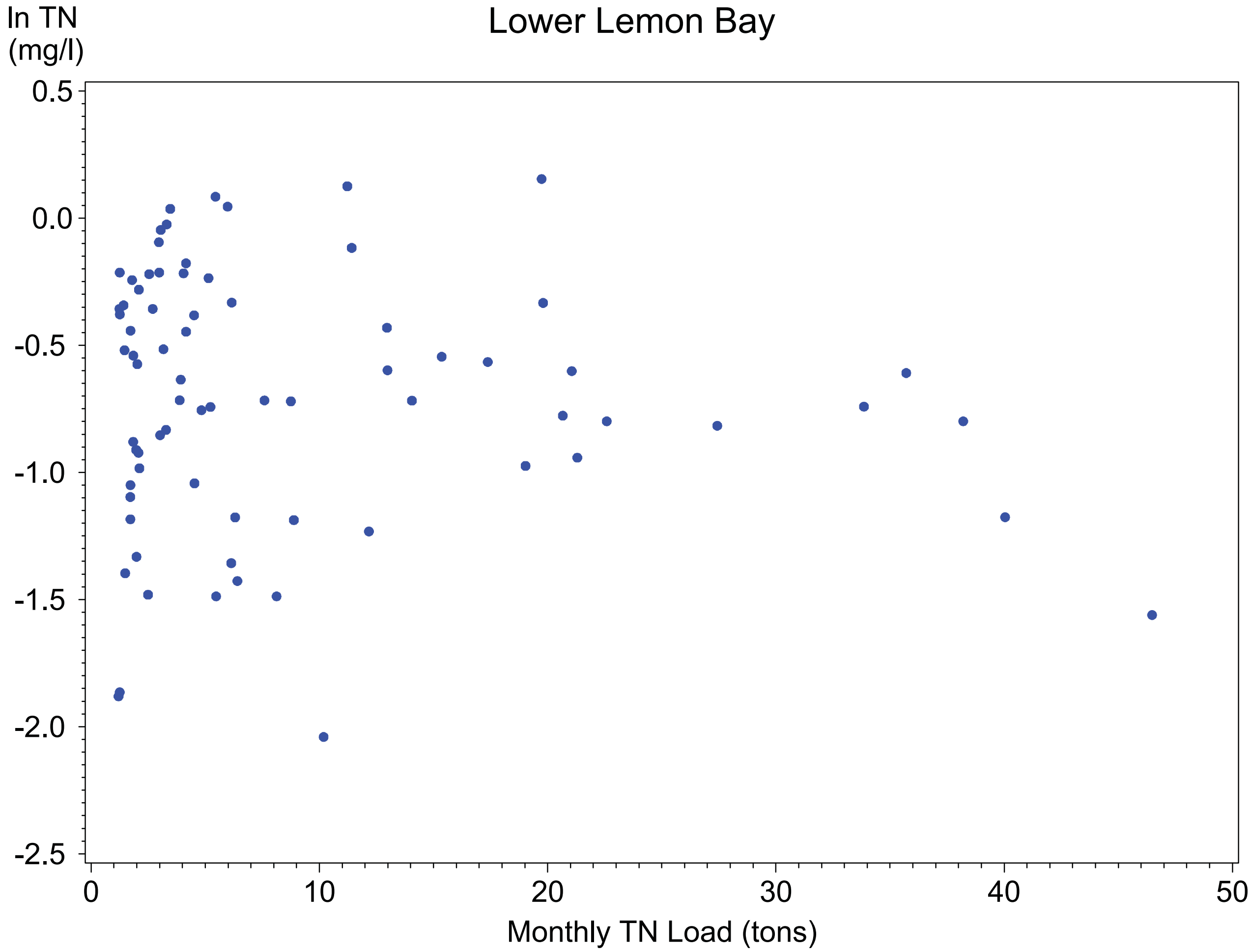
Lower Lemon Bay
TN (mg/l)
ln Monthly TN Load (tons)



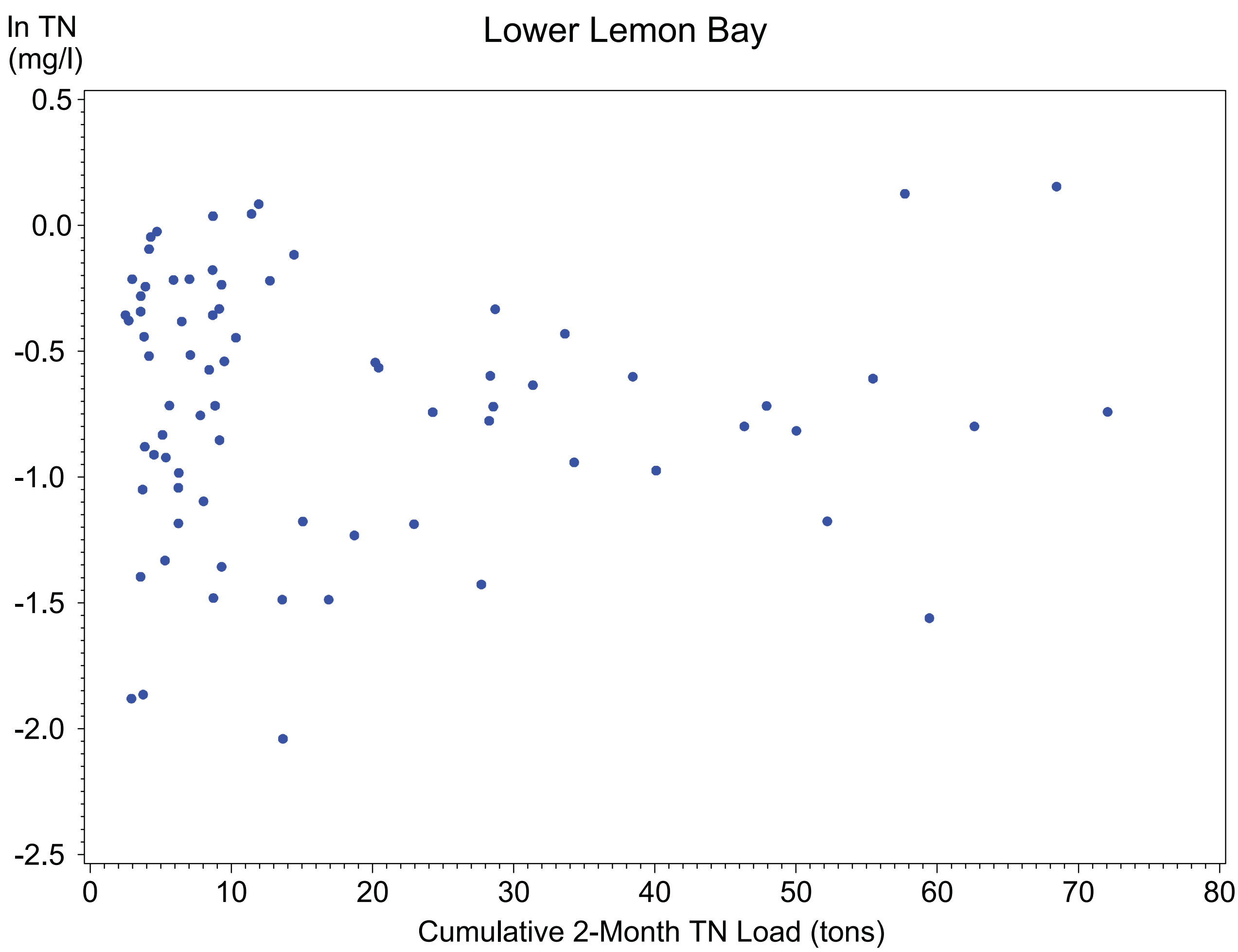
TN
(mg/l)
Lower Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)



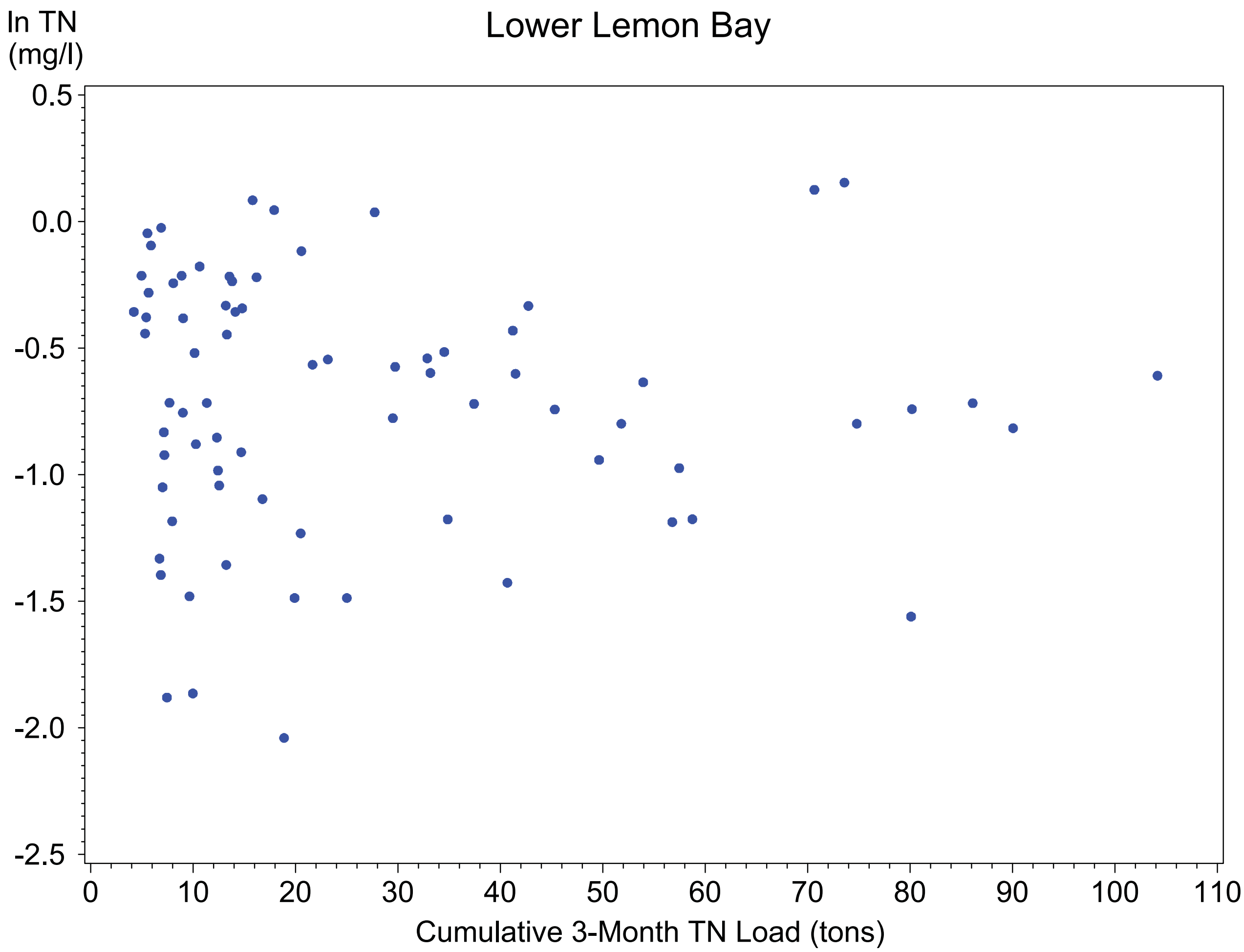
TN
(mg/l)
Lower Lemon Bay
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)

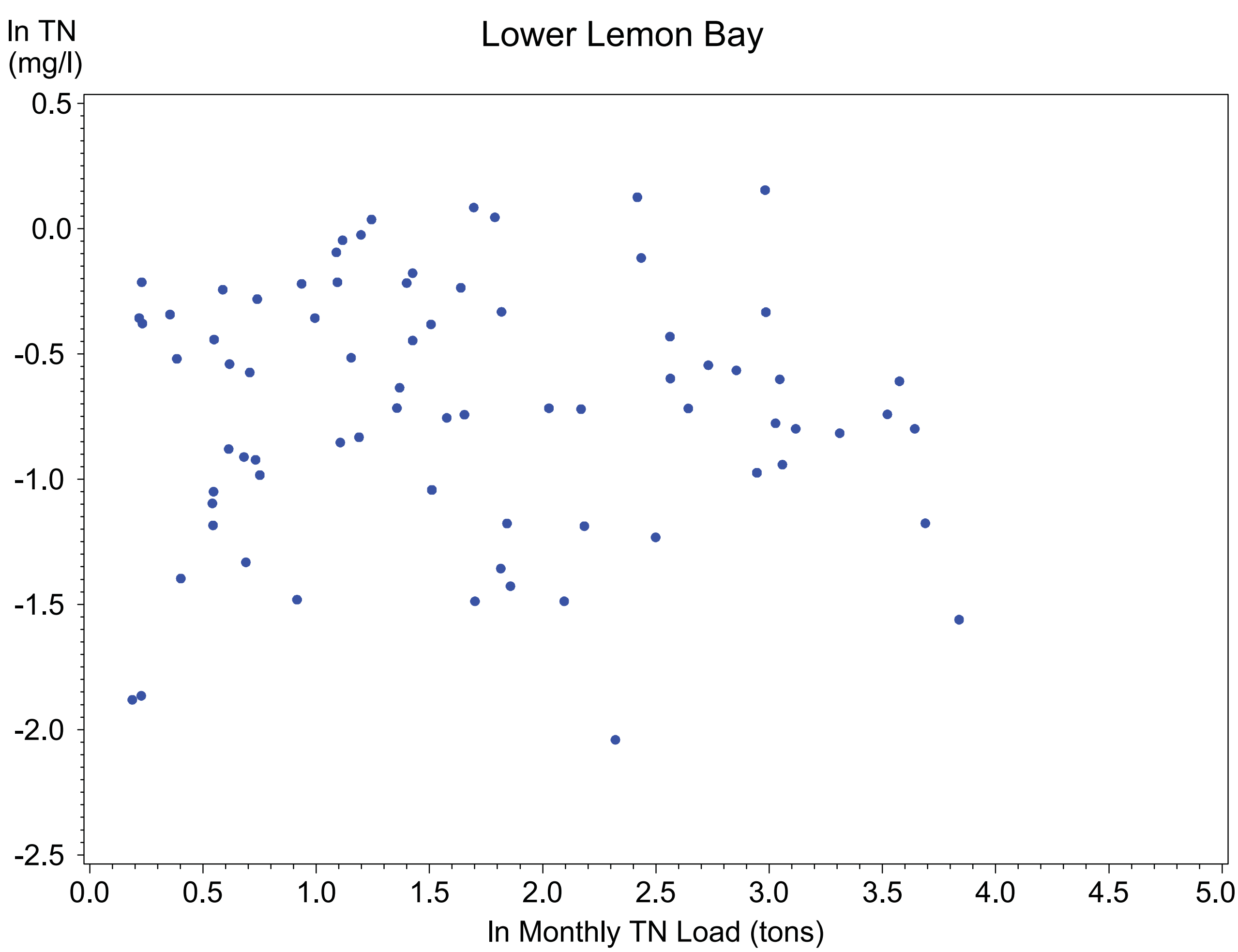


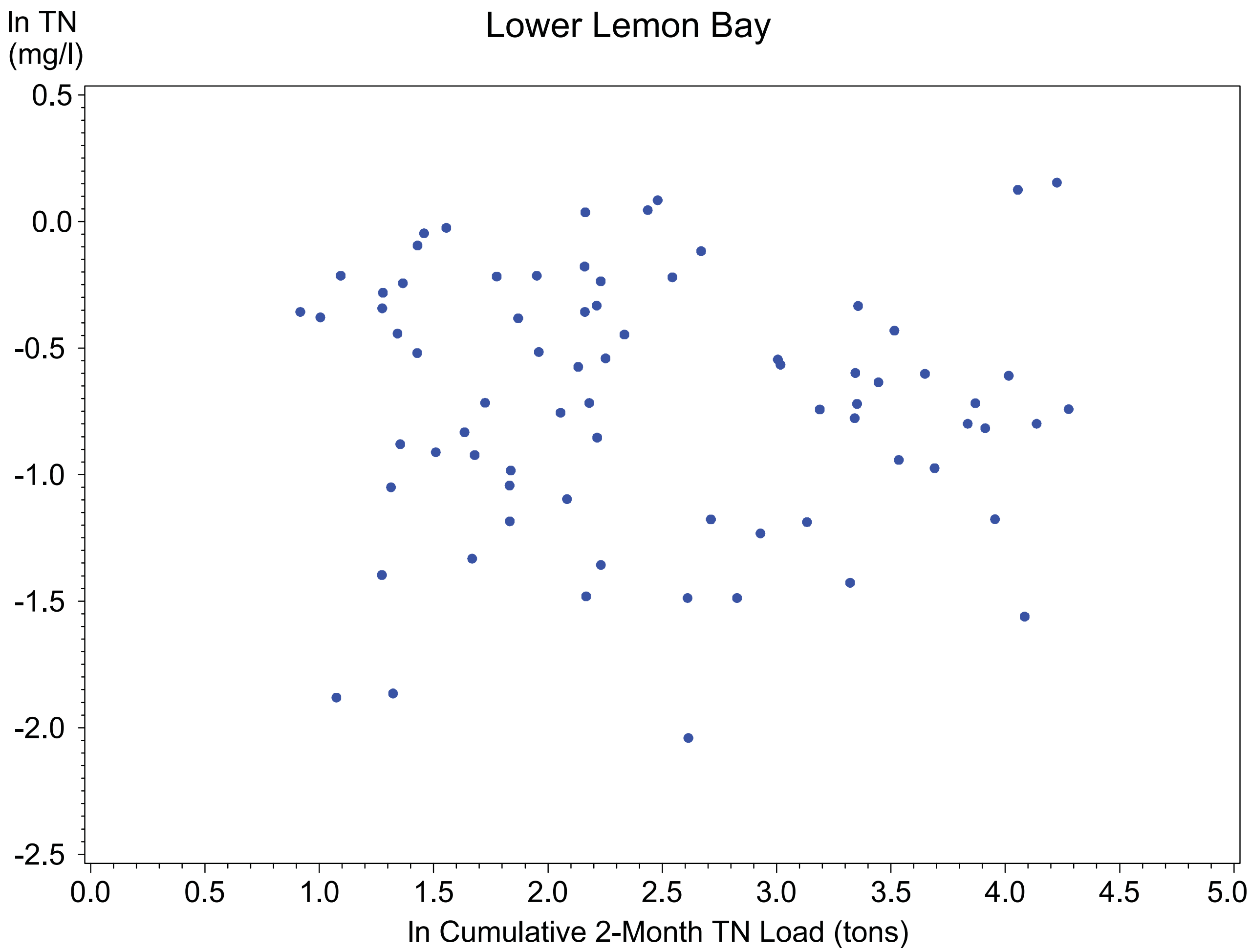
ln TN
(mg/l)
Lower Lemon Bay
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
Monthly TN Load (tons)

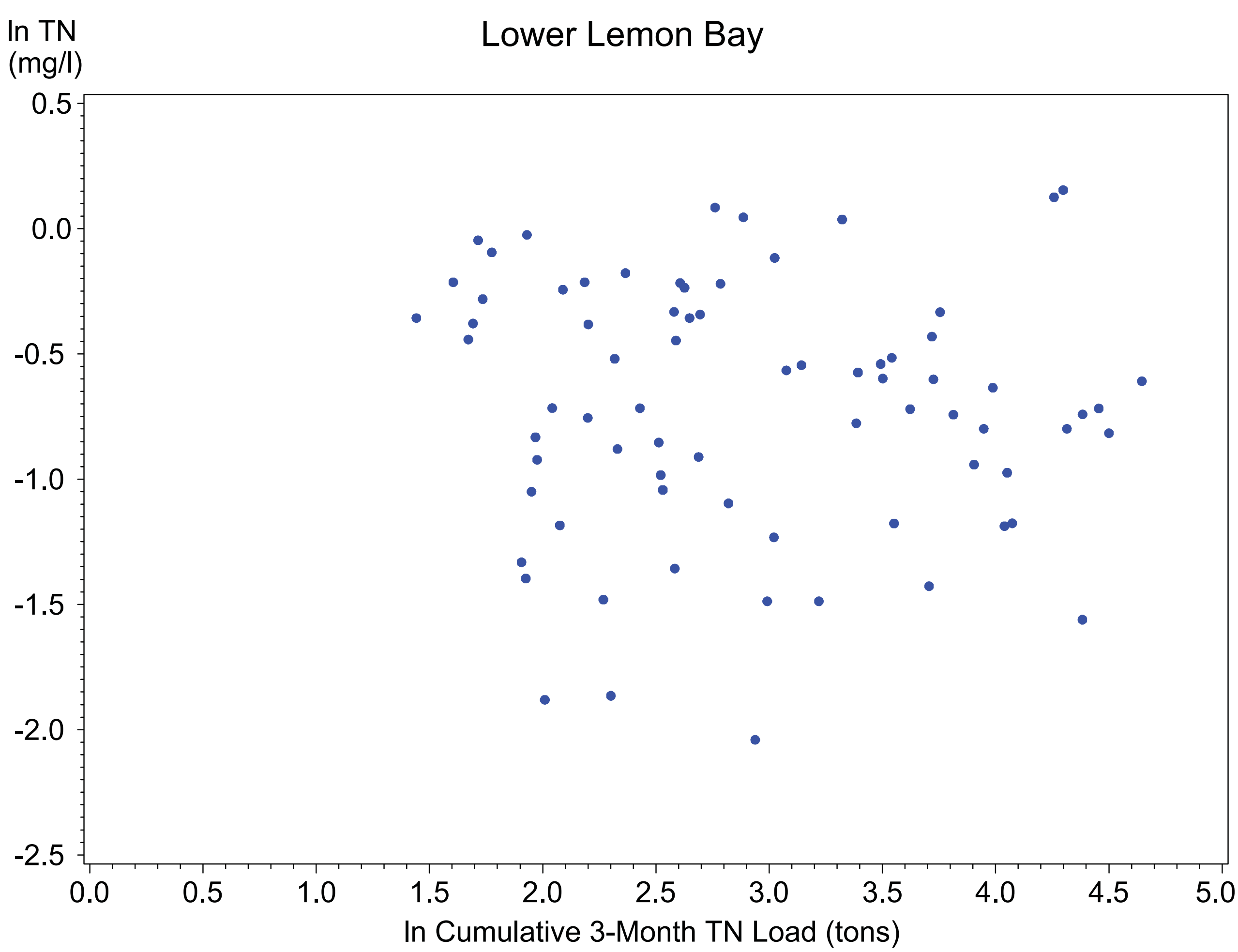


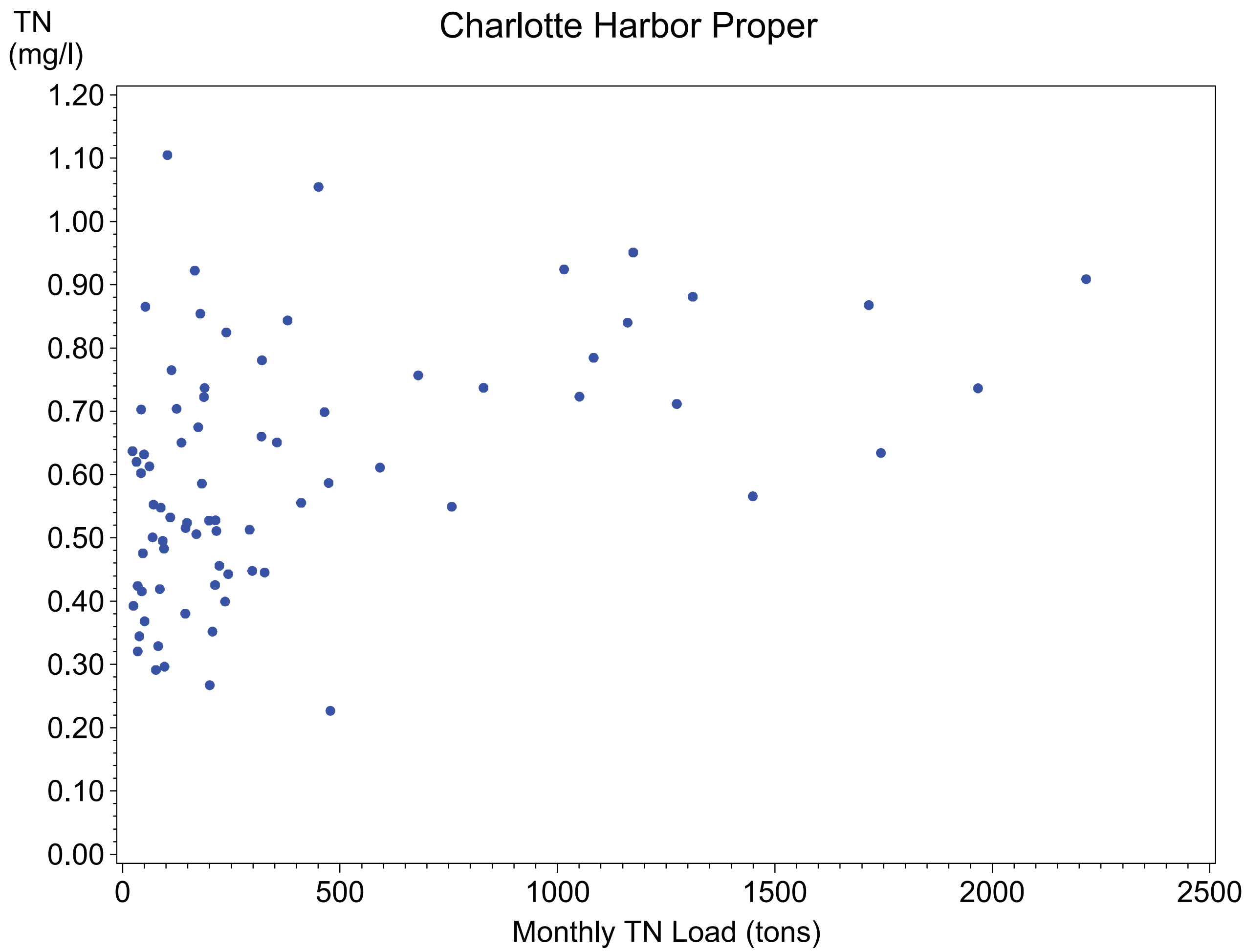
ln TN
(mg/l)
Lower Lemon Bay
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)

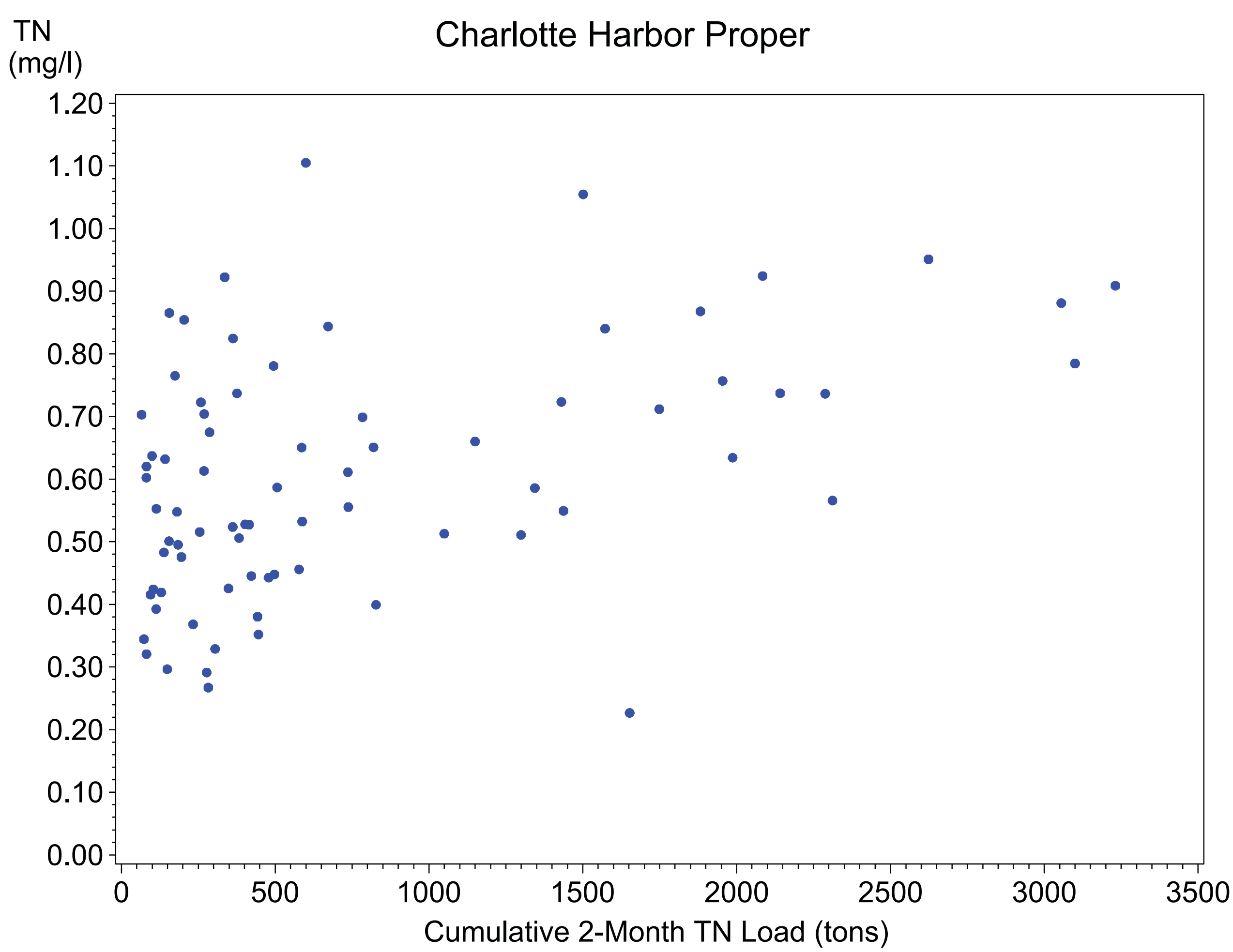

Lower Lemon Bay
ln TN
(mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

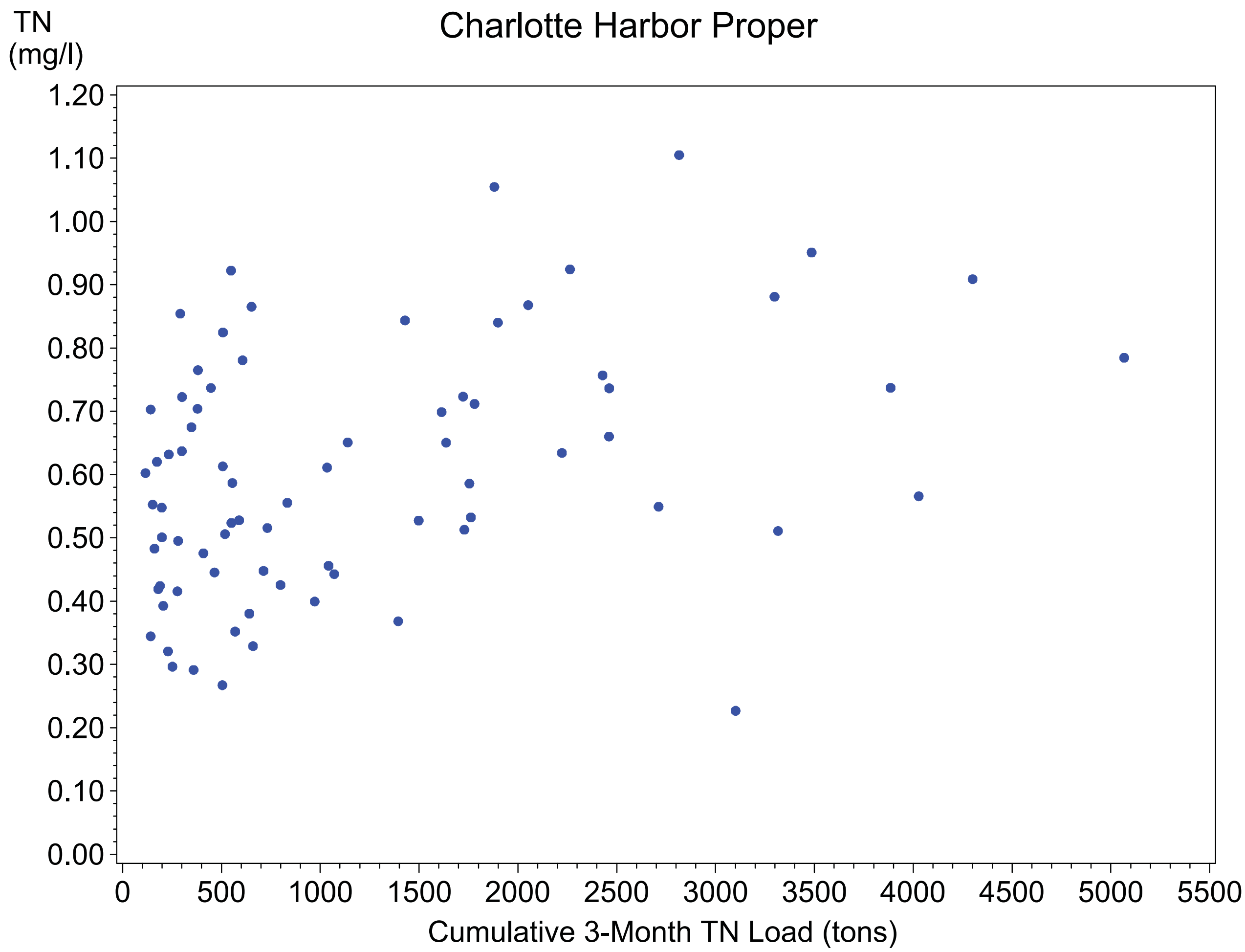

Lower Lemon Bay
ln TN
(mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TN Load (tons)

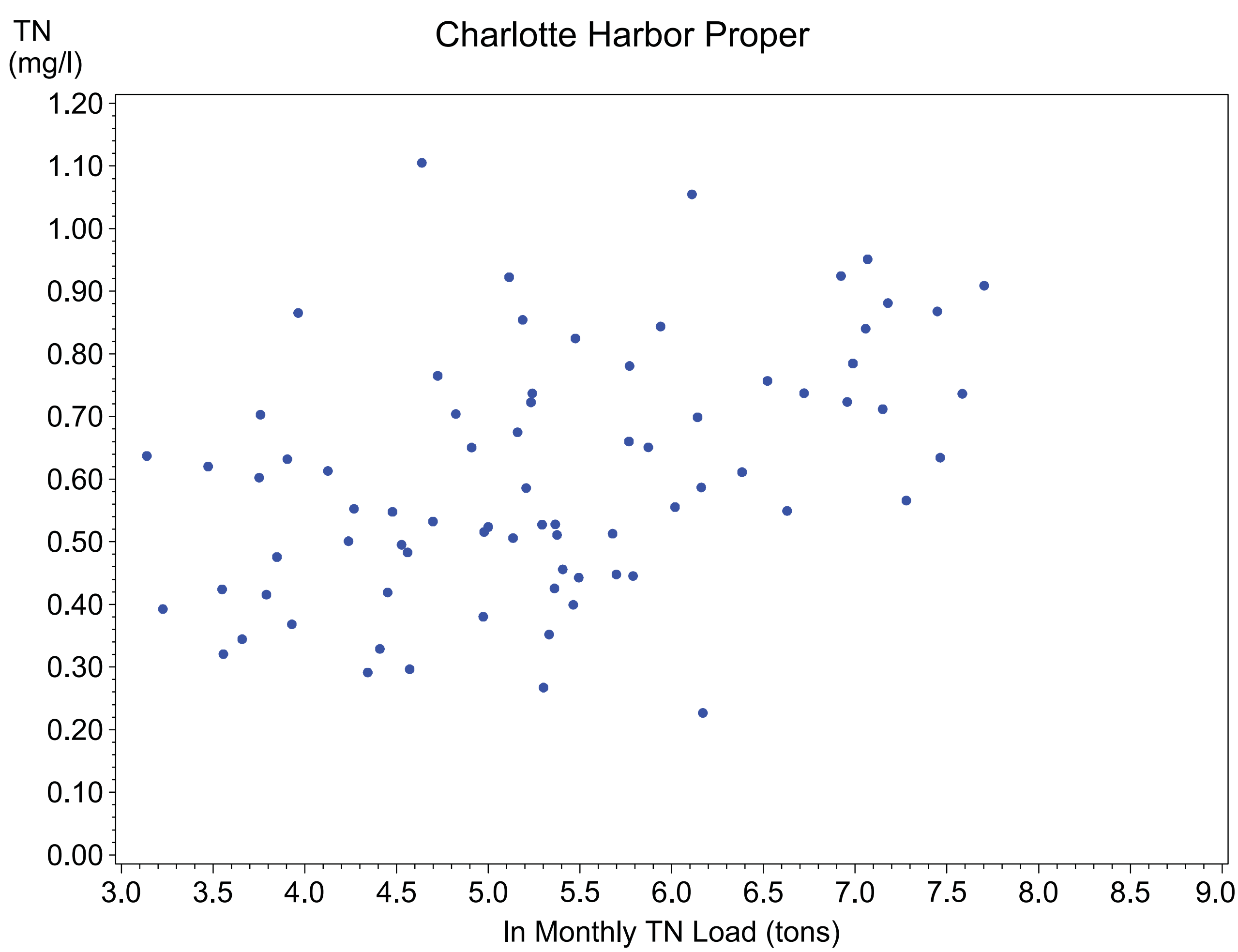

Lower Lemon Bay
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)

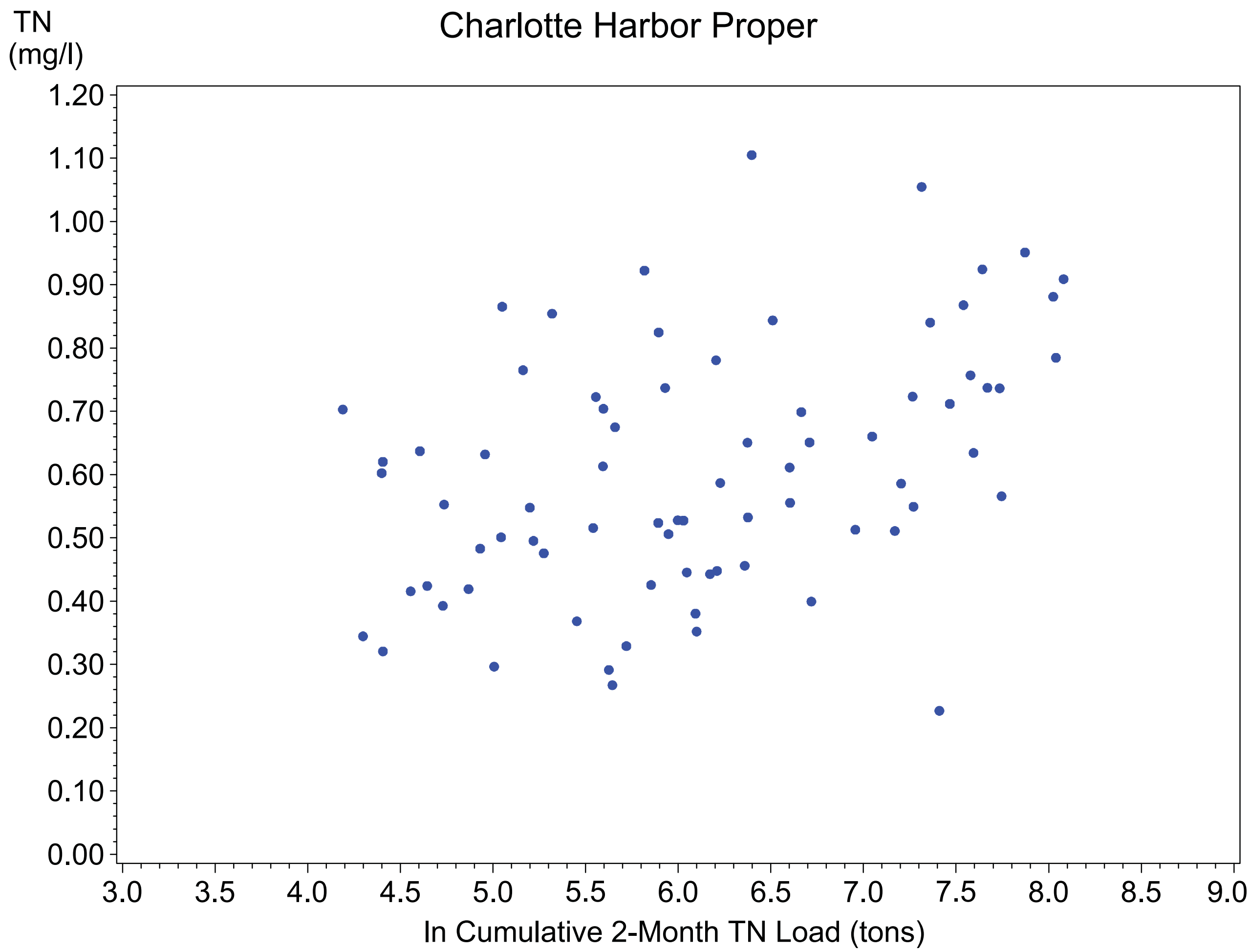

Lower Lemon Bay
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)

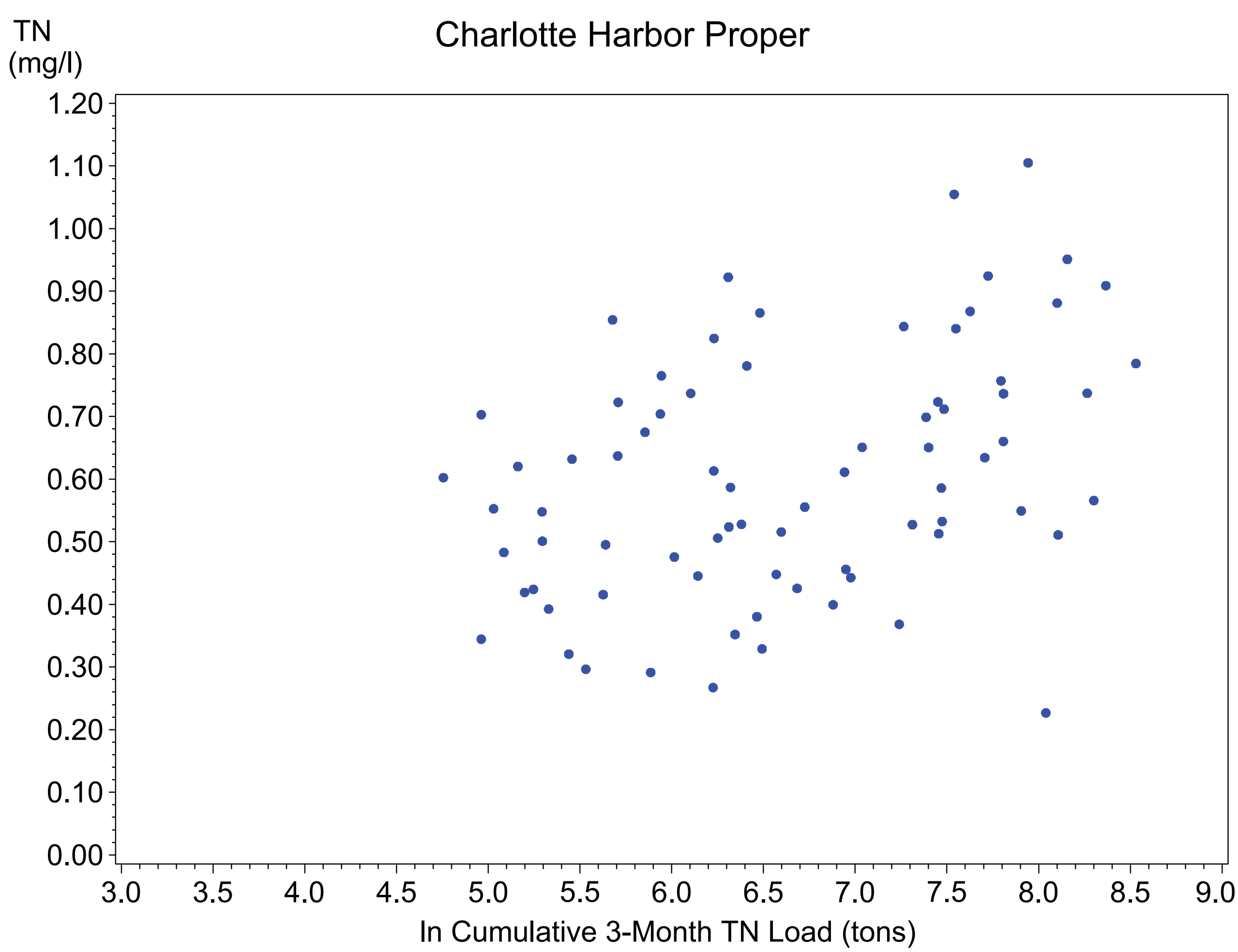

Charlotte Harbor Proper
TN (mg/l)
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
Monthly TN Load (tons)

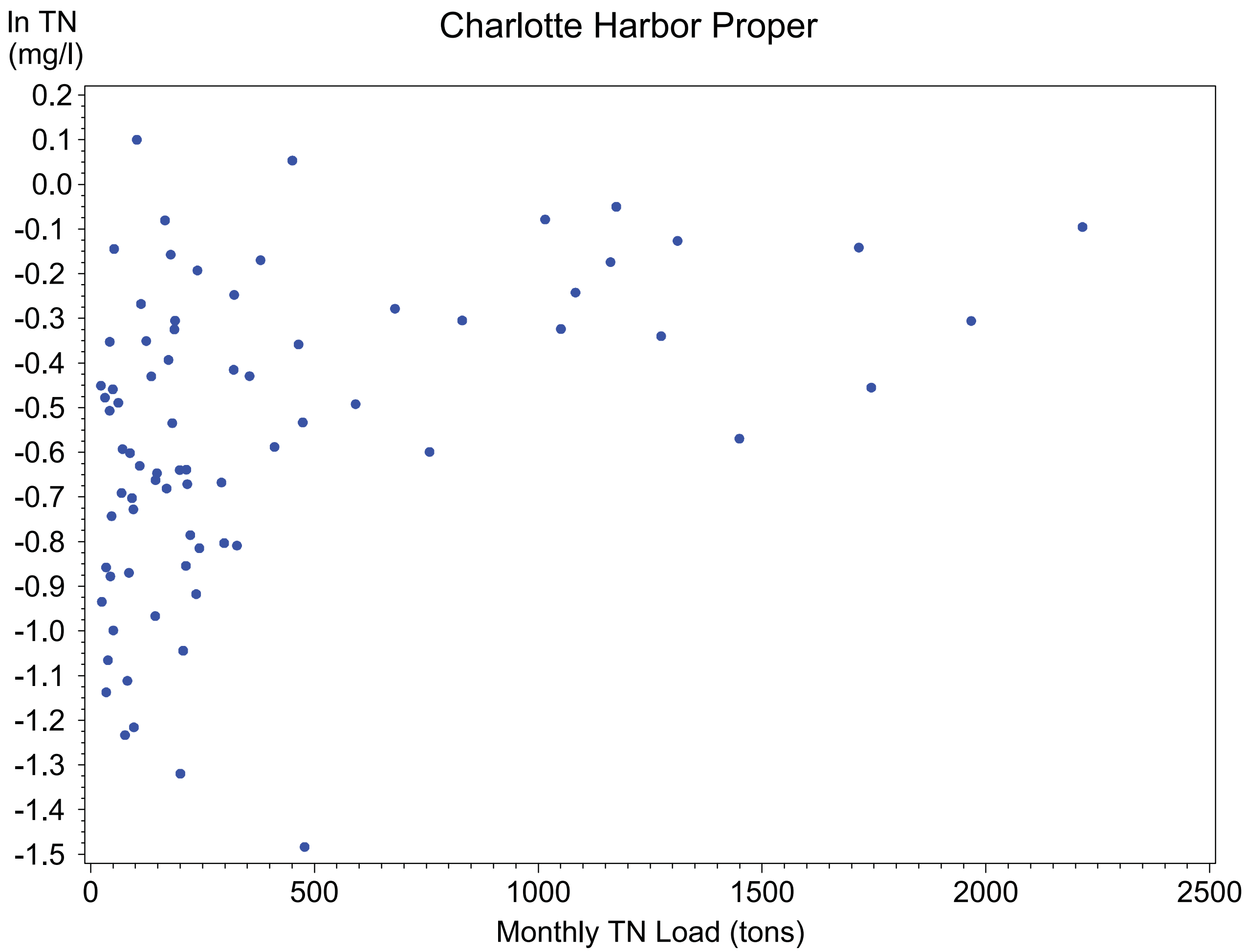

Charlotte Harbor Proper
TN (mg/l)
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
3500
Cumulative 2-Month TN Load (tons)

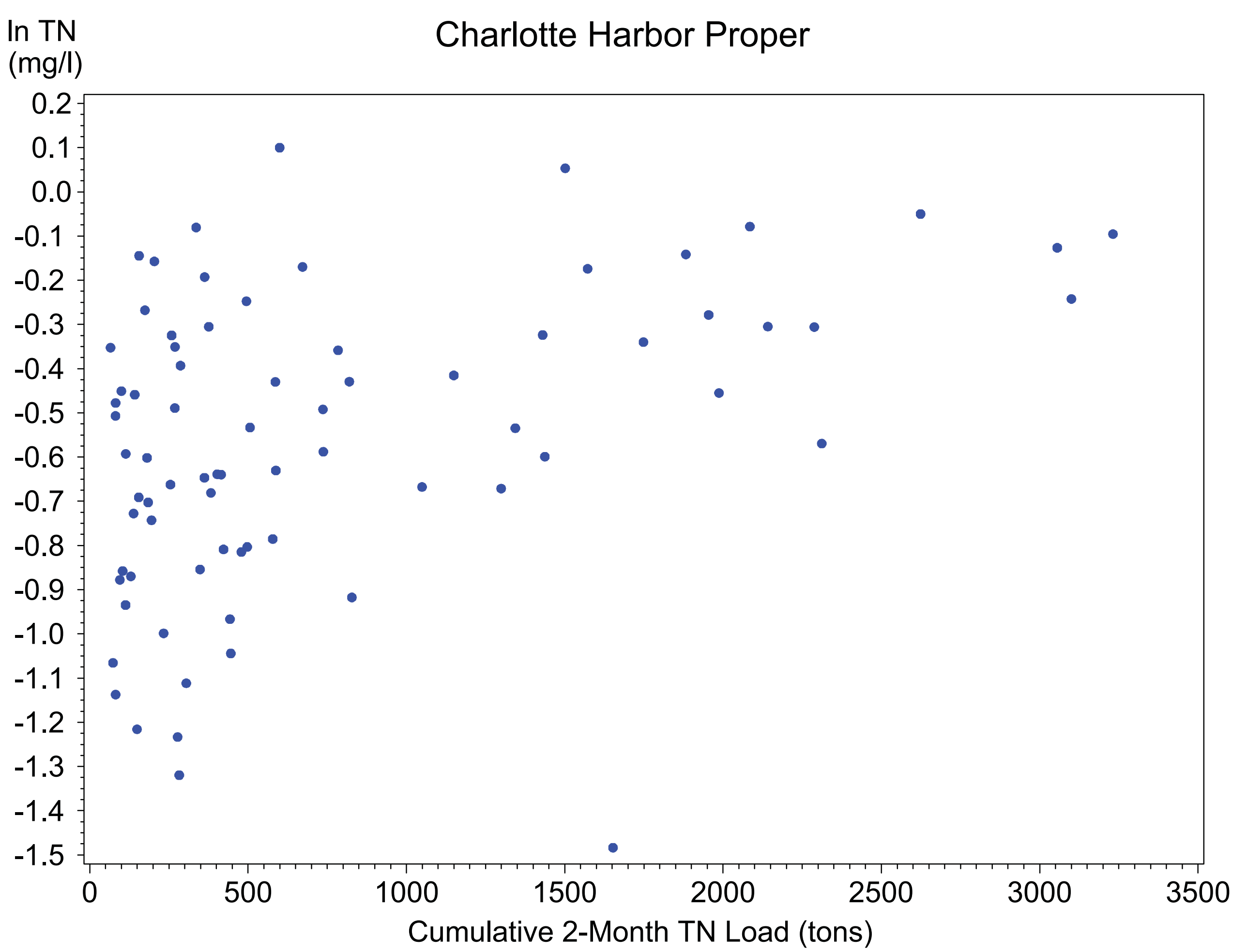

TN
(mg/l)
Charlotte Harbor Proper
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
Cumulative 3-Month TN Load (tons)

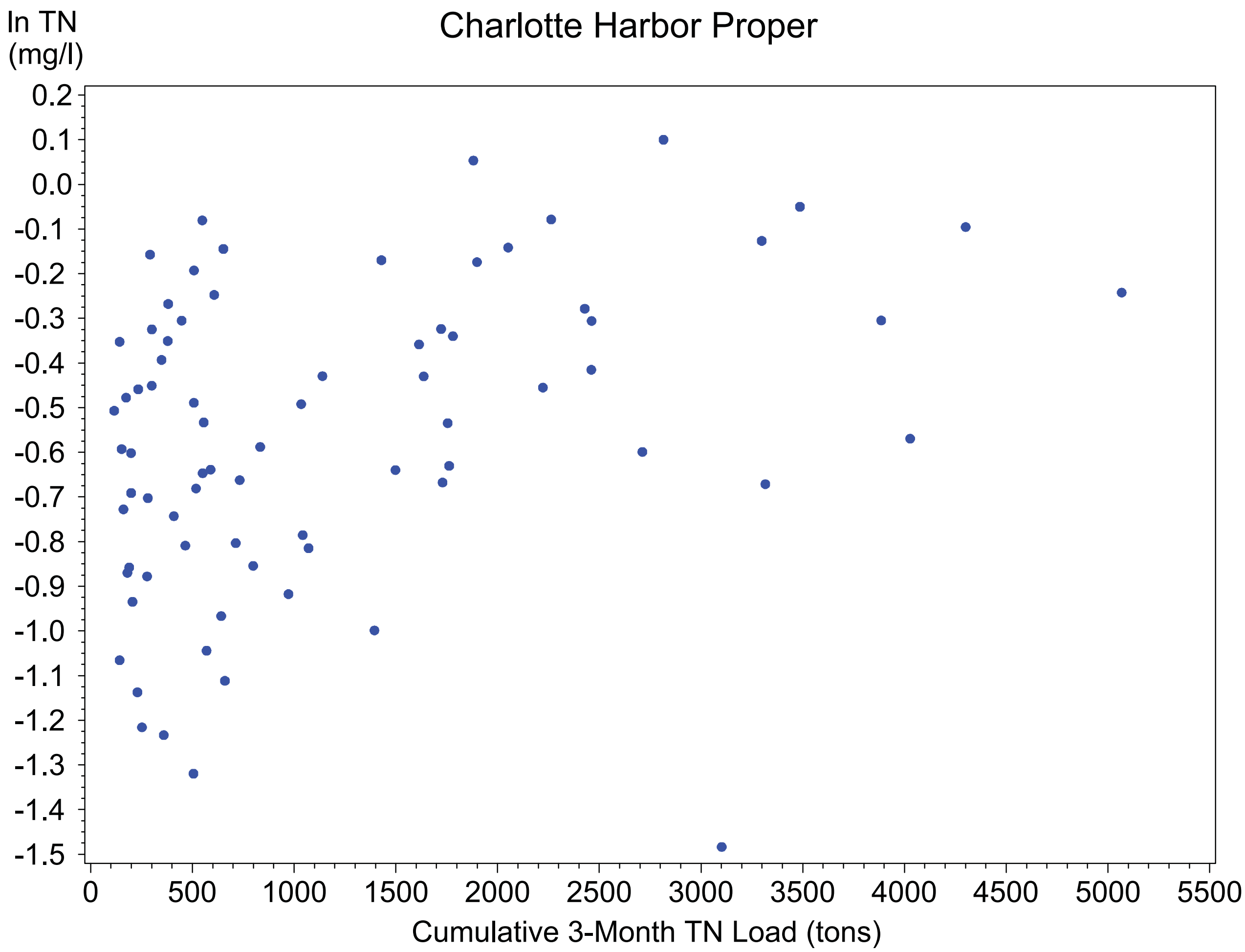

TN
(mg/l)
Charlotte Harbor Proper
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Monthly TN Load (tons)

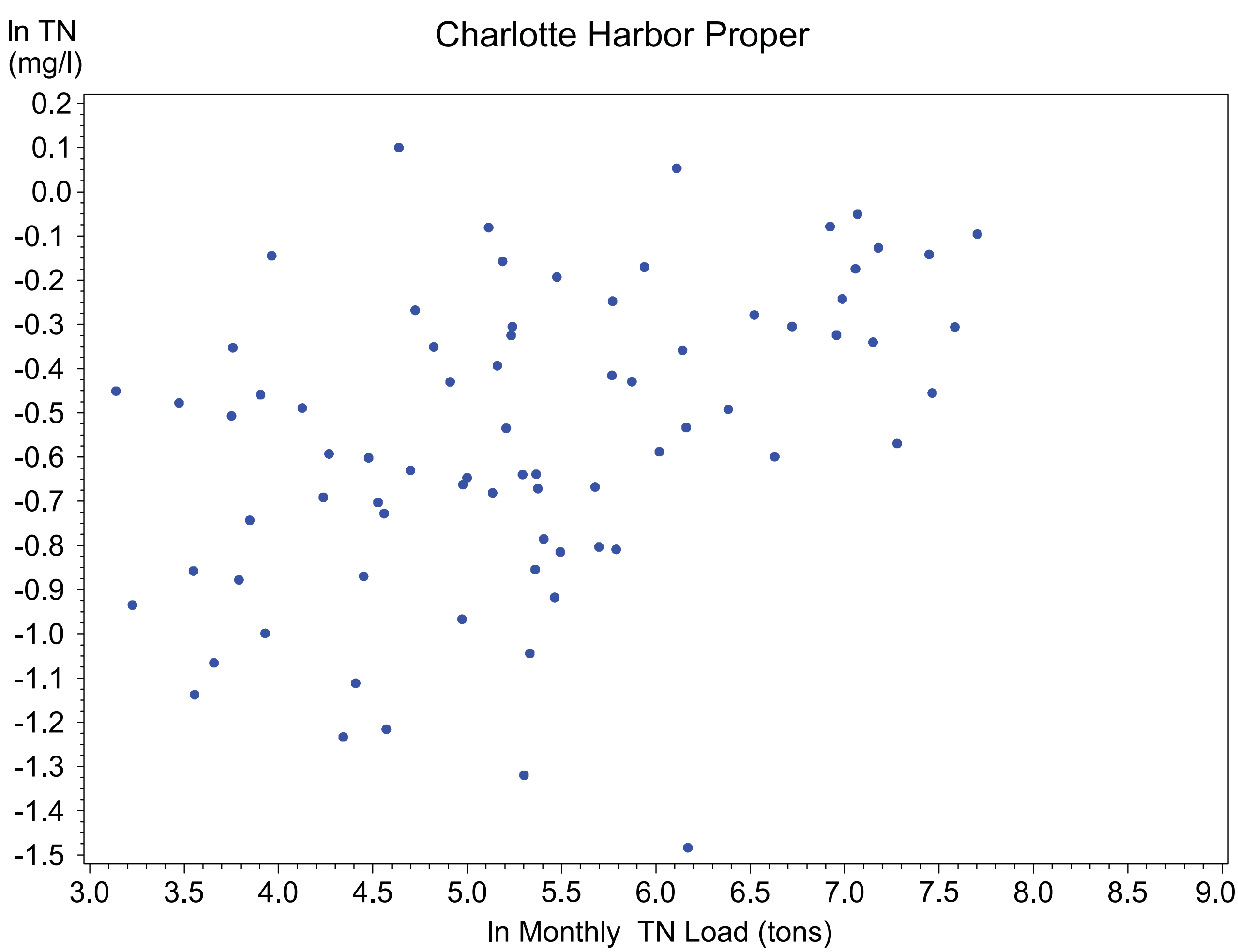

TN
(mg/l)
Charlotte Harbor Proper
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 2-Month TN Load (tons)

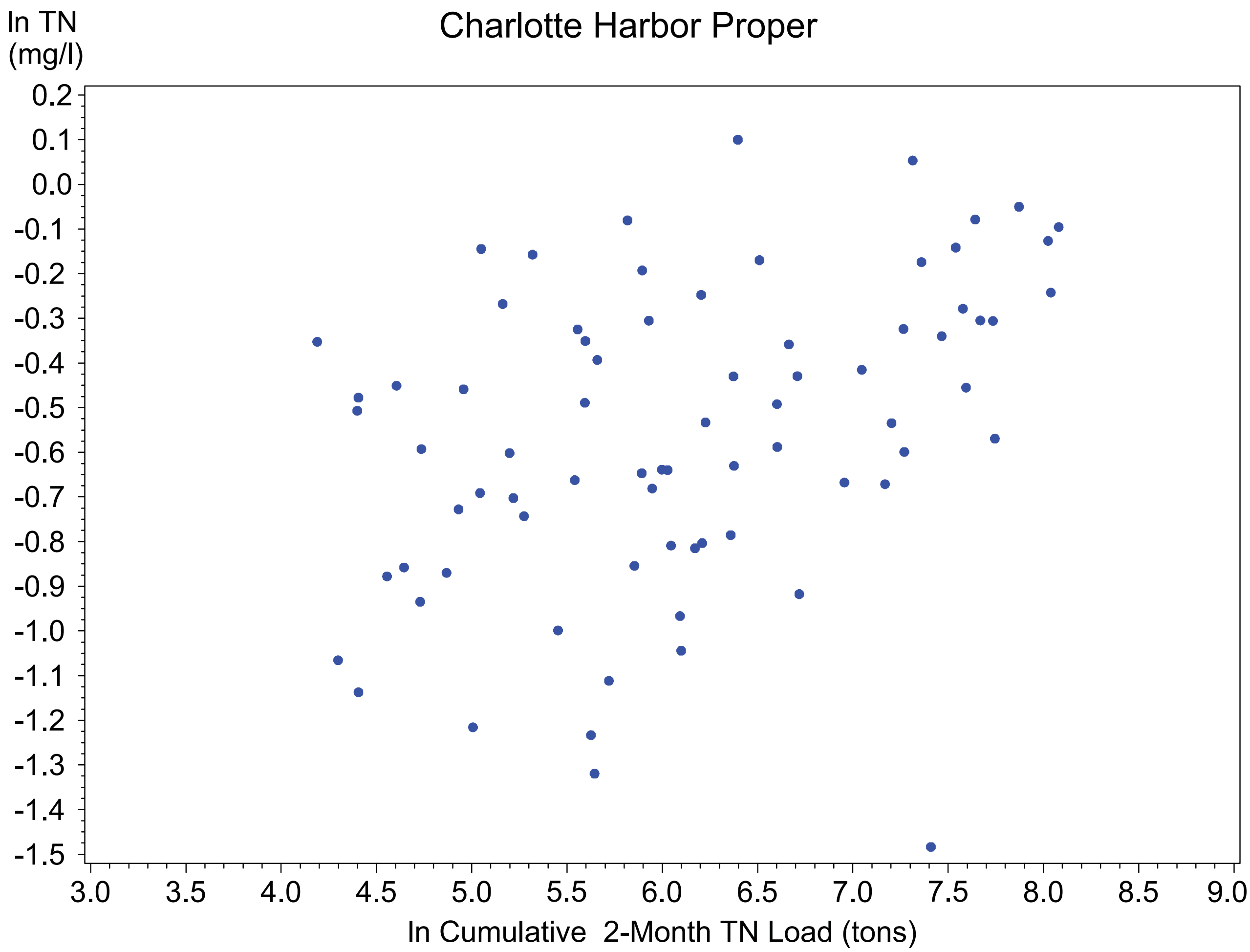

TN
(mg/l)
Charlotte Harbor Proper
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 3-Month TN Load (tons)

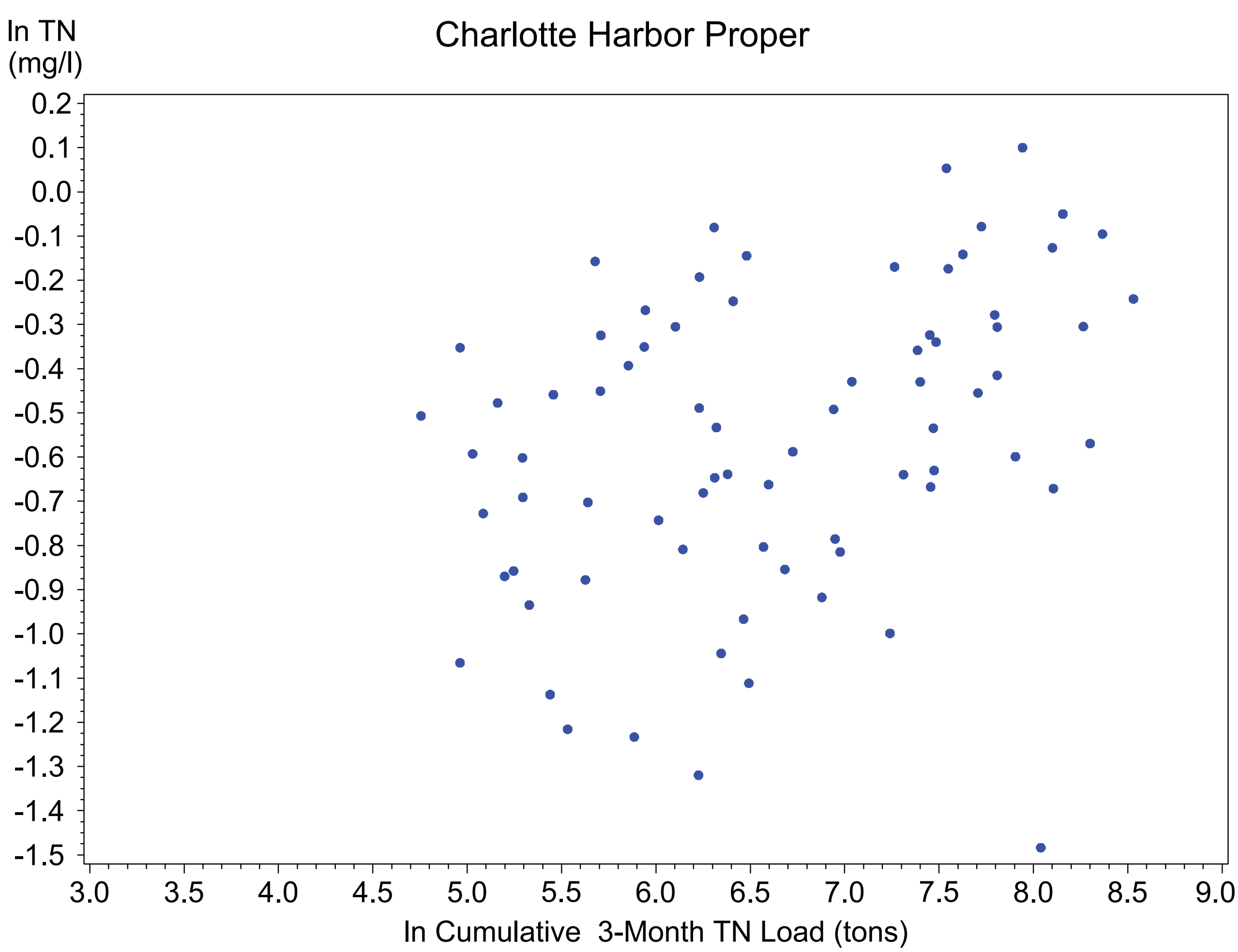

Charlotte Harbor Proper
ln TN (mg/l)
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
500
1000
1500
2000
2500
Monthly TN Load (tons)

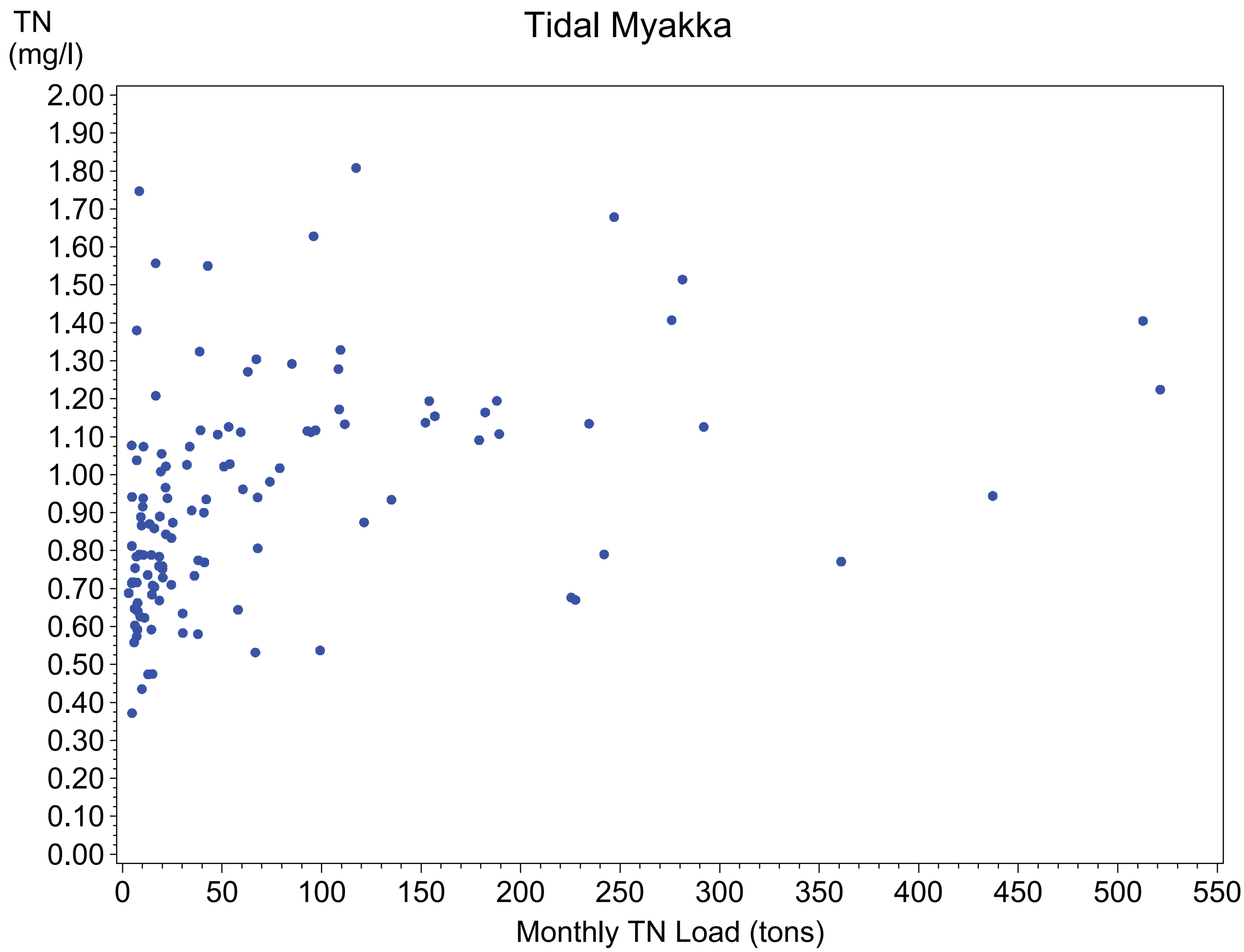

Charlotte Harbor Proper
ln TN (mg/l)
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
500
1000
1500
2000
2500
3000
3500
Cumulative 2-Month TN Load (tons)

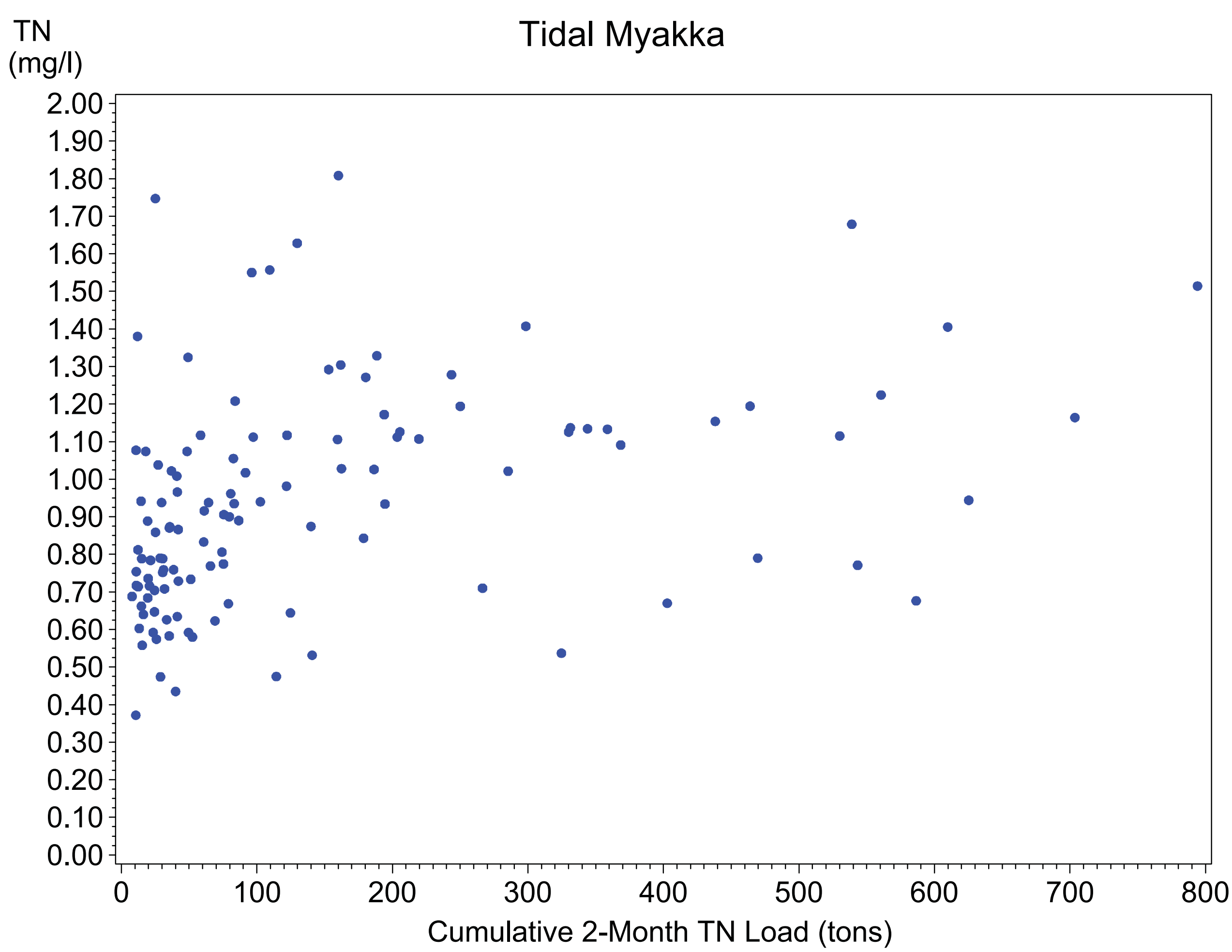

ln TN
(mg/l)
Charlotte Harbor Proper
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
Cumulative 3-Month TN Load (tons)

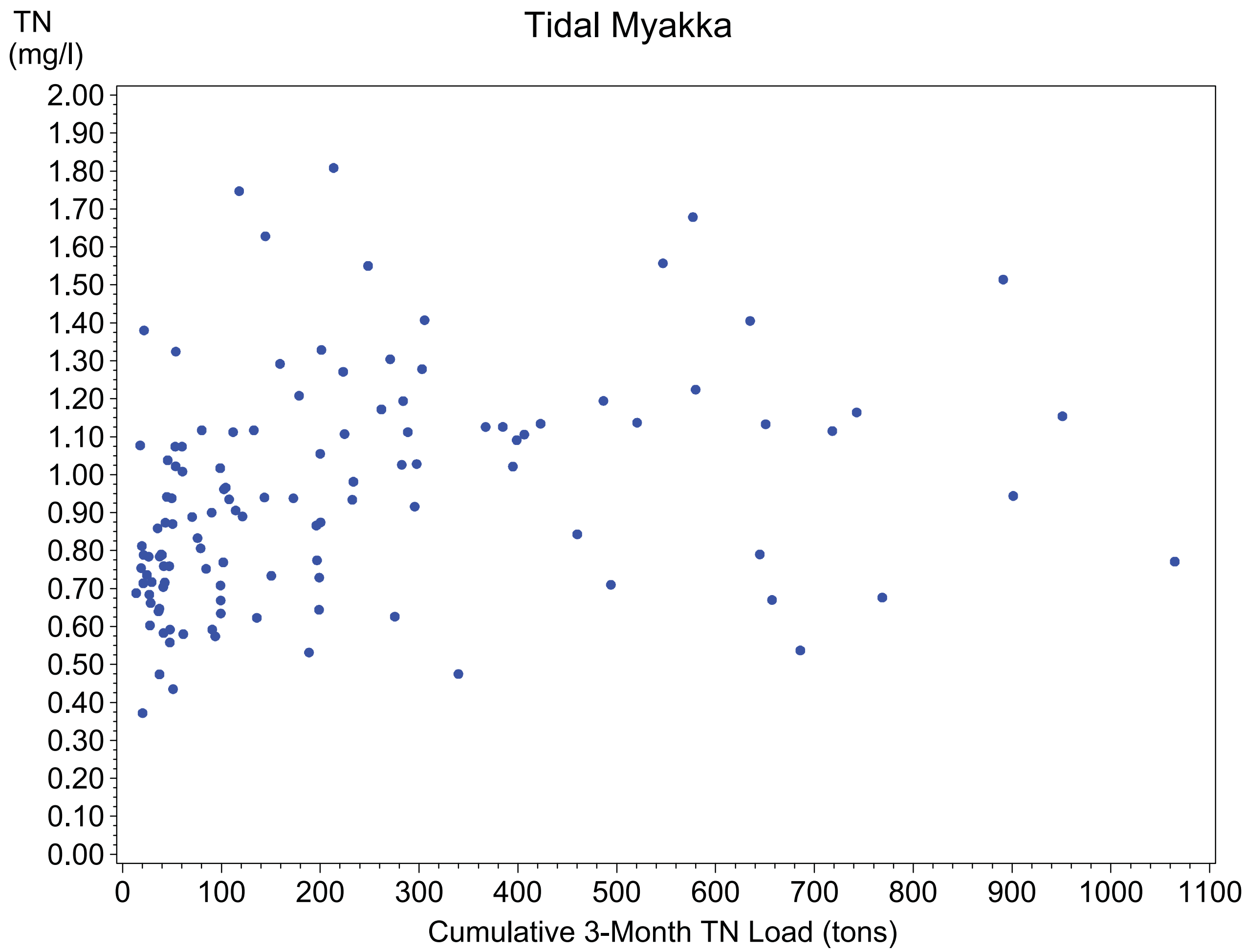

ln TN
(mg/l)
Charlotte Harbor Proper
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Monthly TN Load (tons)

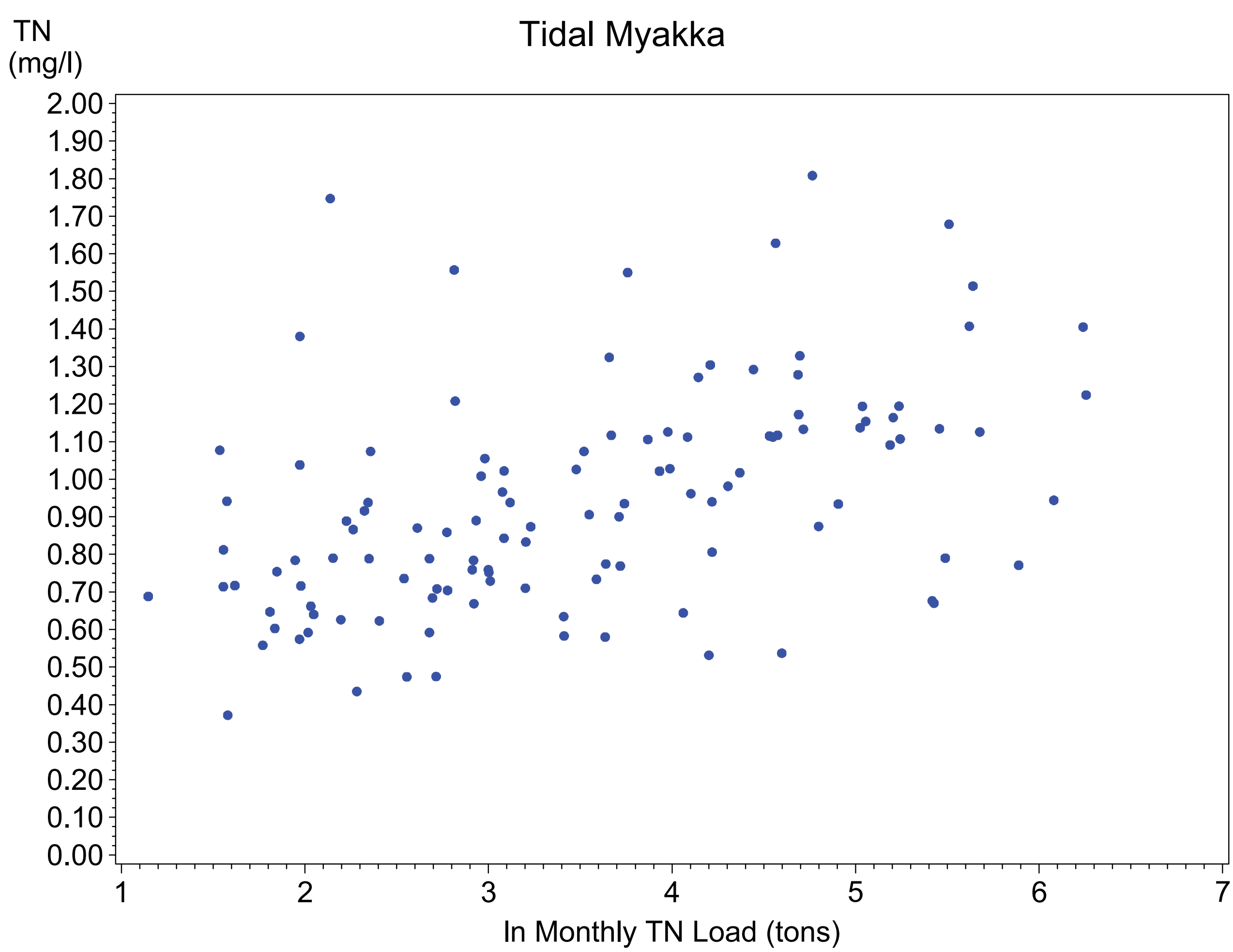

ln TN
(mg/l)
Charlotte Harbor Proper
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 2-Month TN Load (tons)

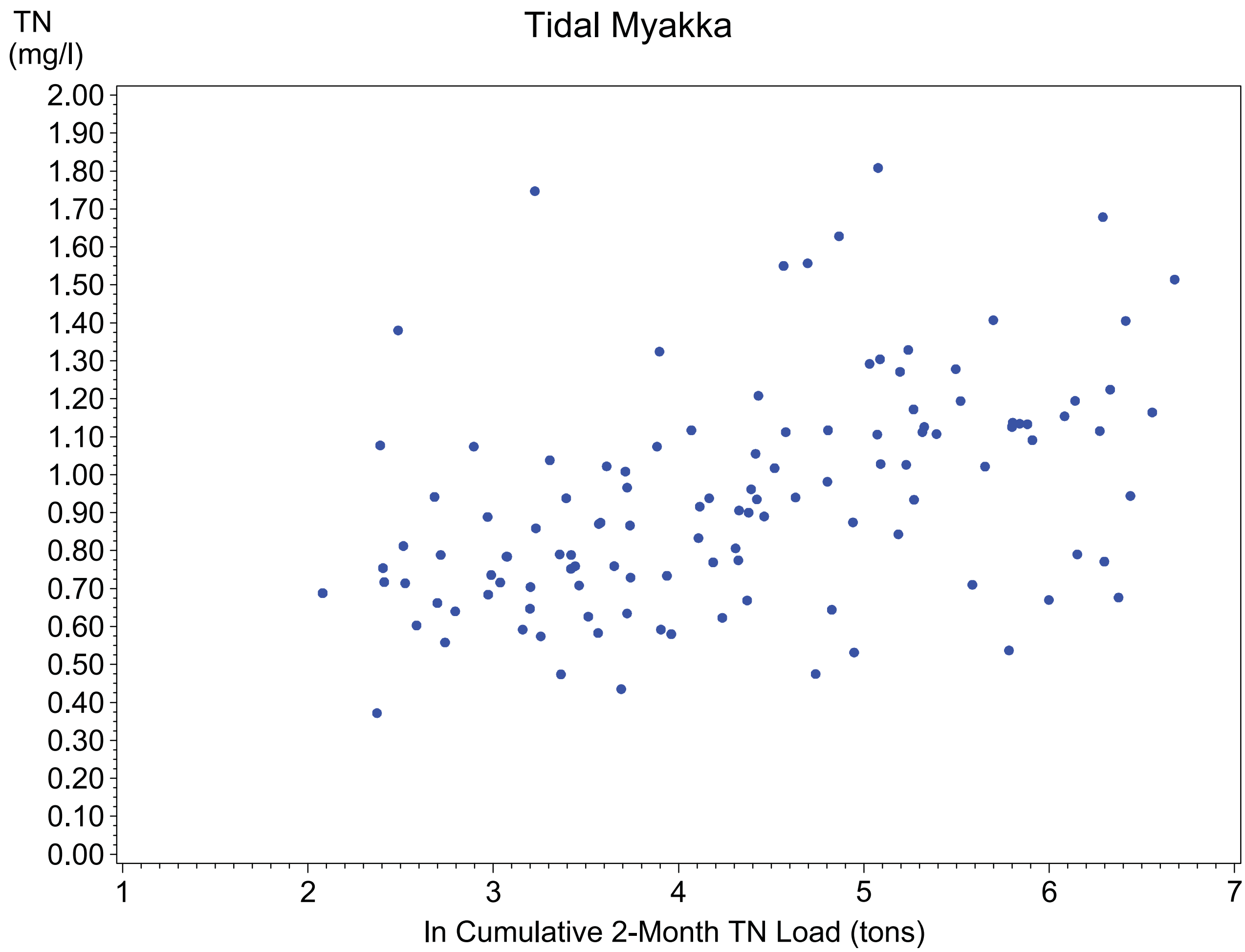

ln TN
(mg/l)
Charlotte Harbor Proper
0.2
0.1
0.0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 3-Month TN Load (tons)

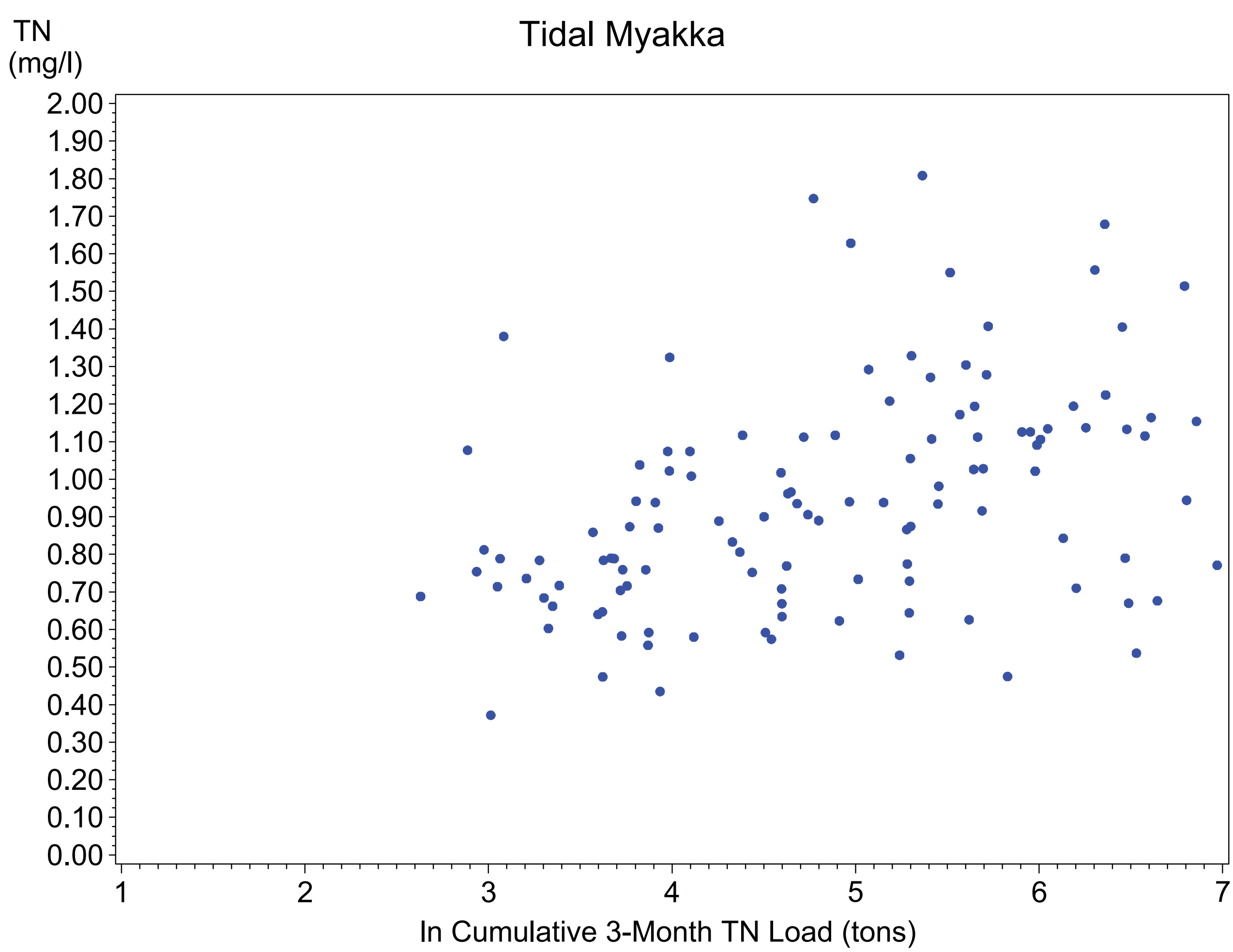

Tidal Myakka
TN (mg/l)
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00
0 50 100 150 200 250 300 350 400 450 500 550
Monthly TN Load (tons)

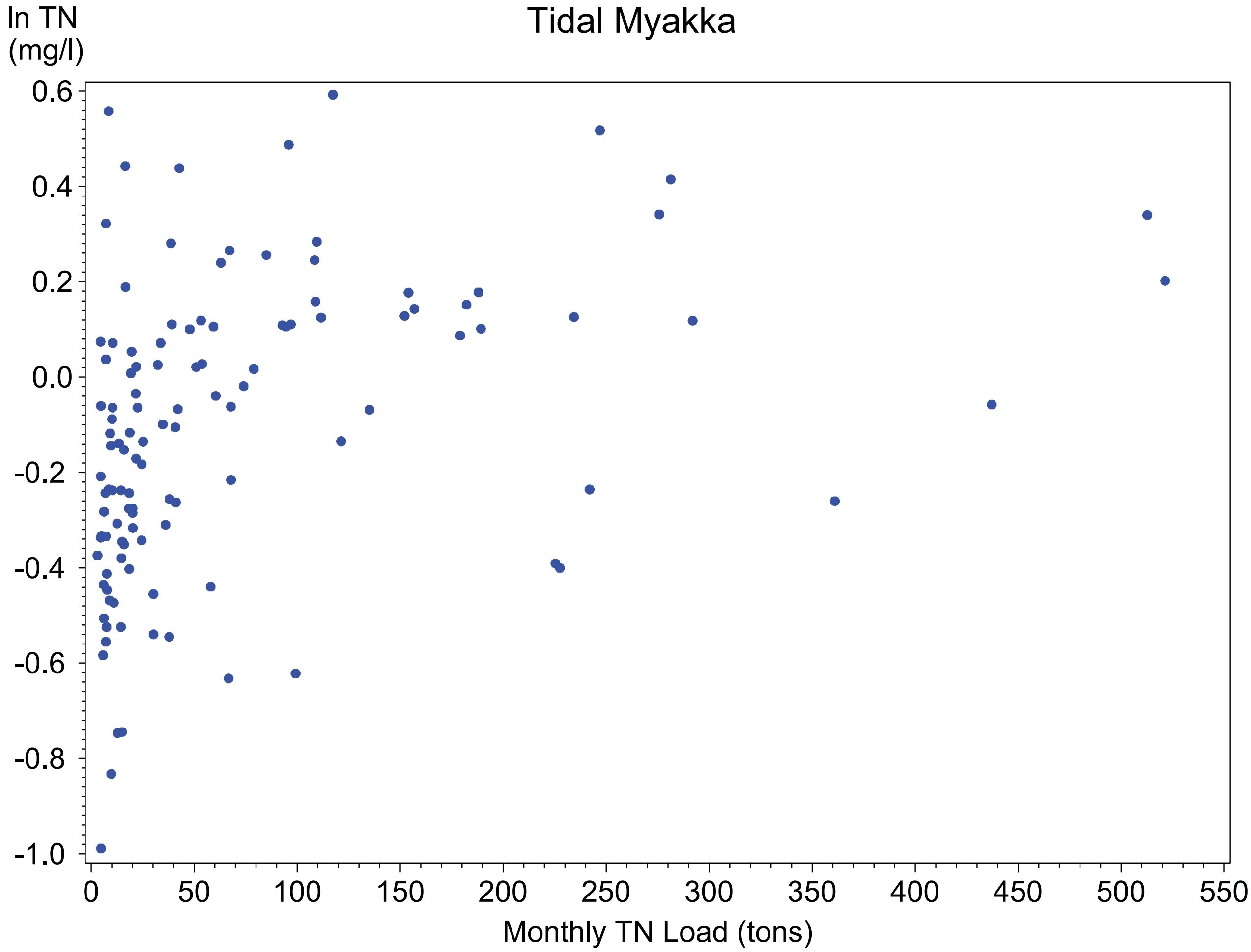

Tidal Myakka
TN (mg/l)
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00
0 100 200 300 400 500 600 700 800
Cumulative 2-Month TN Load (tons)

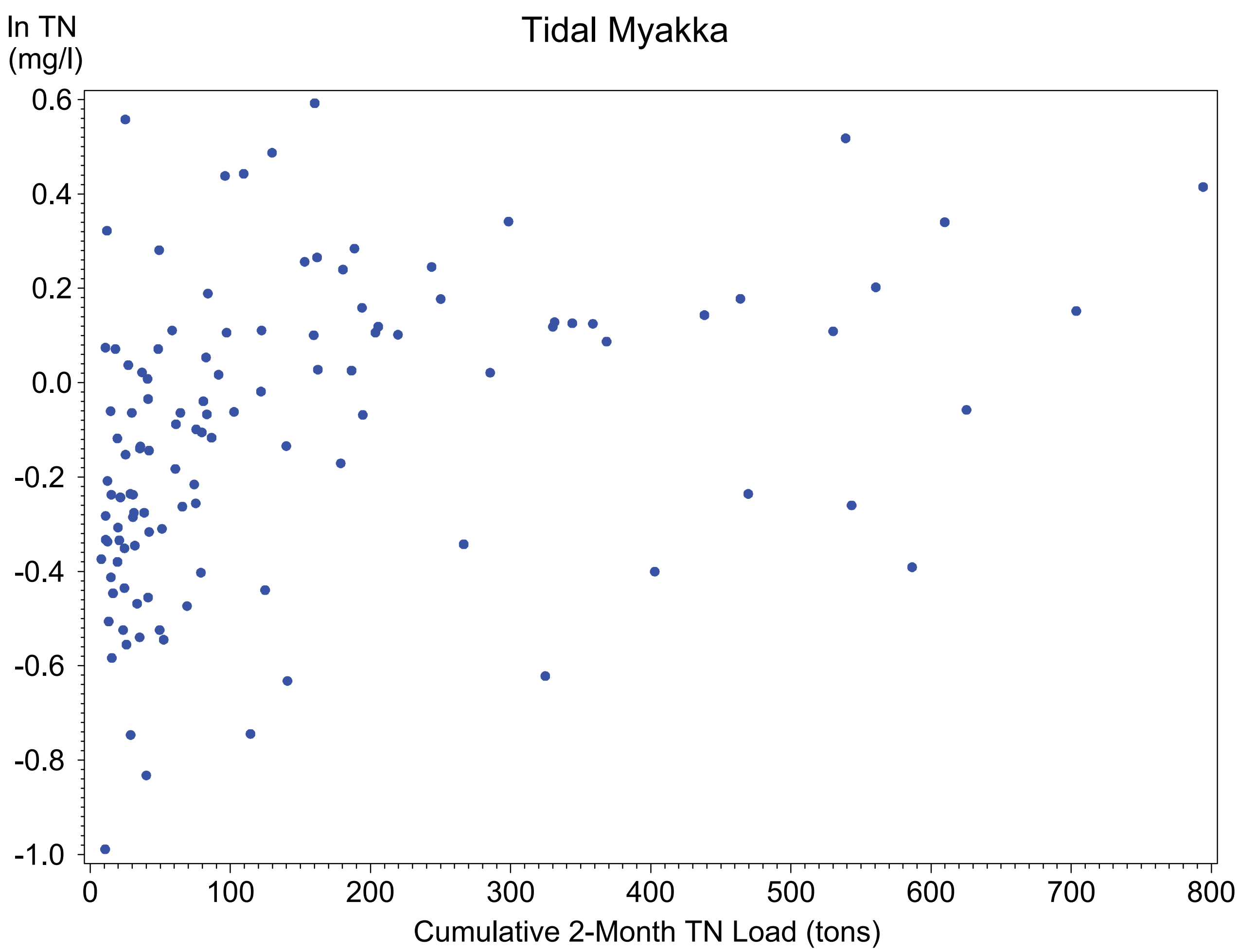

Tidal Myakka
TN
(mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
100
200
300
400
500
600
700
800
900
1000
1100
Cumulative 3-Month TN Load (tons)

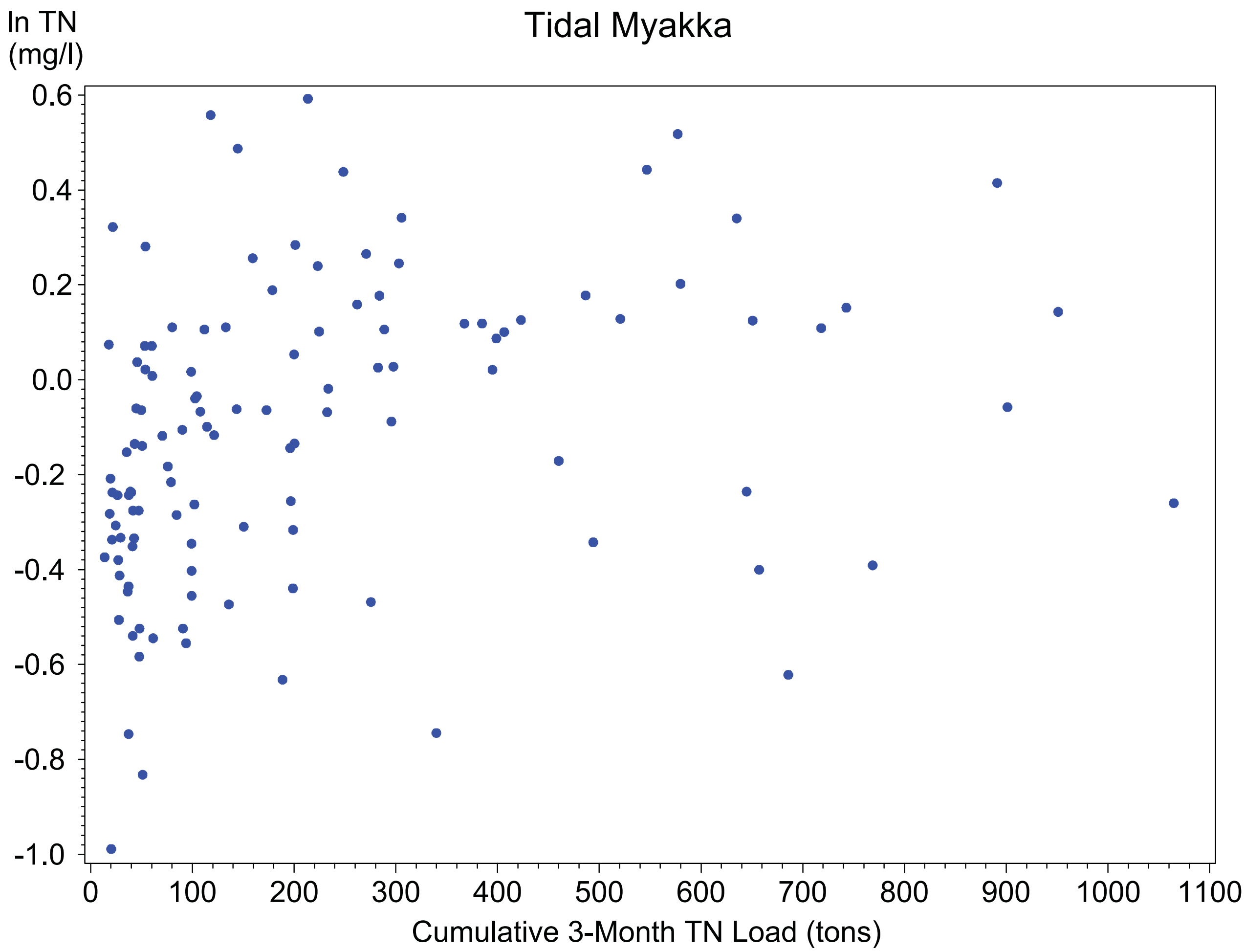

Tidal Myakka
TN
(mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Monthly TN Load (tons)


TN
(mg/l)
Tidal Myakka
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Cumulative 2-Month TN Load (tons)

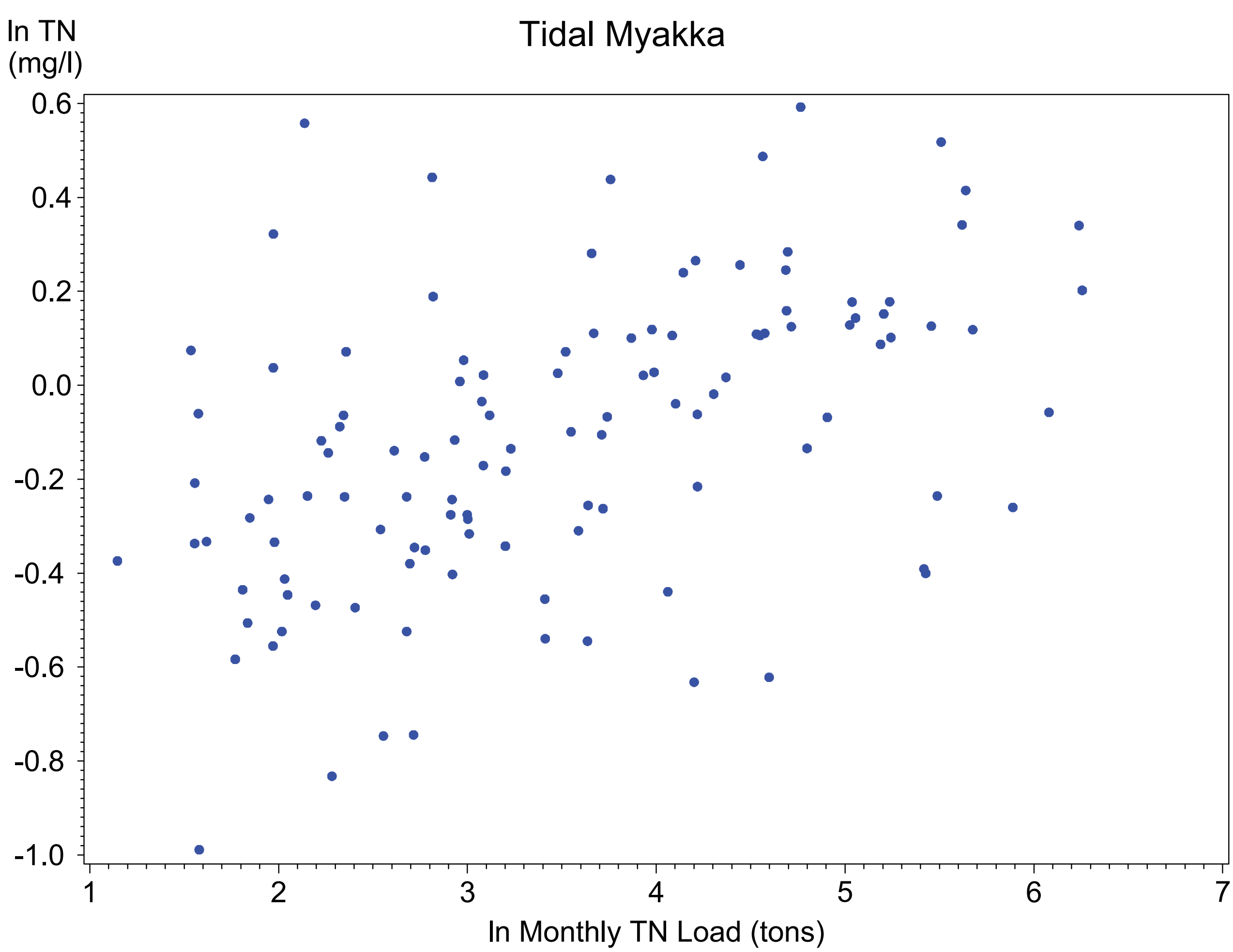

TN
(mg/l)
Tidal Myakka
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Cumulative 3-Month TN Load (tons)


Tidal Myakka
ln TN
(mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
0
50
100
150
200
250
300
350
400
450
500
550
Monthly TN Load (tons)

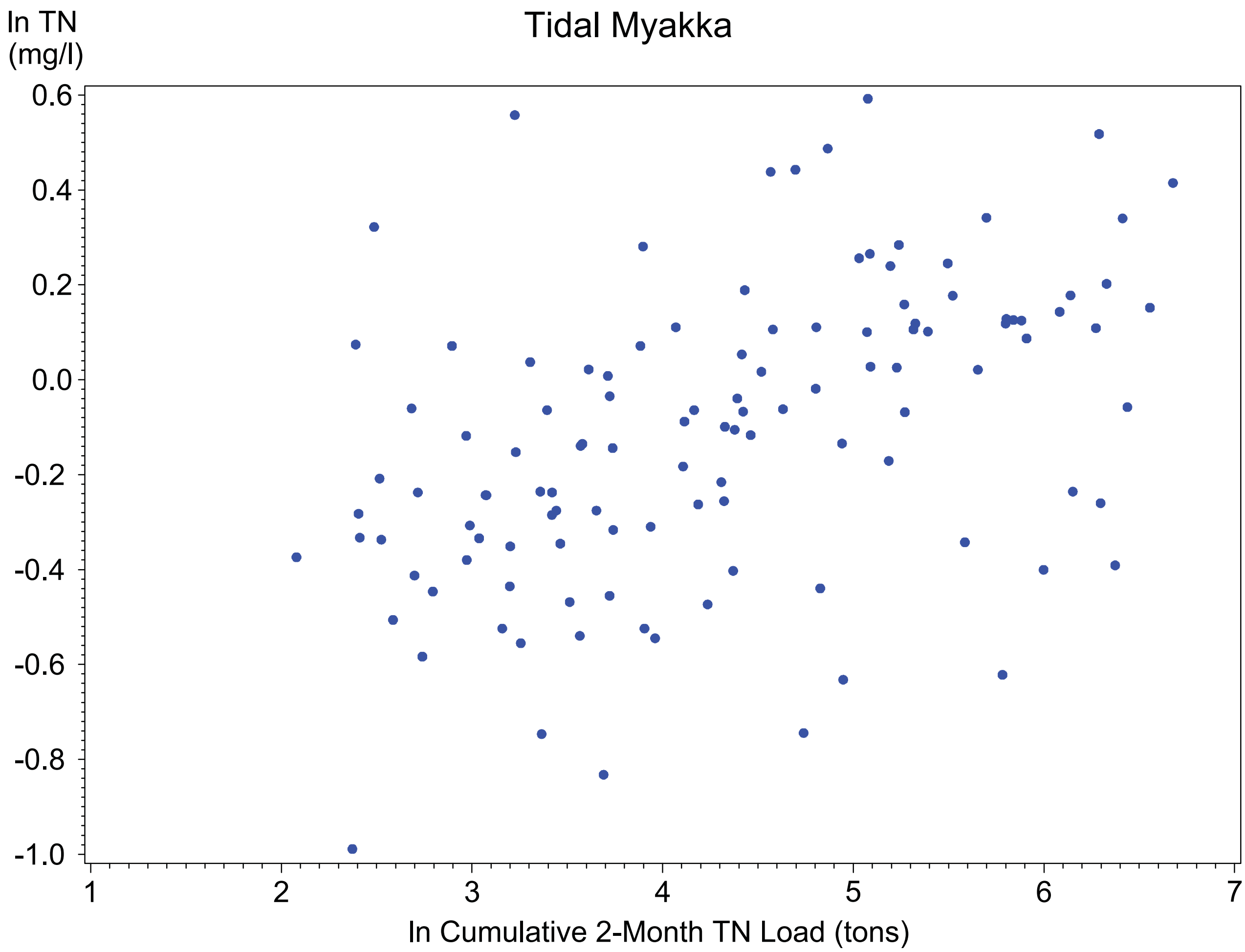

Tidal Myakka
ln TN
(mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
0
100
200
300
400
500
600
700
800
Cumulative 2-Month TN Load (tons)

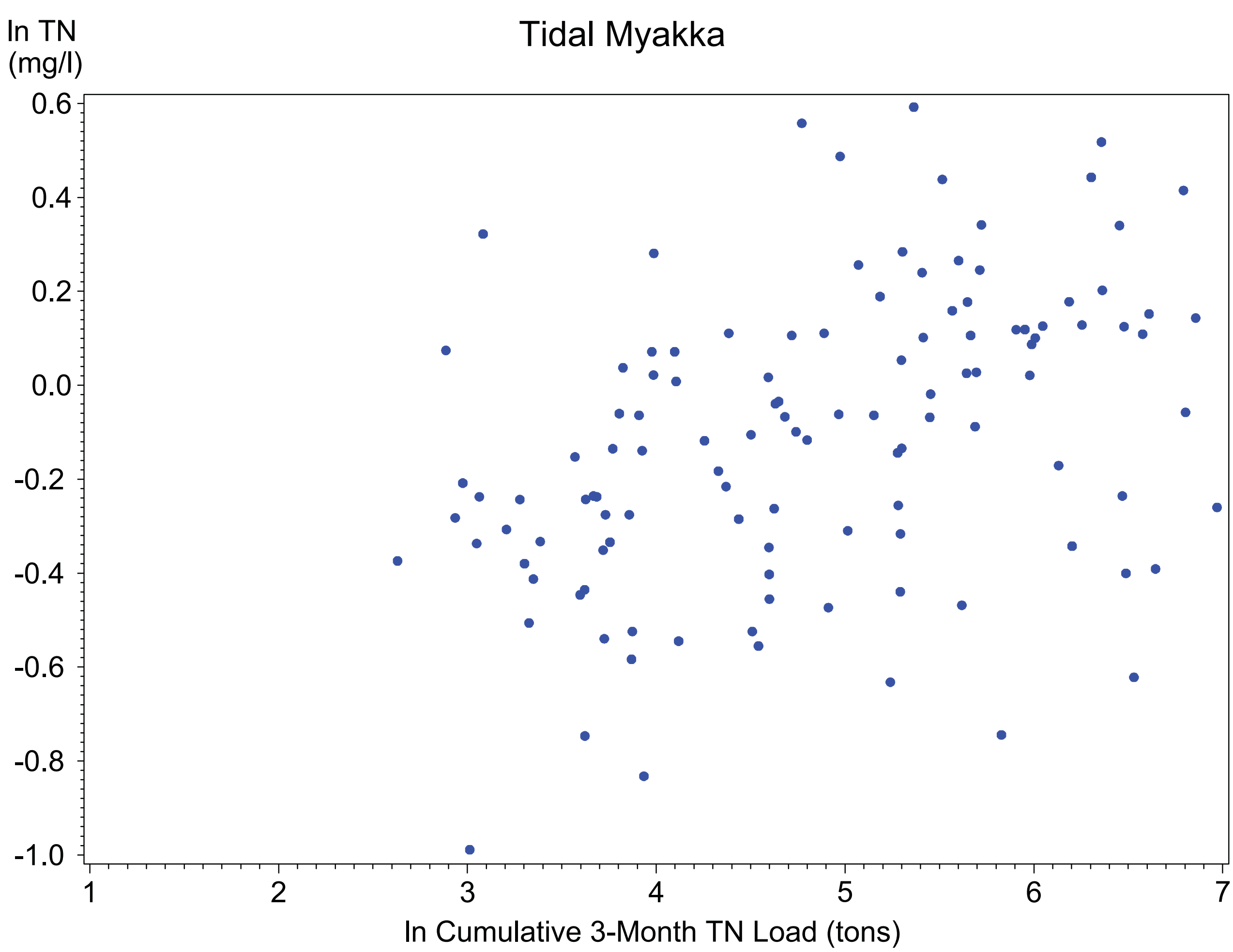


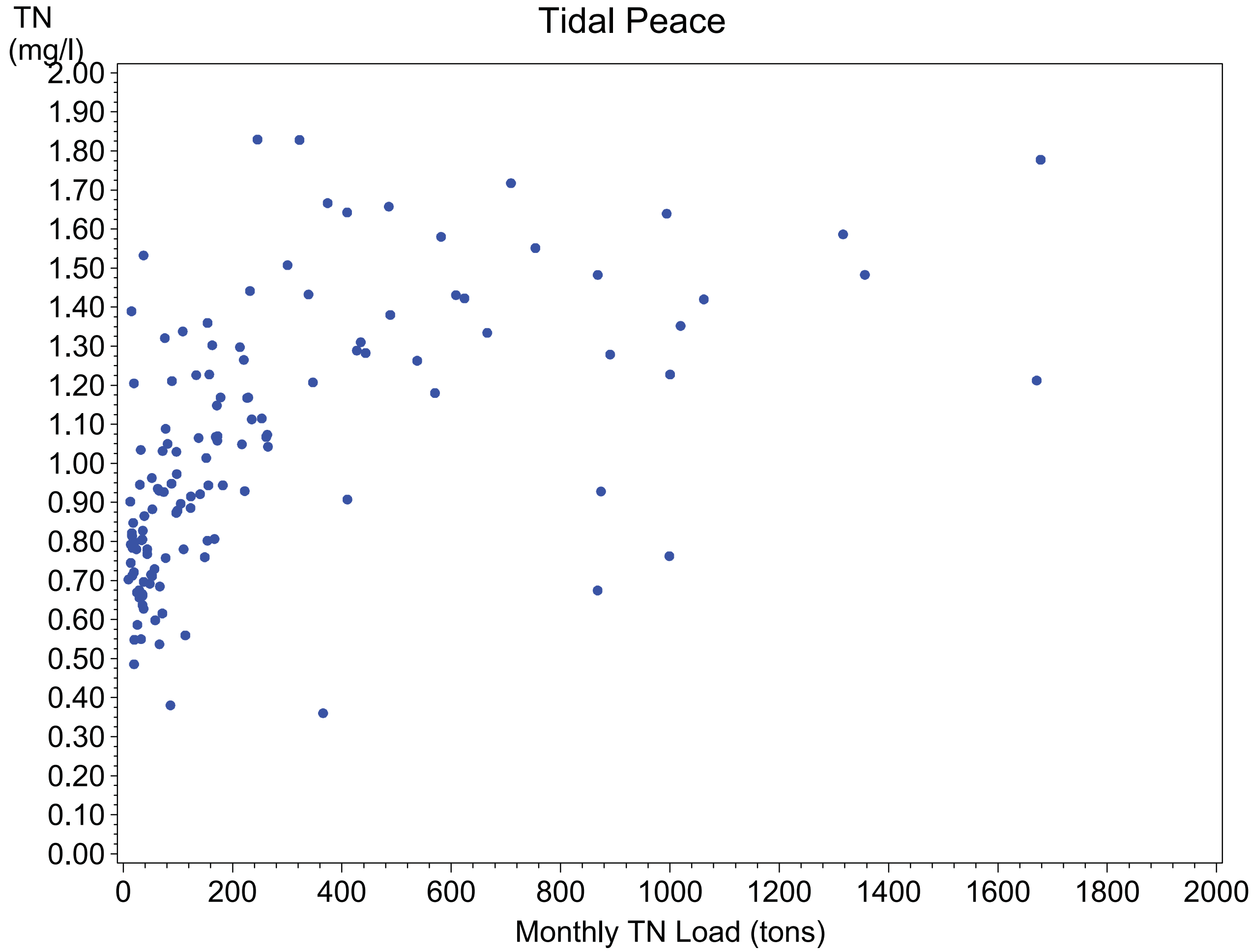
Tidal Myakka
ln TN (mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
0
100
200
300
400
500
600
700
800
900
1000
1100
Cumulative 3-Month TN Load (tons)



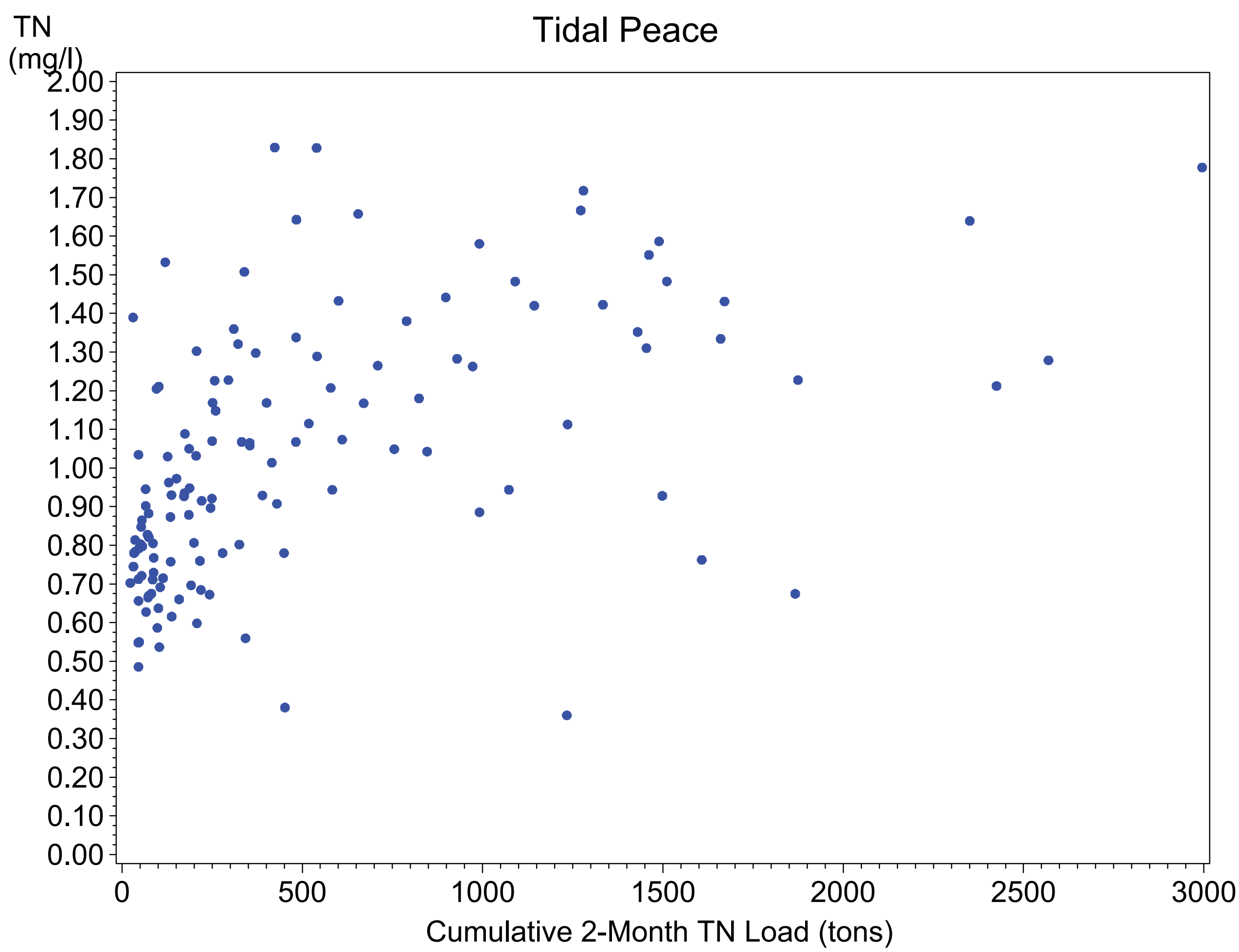
Tidal Myakka
ln TN (mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
1
2
3
4
5
6
7
ln Monthly TN Load (tons)


Tidal Myakka
ln TN
(mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
1
2
3
4
5
6
7
ln Cumulative 2-Month TN Load (tons)

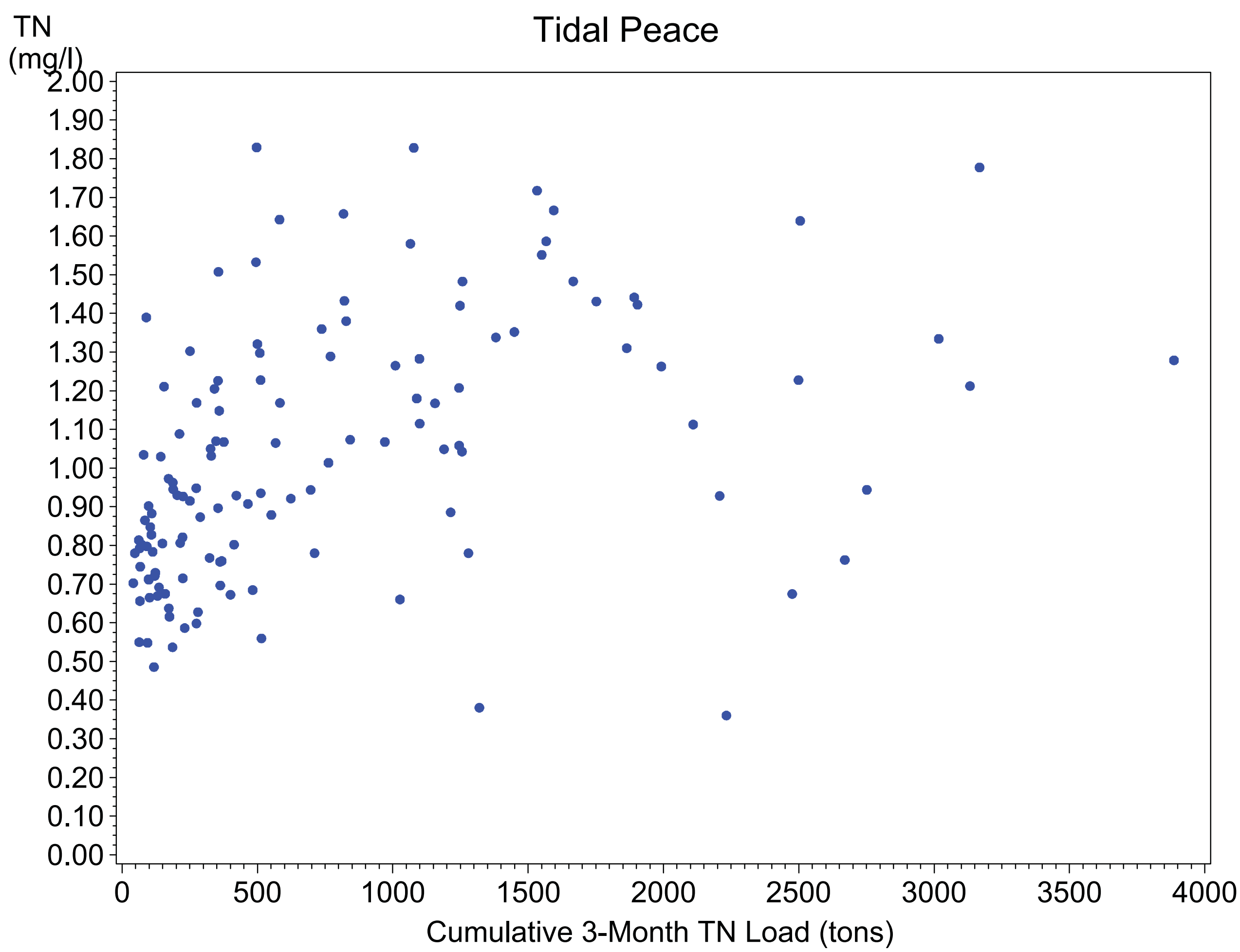

Tidal Myakka
ln TN
(mg/l)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
1
2
3
4
5
6
7
ln Cumulative 3-Month TN Load (tons)

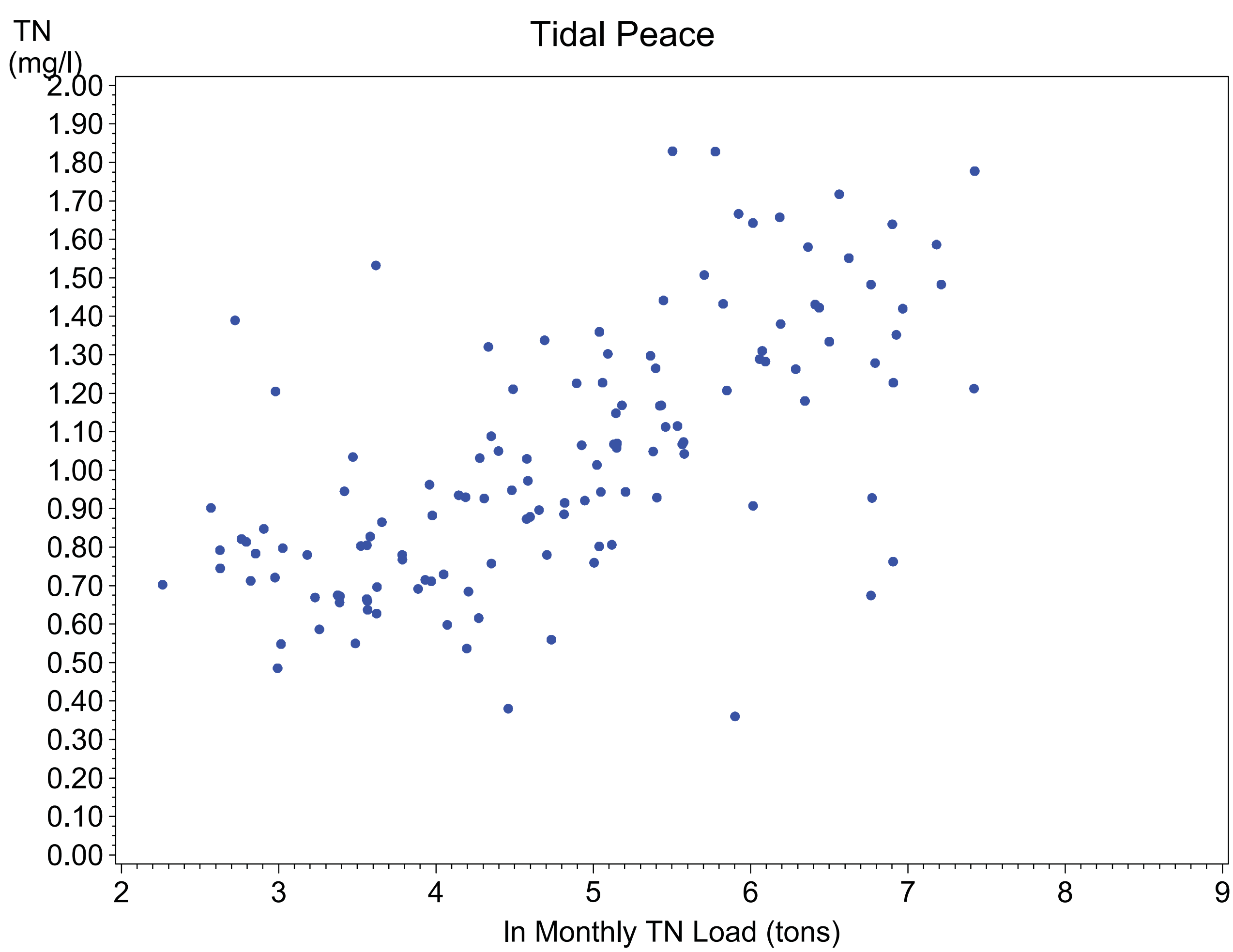


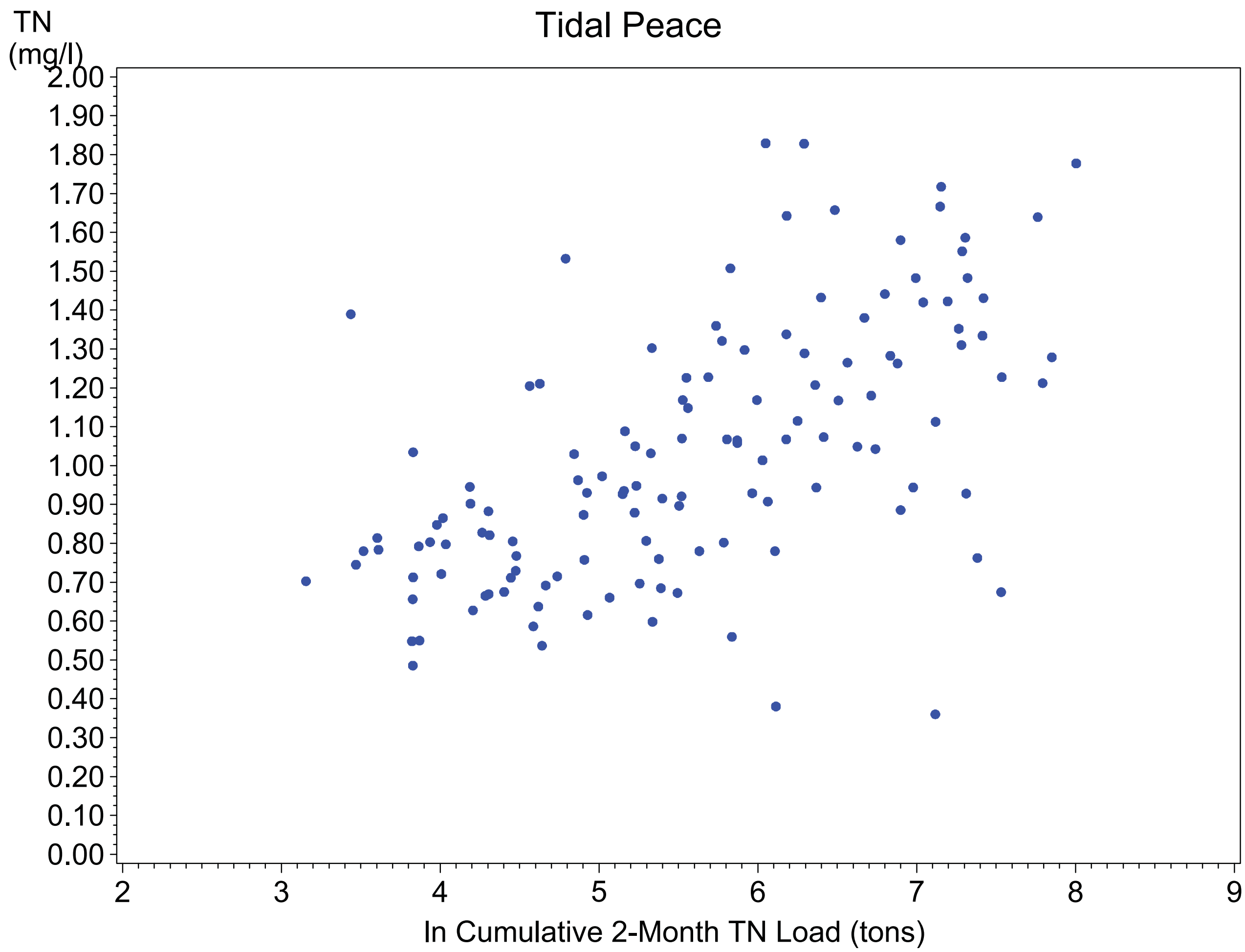
Tidal Peace
TN (mg/l)
2.00 1.90 1.80 1.70 1.60 1.50 1.40 1.30 1.20 1.10 1.00 0.90 0.80 0.70 0.60 0.50 0.40 0.30 0.20 0.10 0.00
0 200 400 600 800 1000 1200 1400 1600 1800 2000
Monthly TN Load (tons)

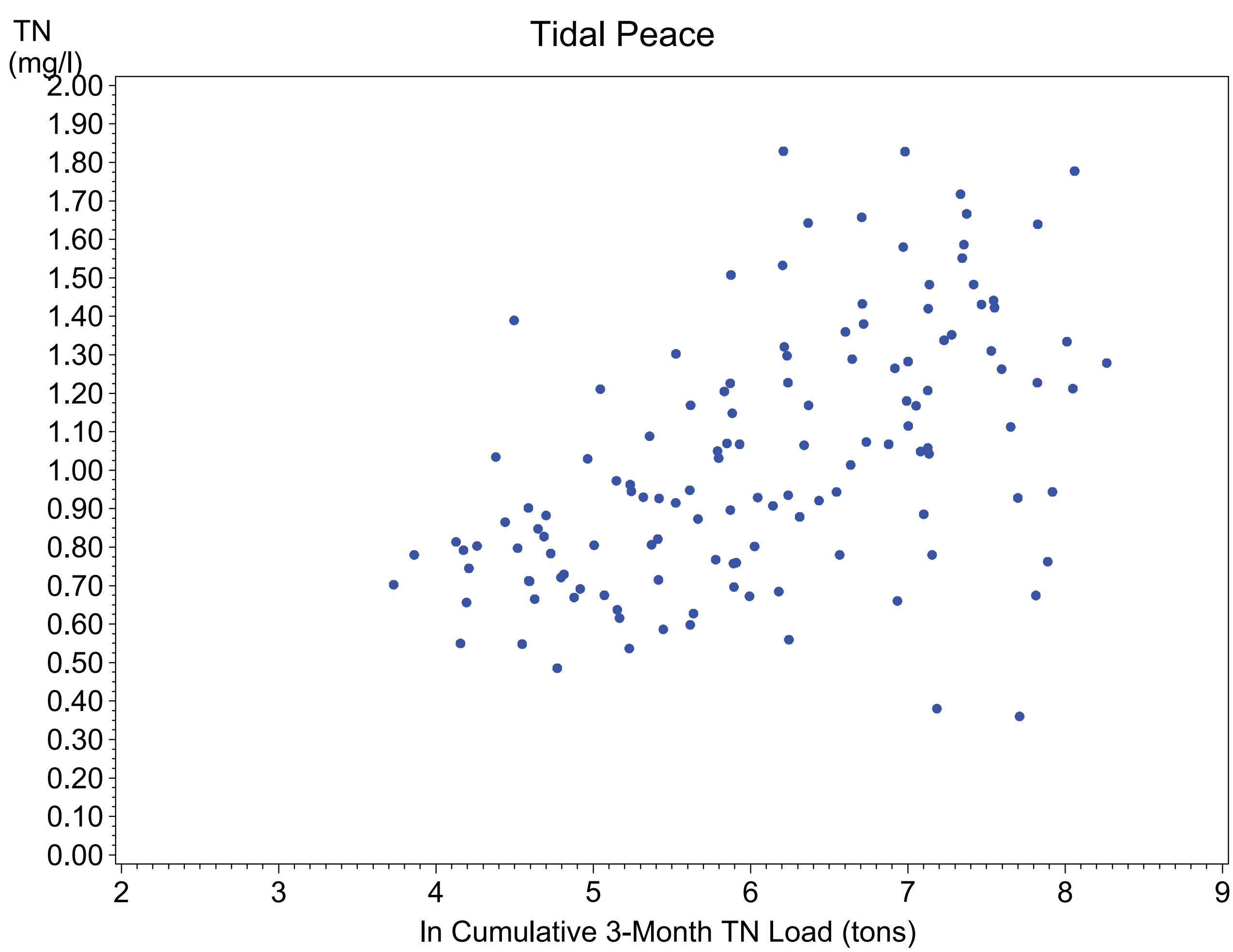


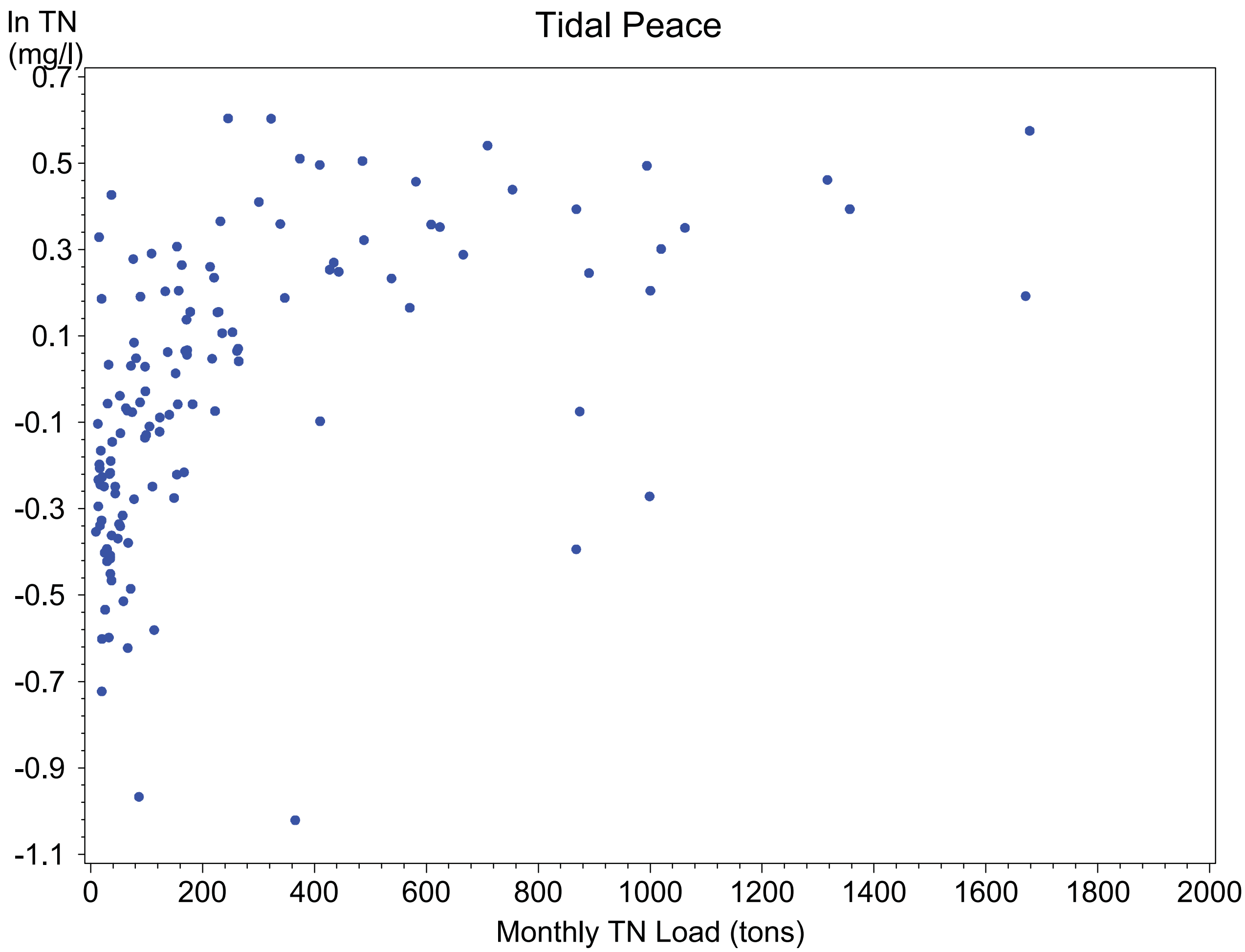
Tidal Peace
TN (mg/l)
2.00 1.90 1.80 1.70 1.60 1.50 1.40 1.30 1.20 1.10 1.00 0.90 0.80 0.70 0.60 0.50 0.40 0.30 0.20 0.10 0.00
0 500 1000 1500 2000 2500 3000
Cumulative 2-Month TN Load (tons)

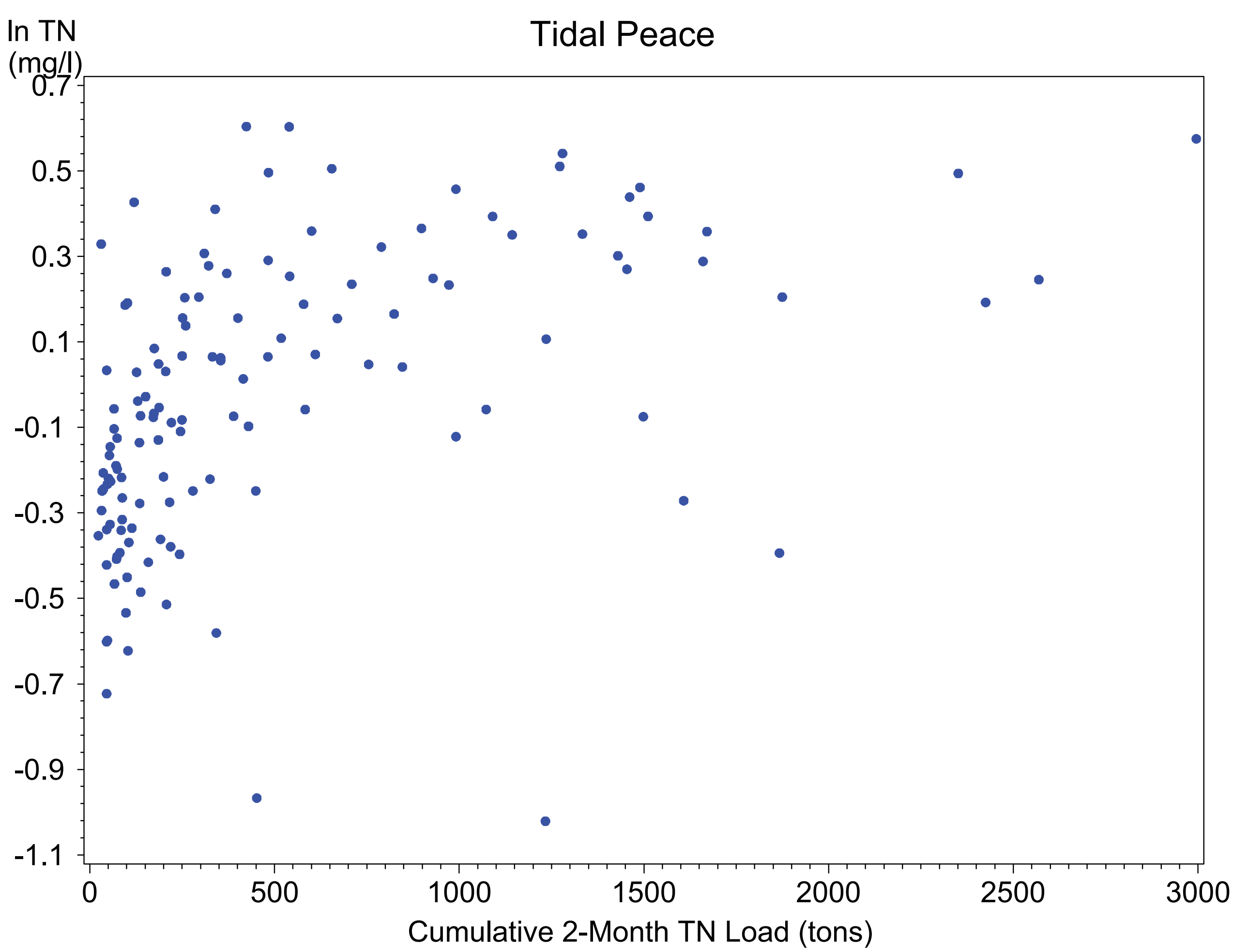

Tidal Peace
TN
(mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 3-Month TN Load (tons)

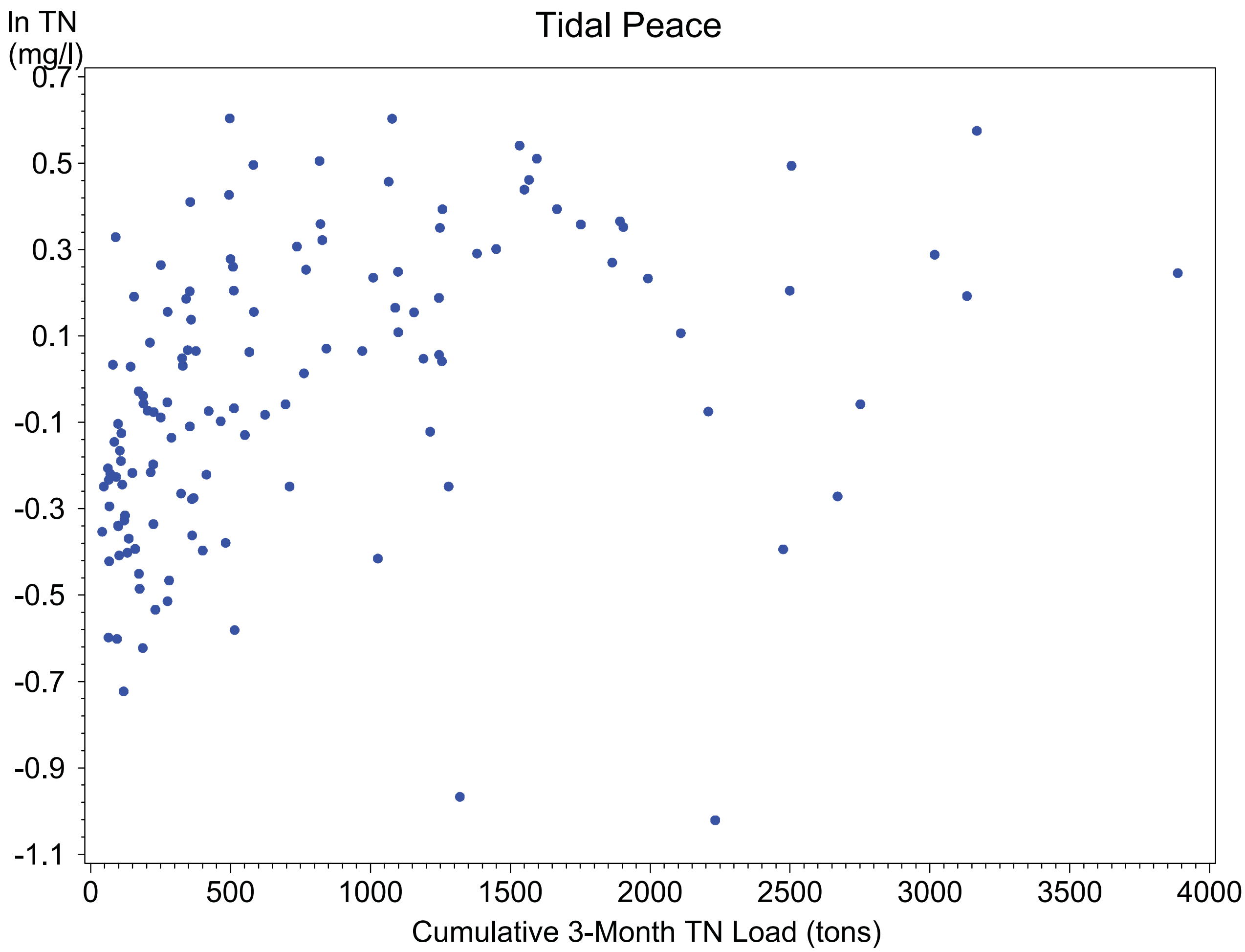

Tidal Peace
TN
(mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)

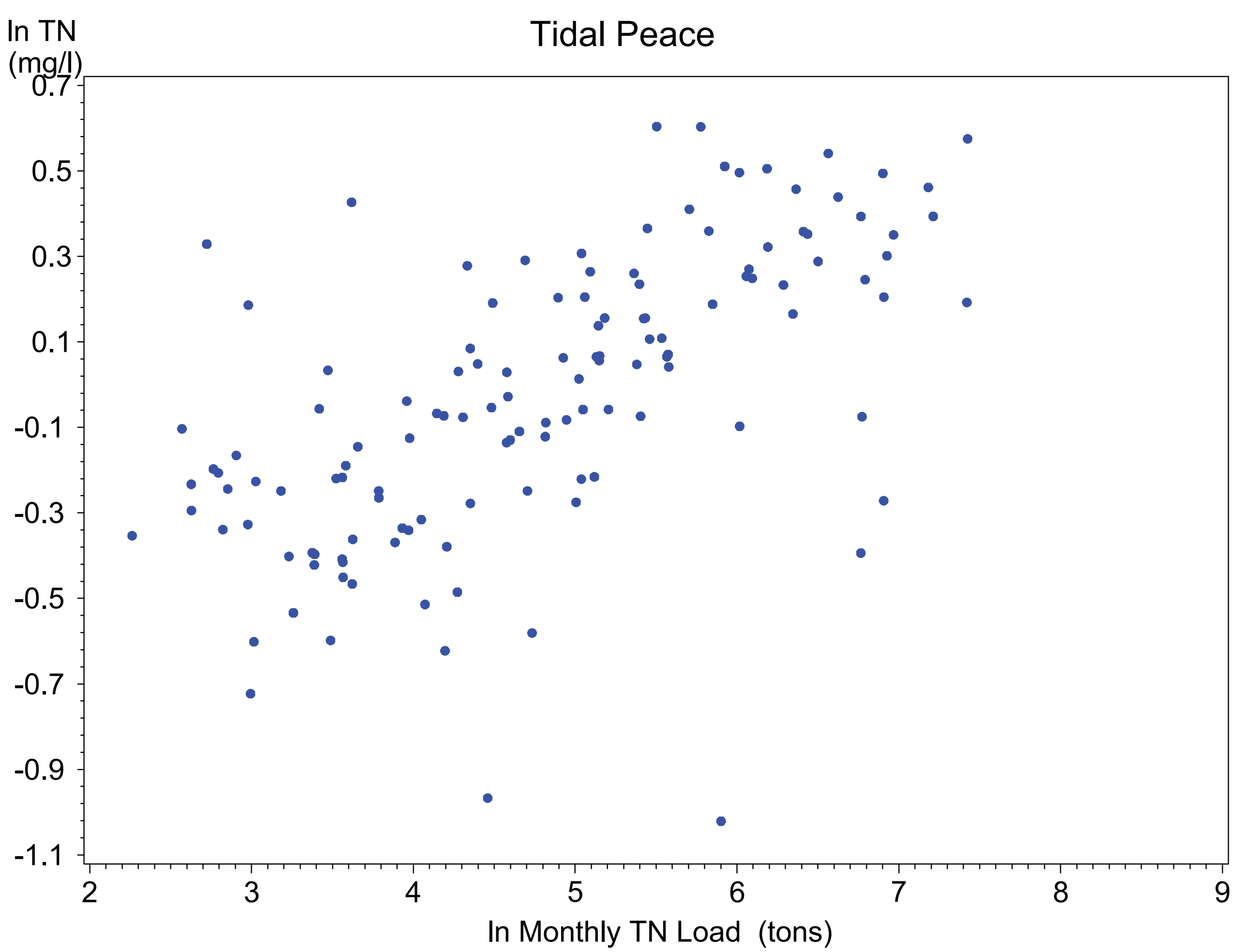

Tidal Peace
TN (mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

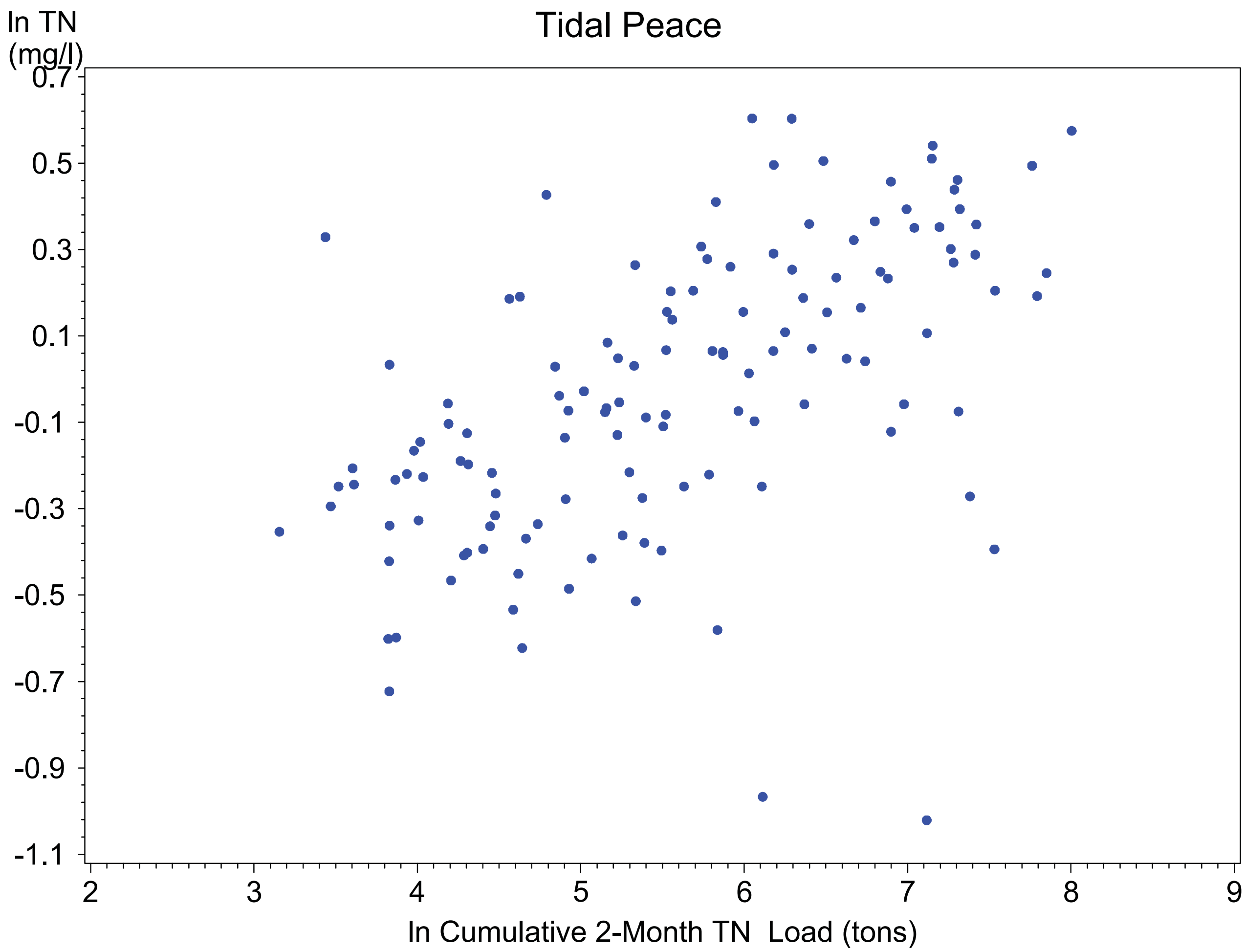

Tidal Peace
TN (mg/l)
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

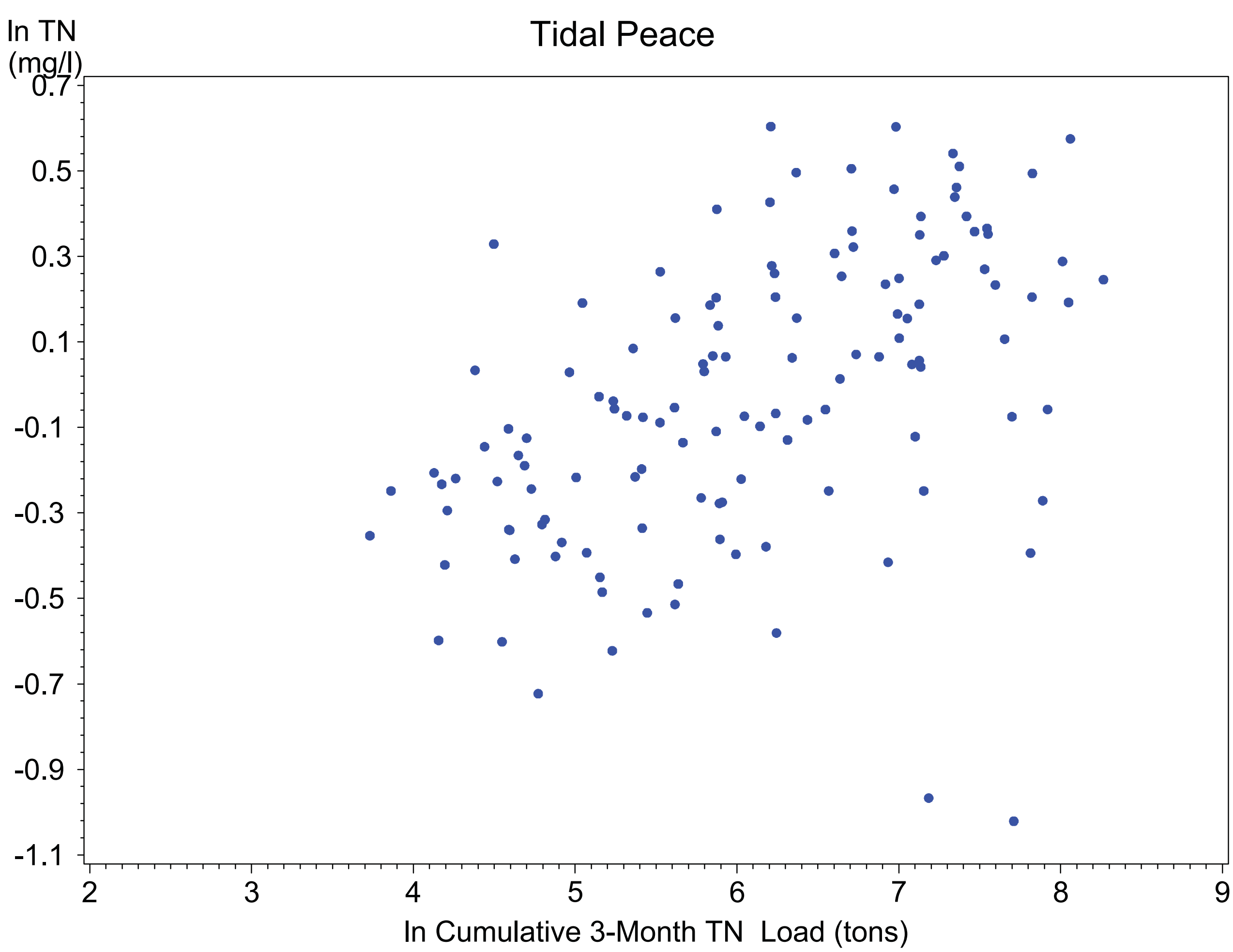

Tidal Peace
ln TN (mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

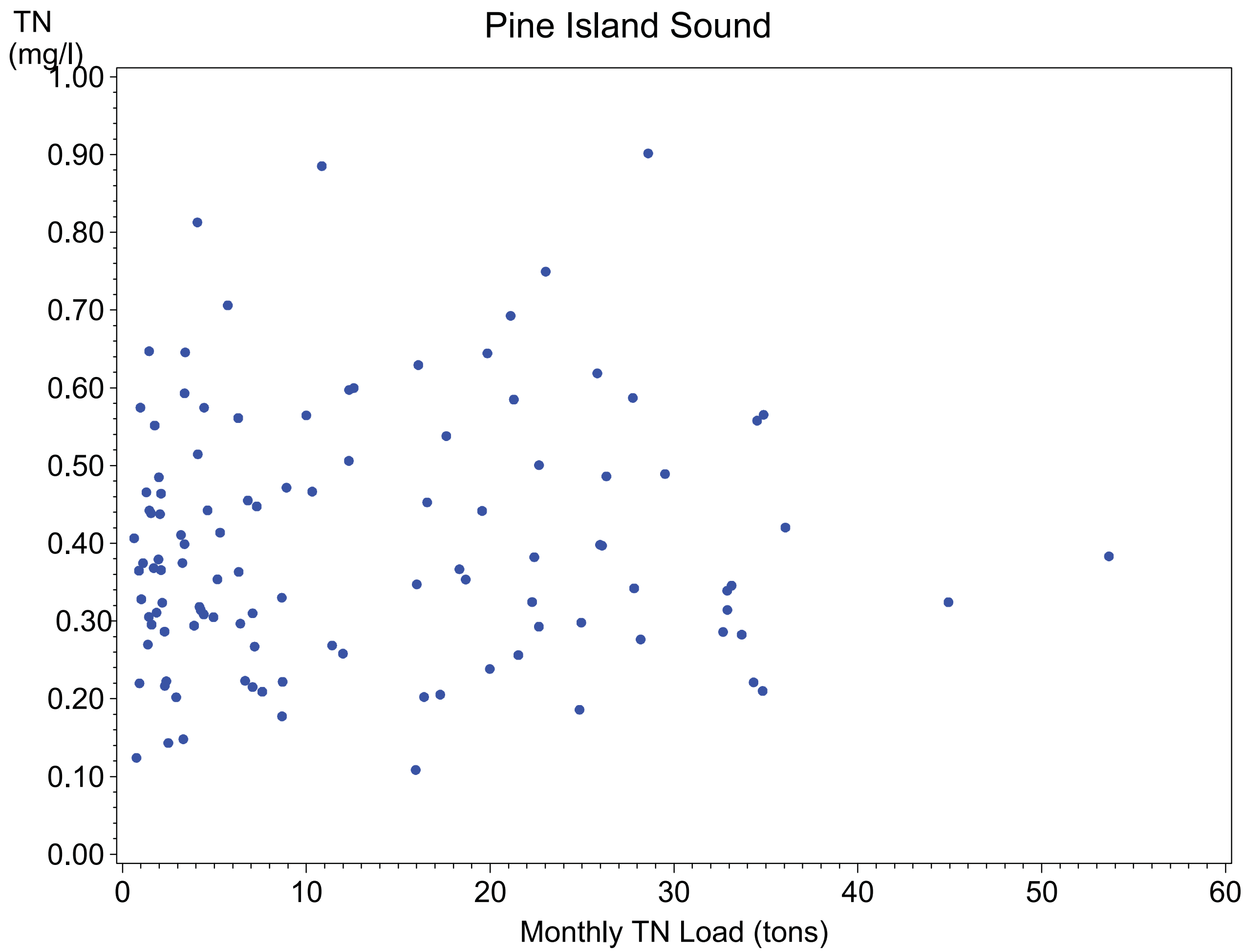

Tidal Peace
ln TN (mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
0
500
1000
1500
2000
2500
3000
Cumulative 2-Month TN Load (tons)


Tidal Peace
ln TN (mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 3-Month TN Load (tons)

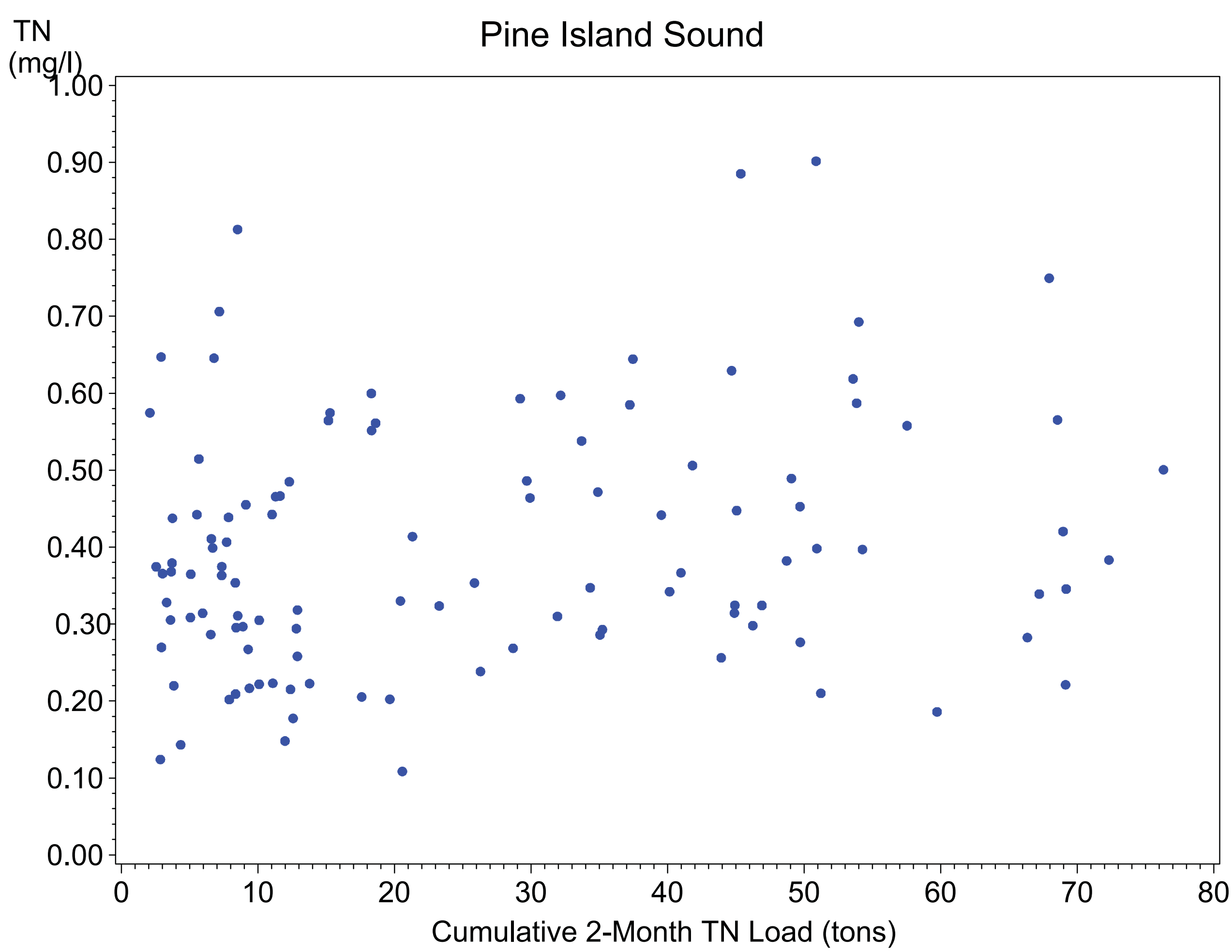

Tidal Peace
ln TN (mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)


Tidal Peace
ln TN
(mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

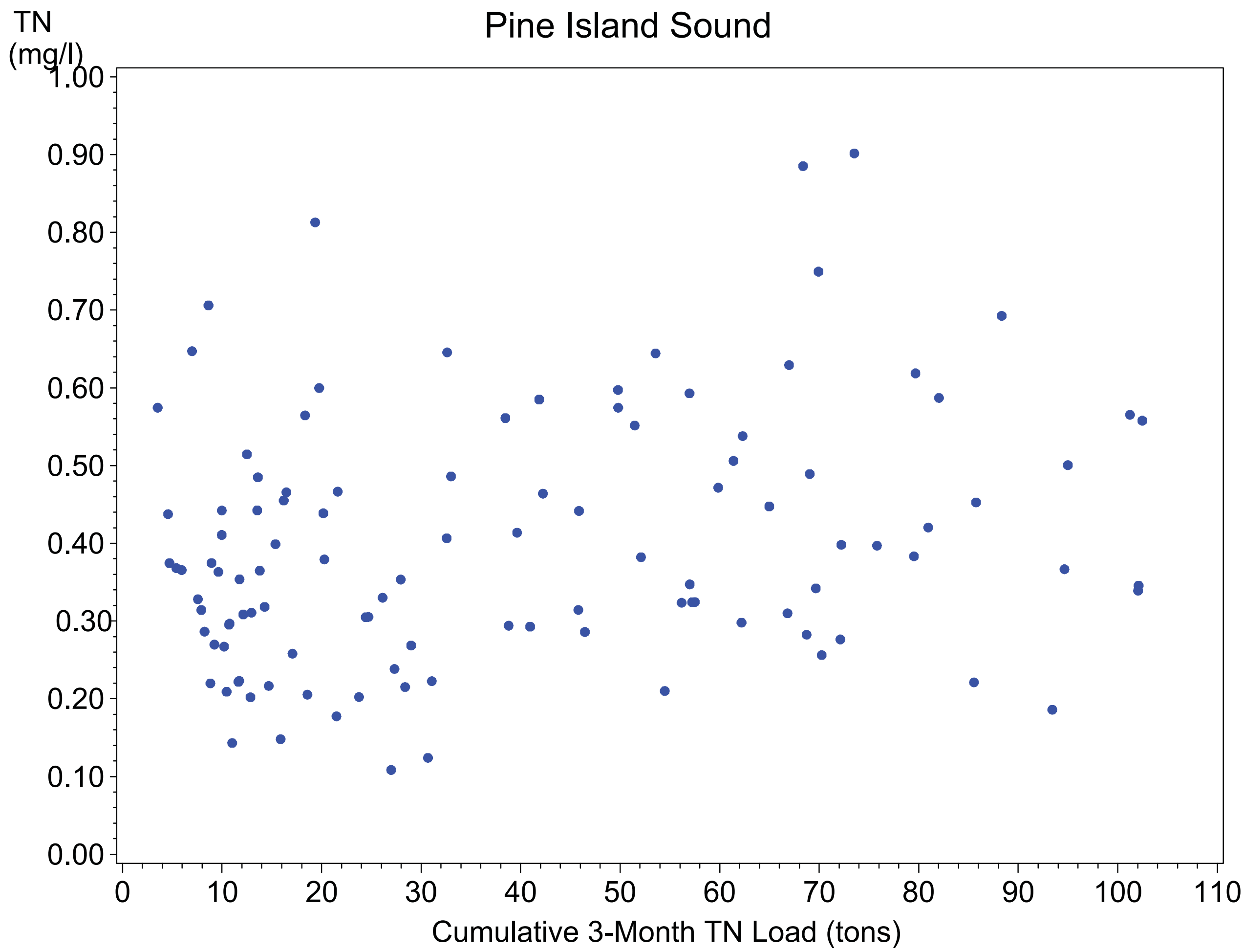

Tidal Peace
ln TN
(mg/l)
0.7
0.5
0.3
0.1
-0.1
-0.3
-0.5
-0.7
-0.9
-1.1
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

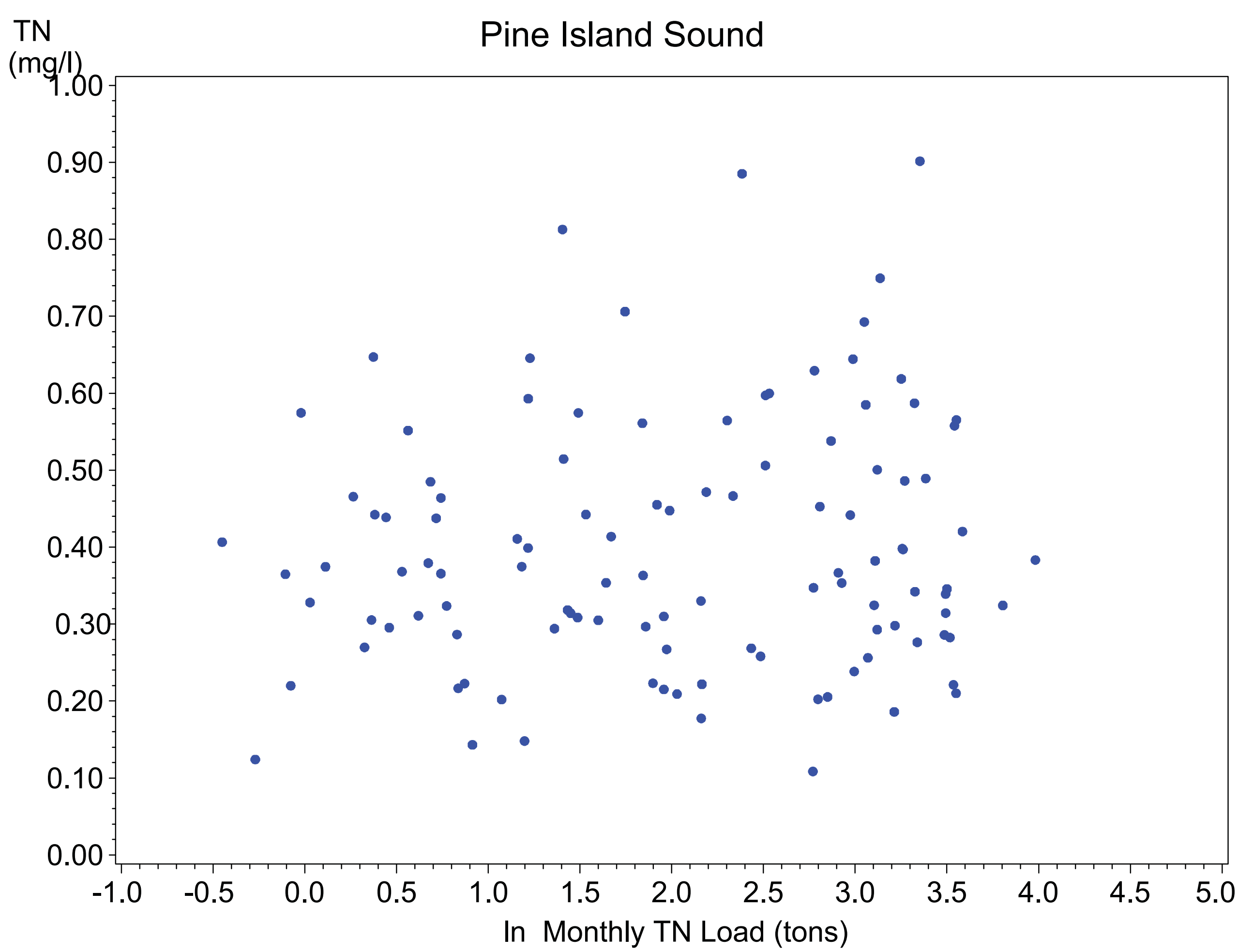


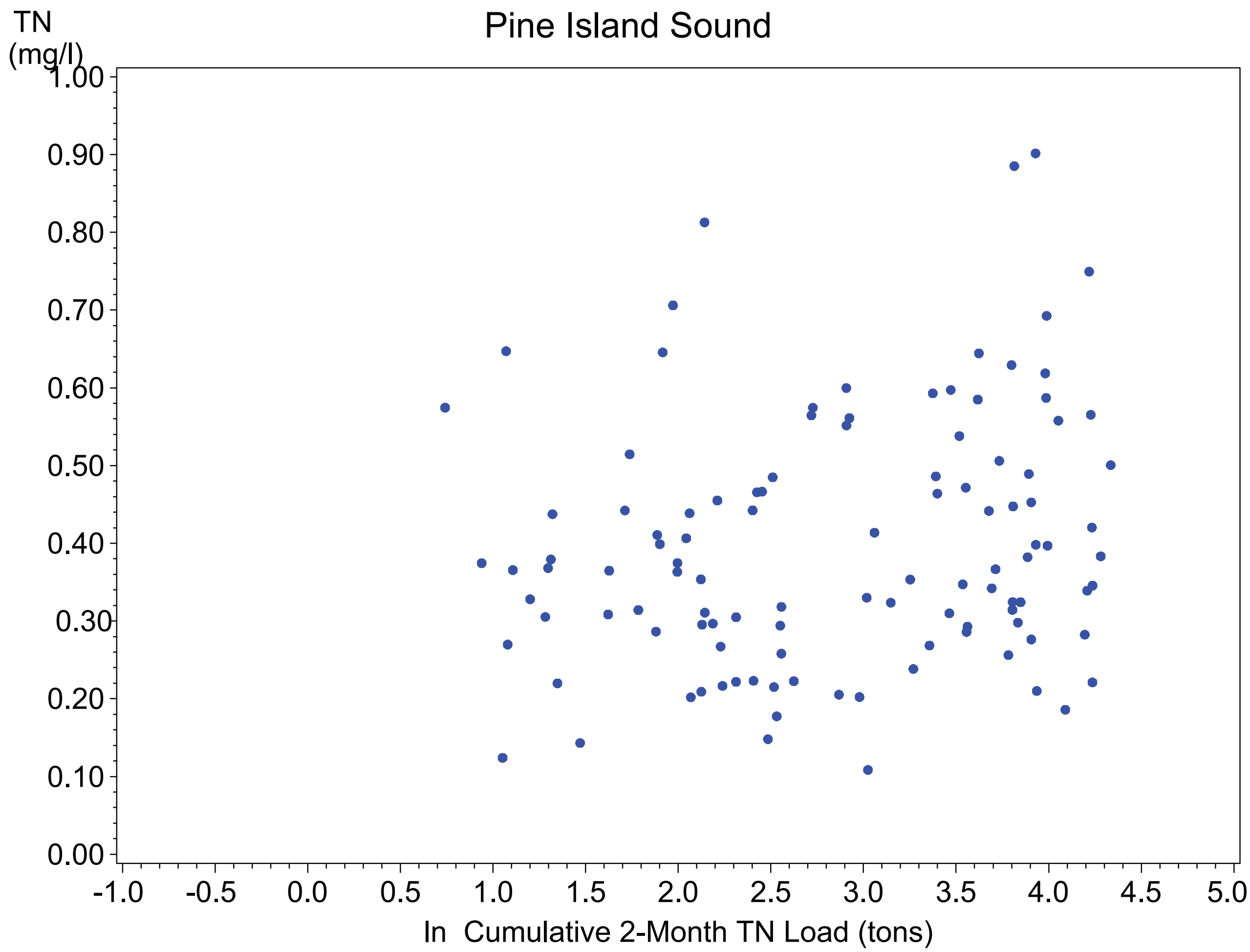
Pine Island Sound
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
Monthly TN Load (tons)

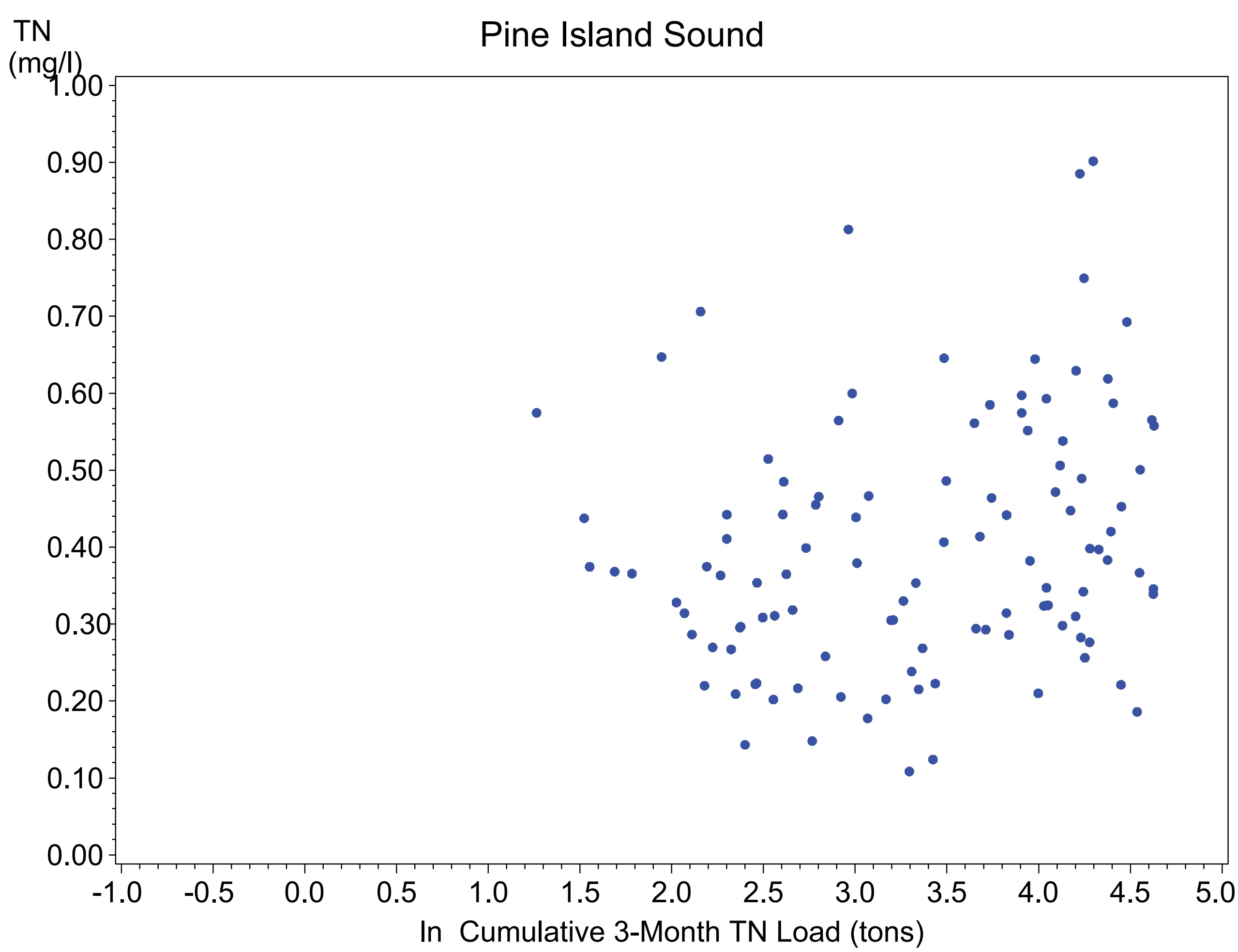


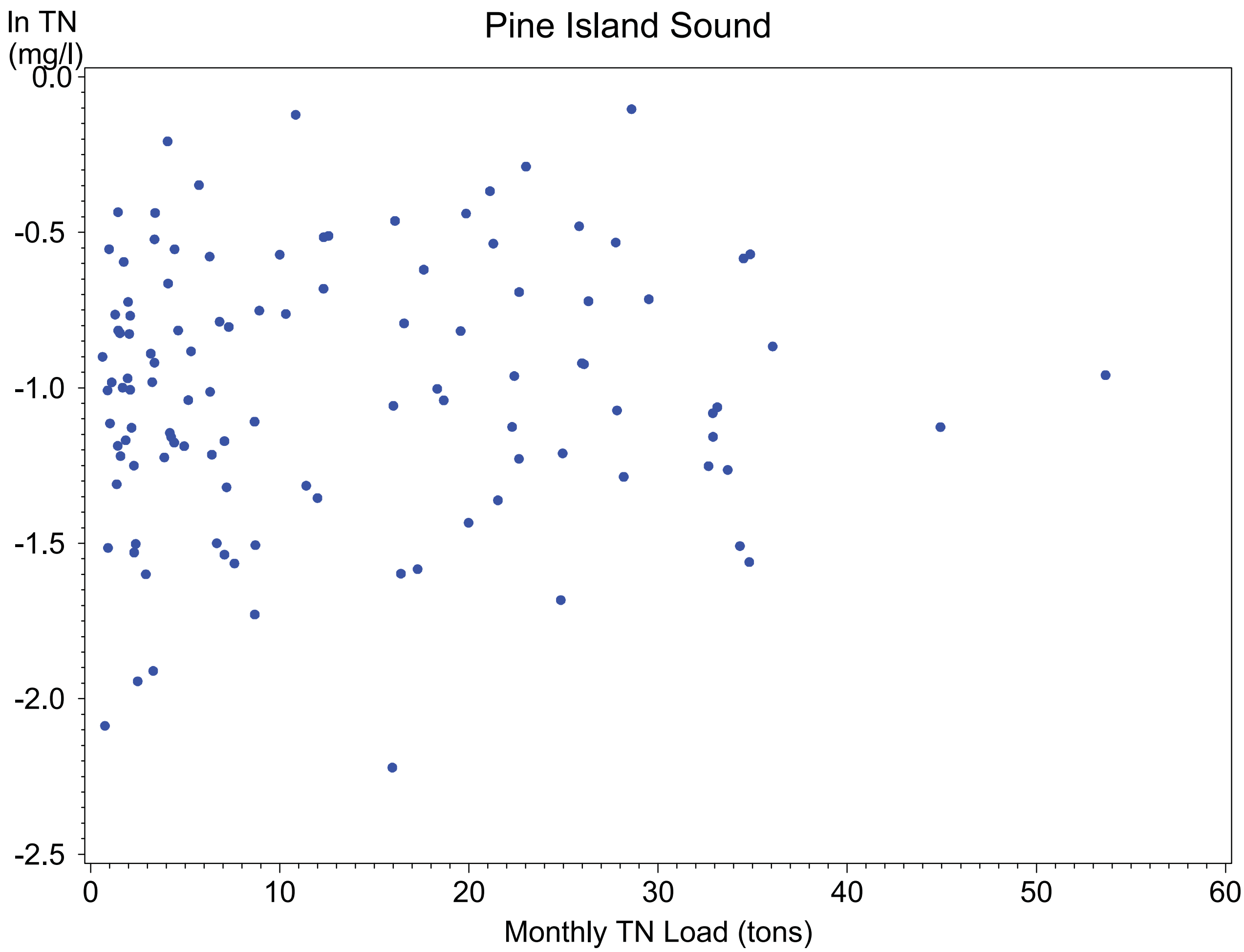
Pine Island Sound
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)

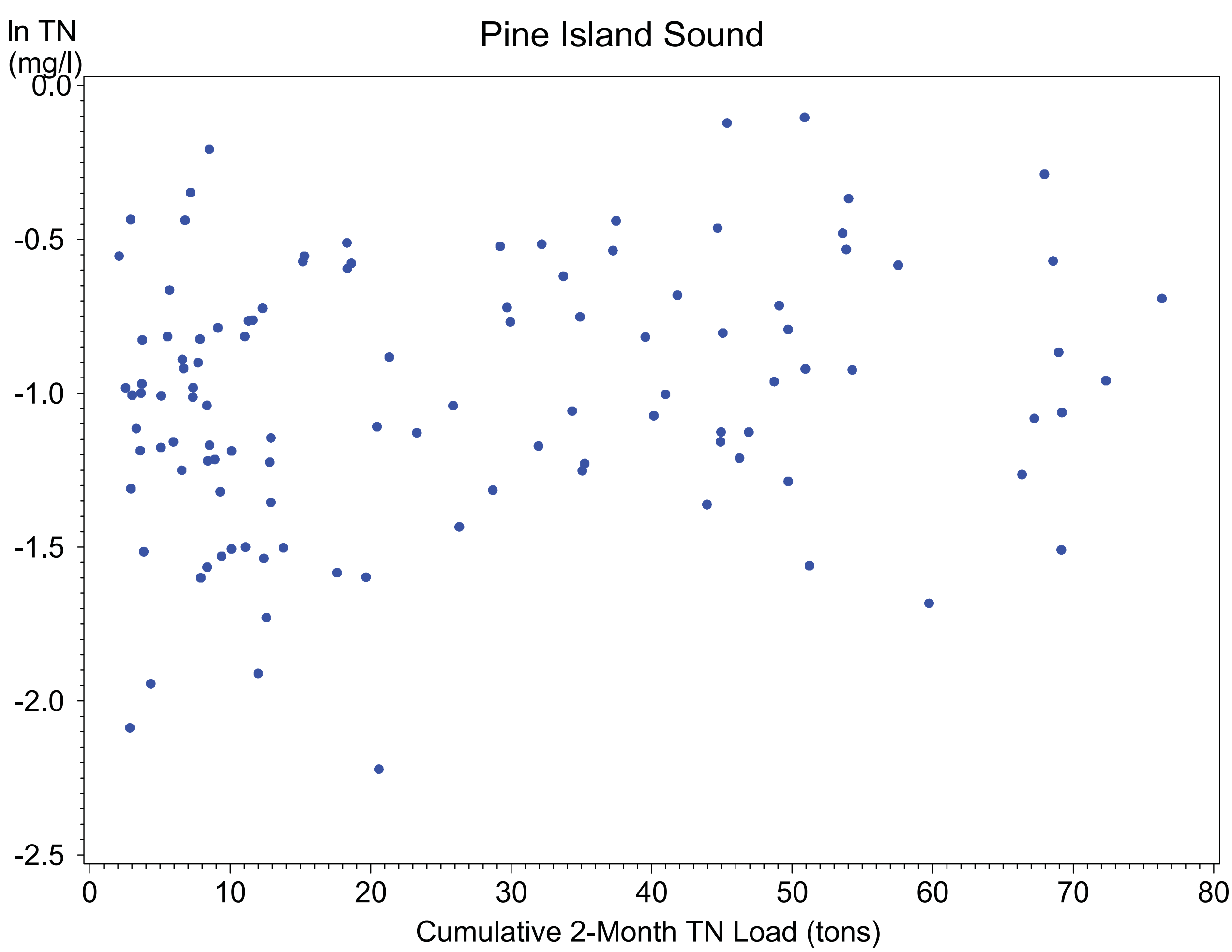

TN
(mg/l)
Pine Island Sound
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

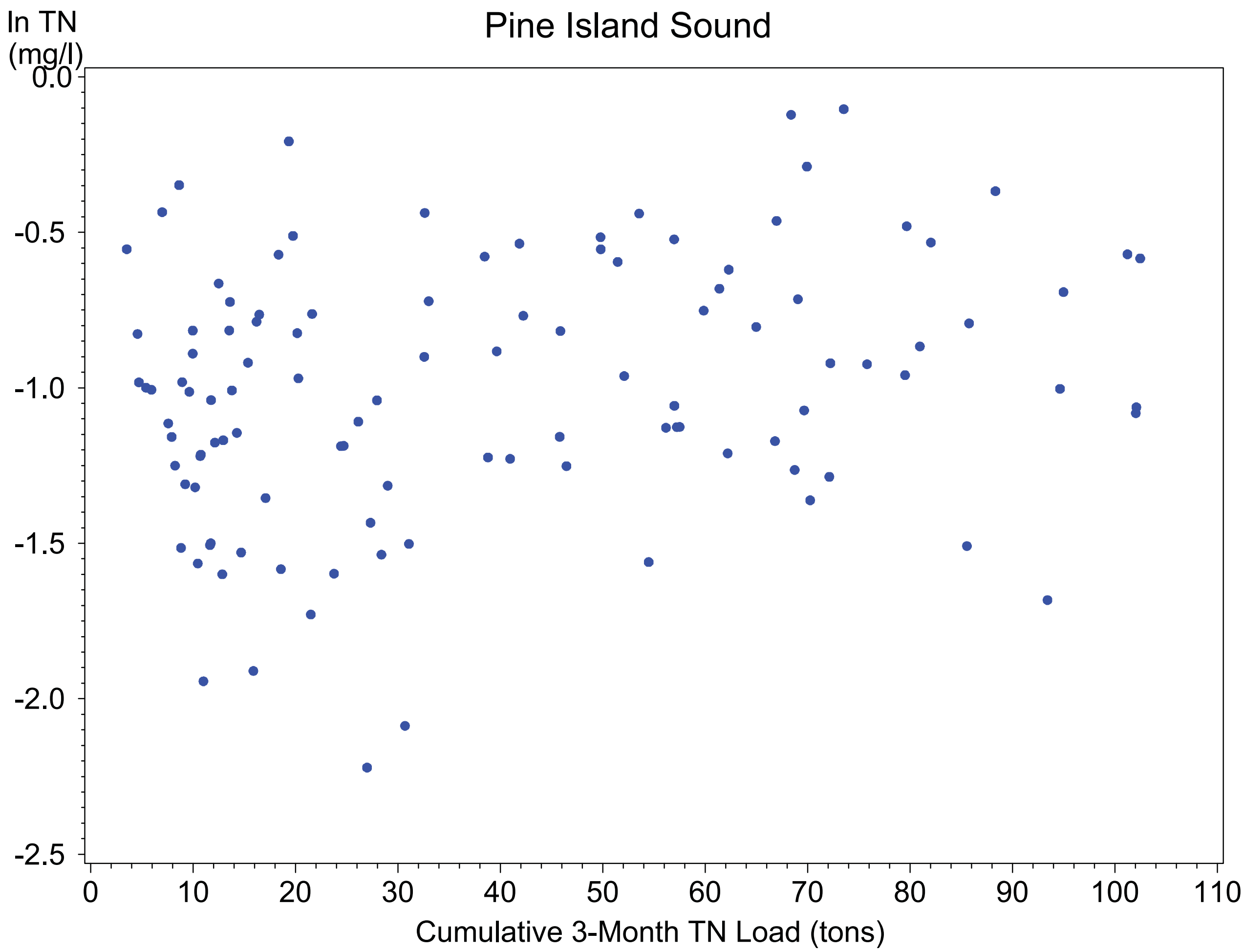

TN
(mg/l)
Pine Island Sound
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TN Load (tons)

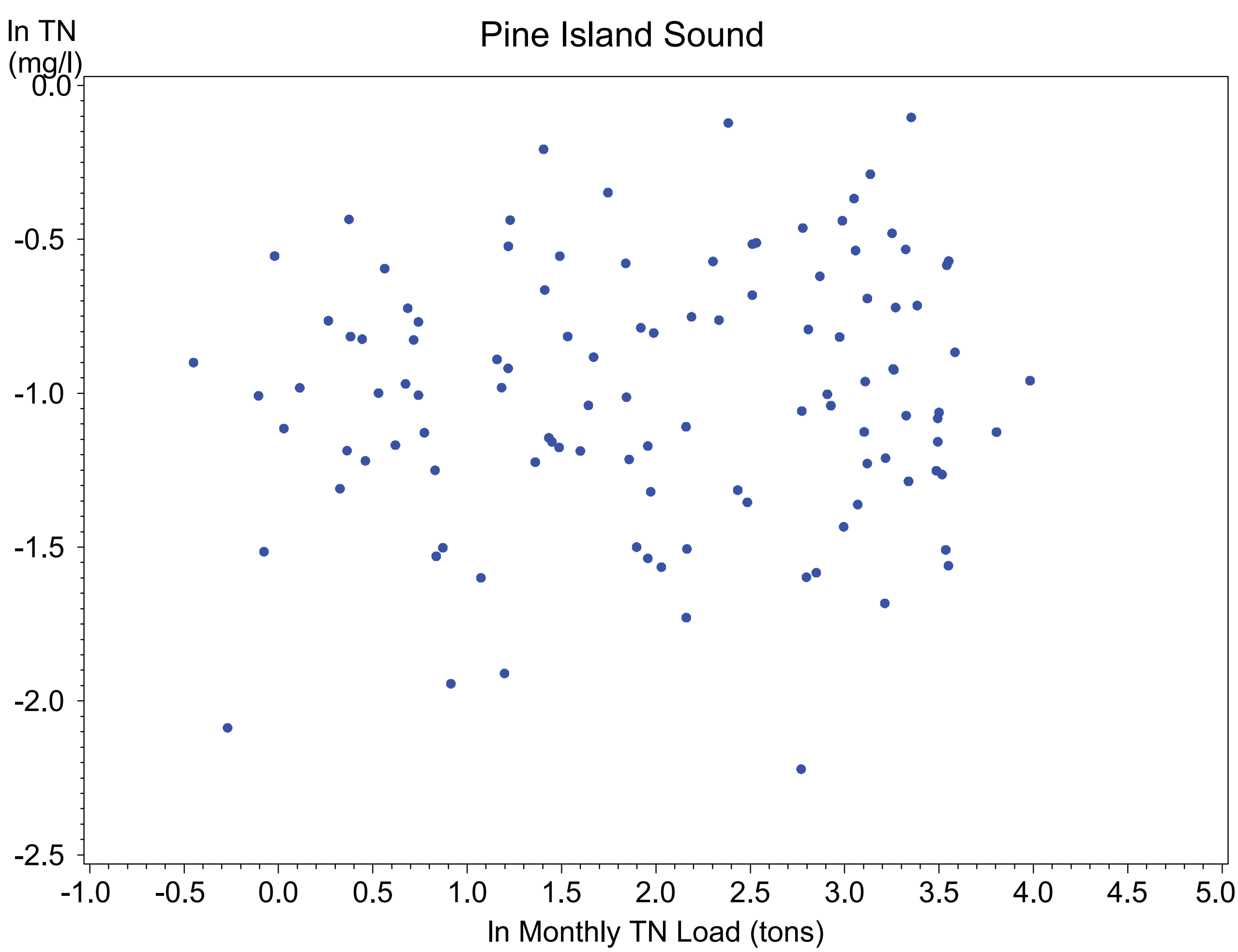

TN
(mg/l)
Pine Island Sound
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
ln Cumulative 2-Month TN Load (tons)

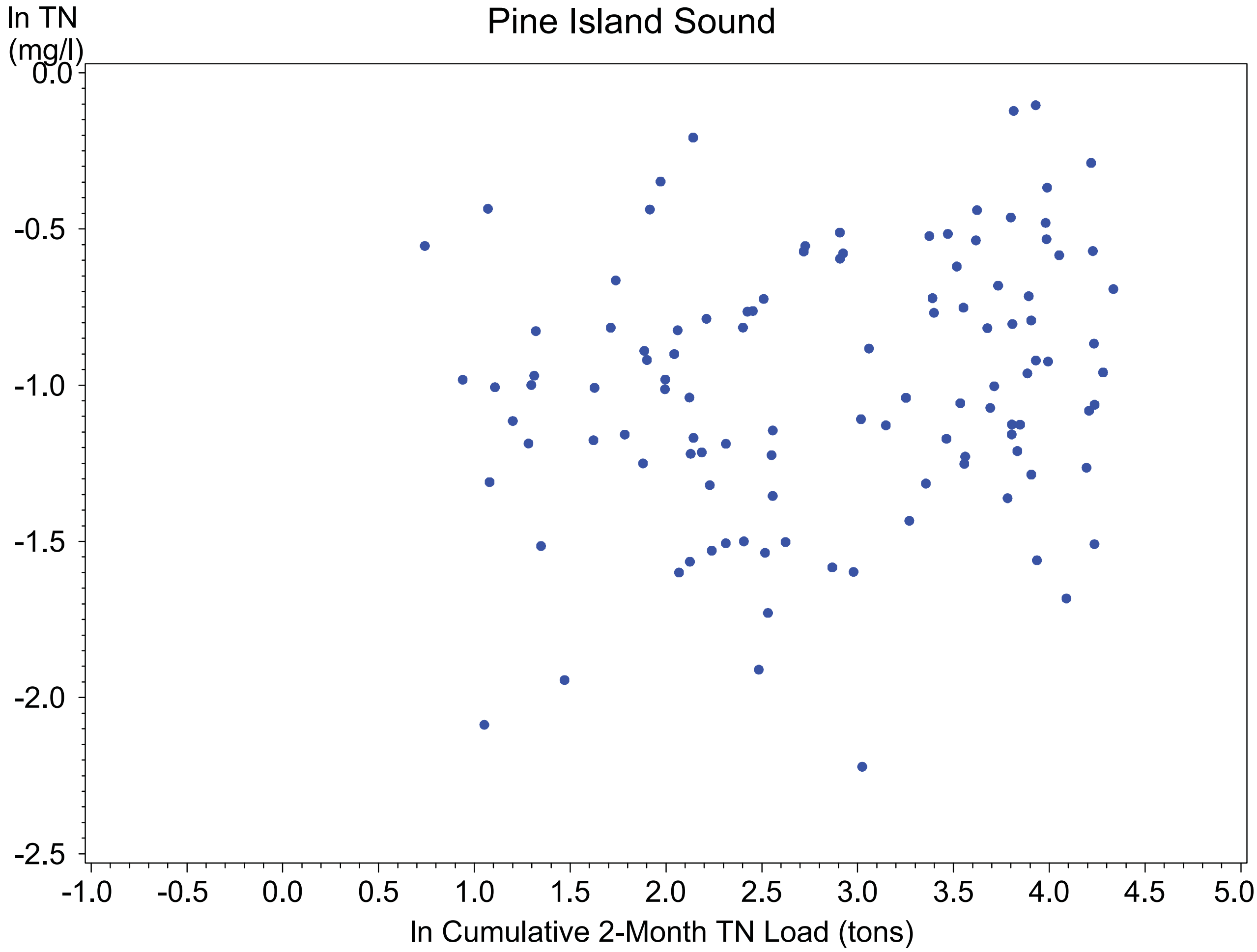

TN
(mg/l)
Pine Island Sound
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
ln Cumulative 3-Month TN Load (tons)

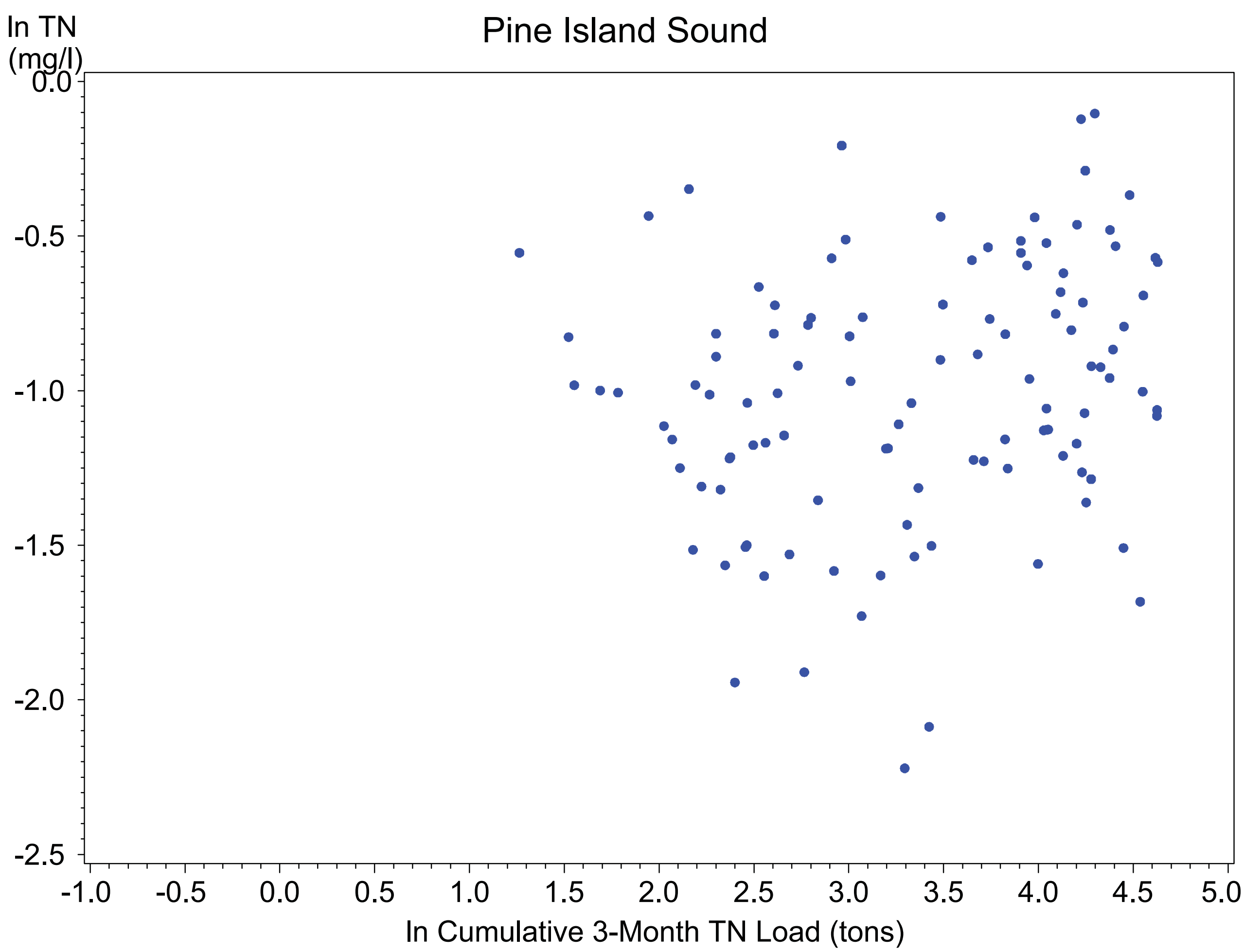

Pine Island Sound
ln TN
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
60
Monthly TN Load (tons)

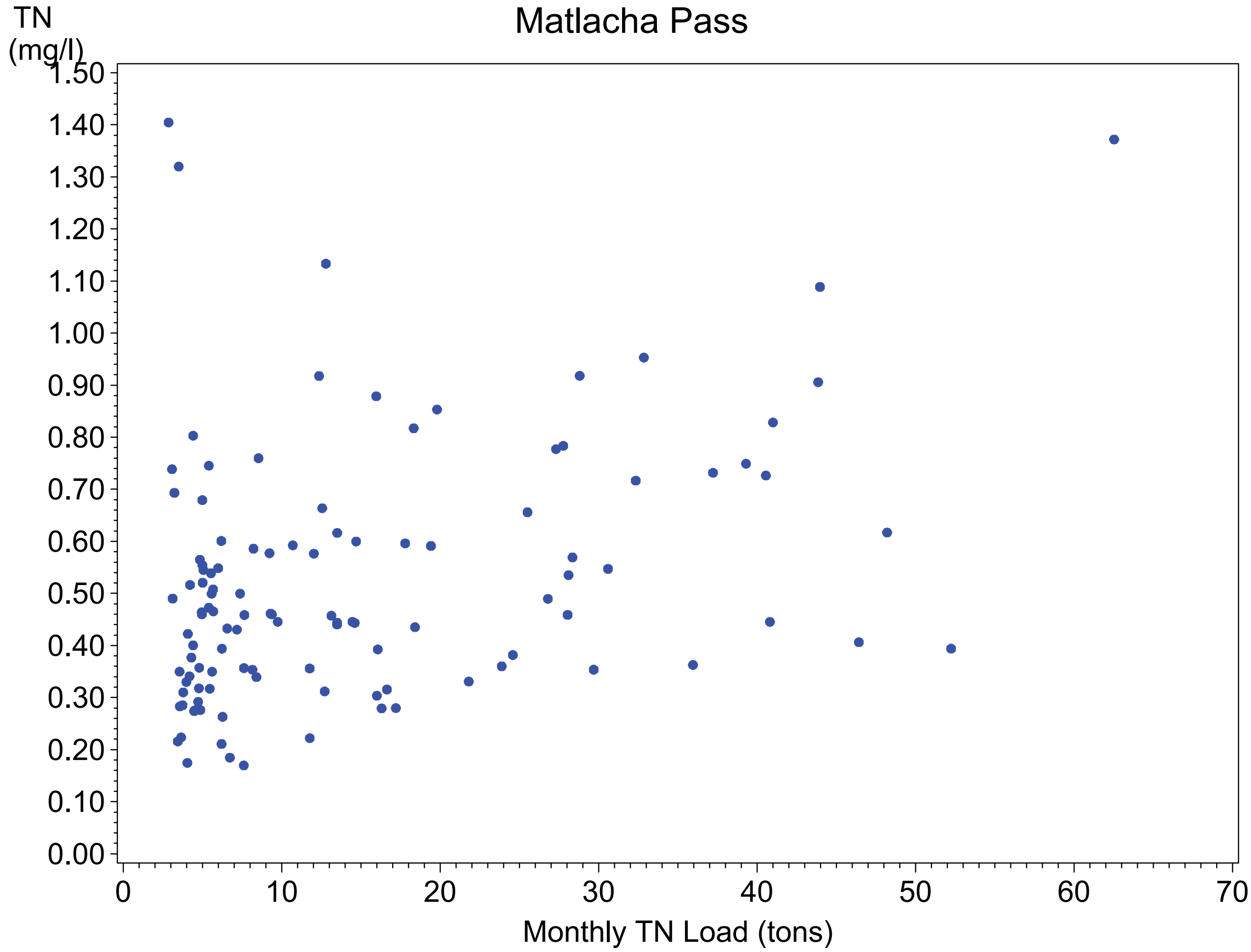

Pine Island Sound
ln TN
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)

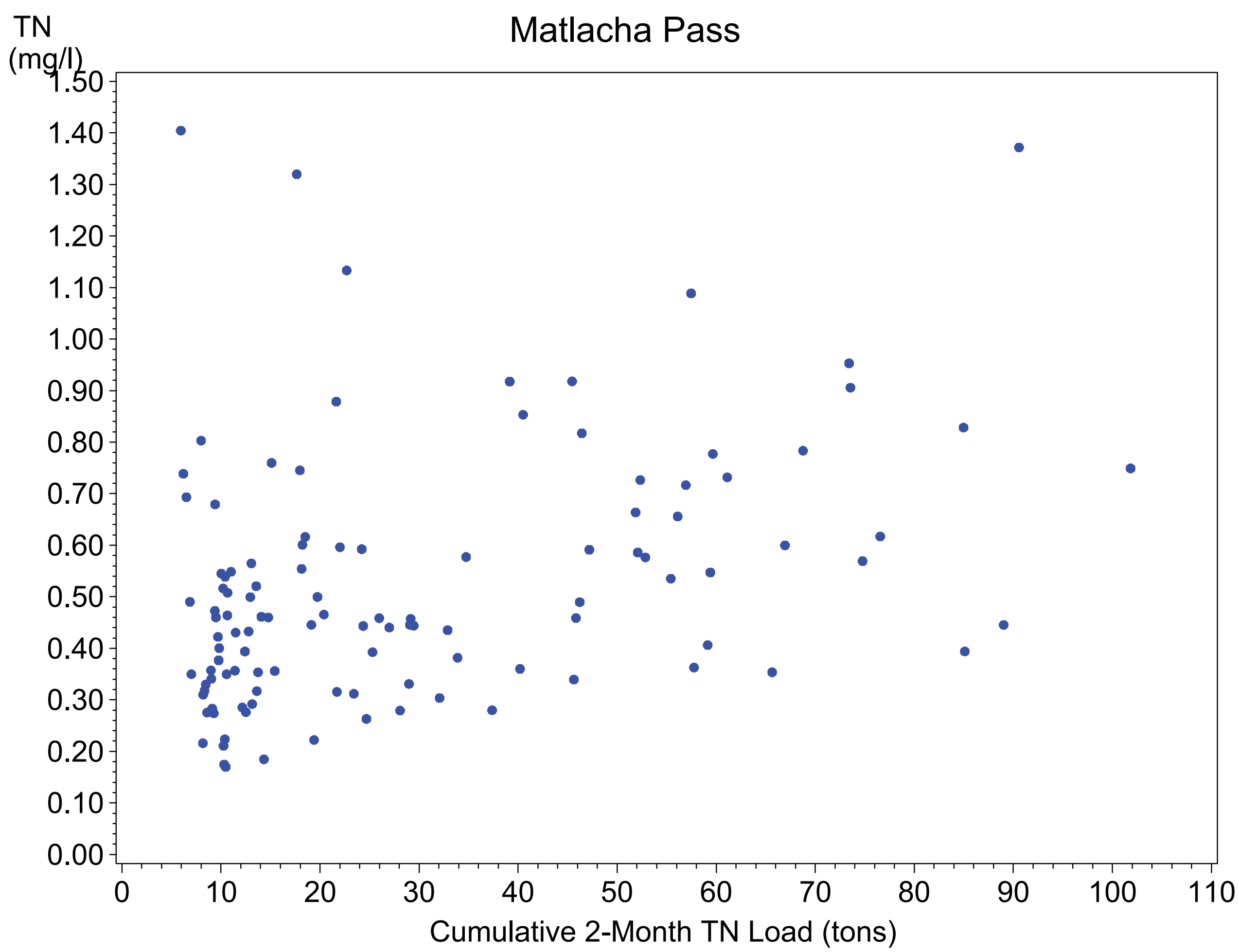

Pine Island Sound
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

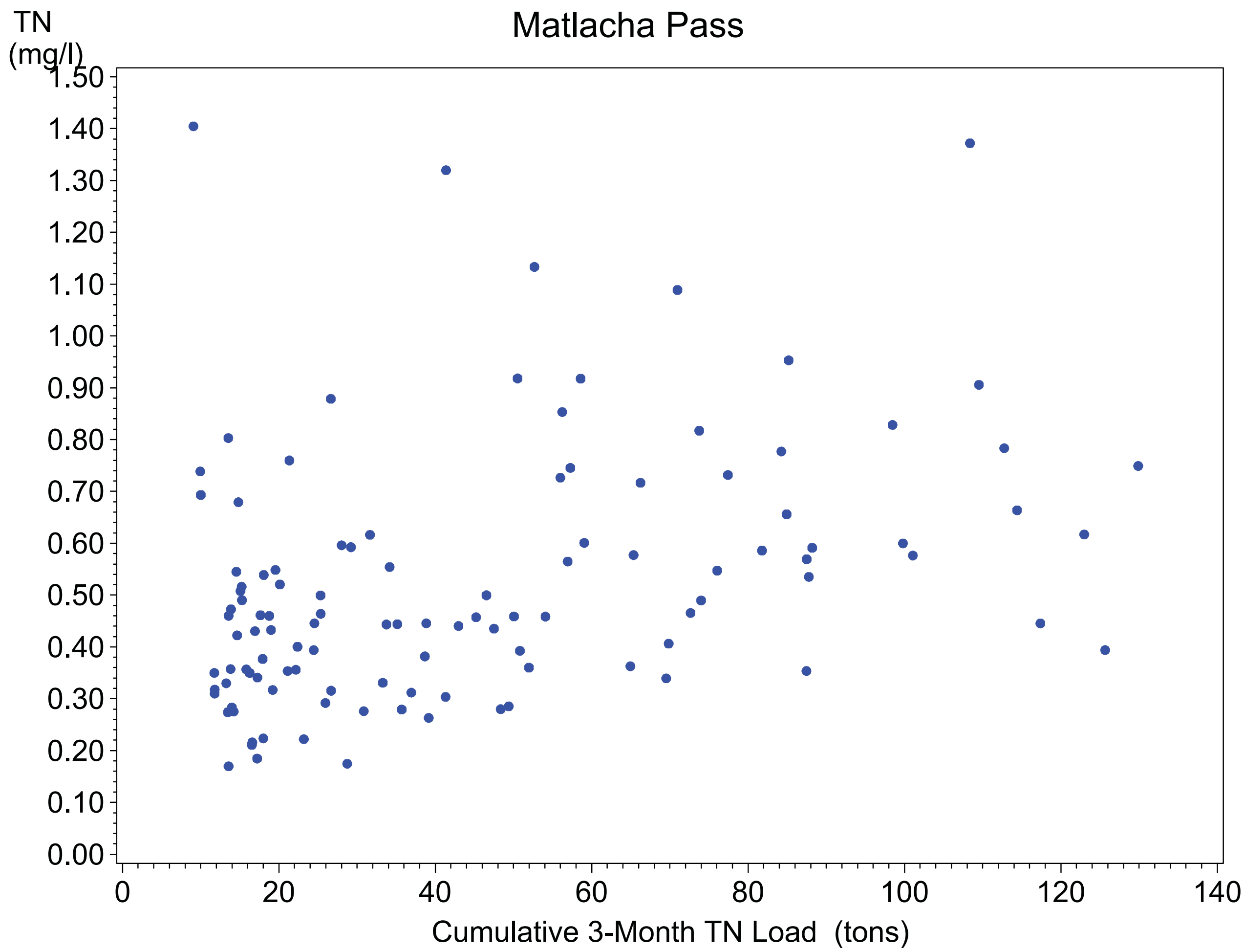

Pine Island Sound
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TN Load (tons)


Pine Island Sound
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)

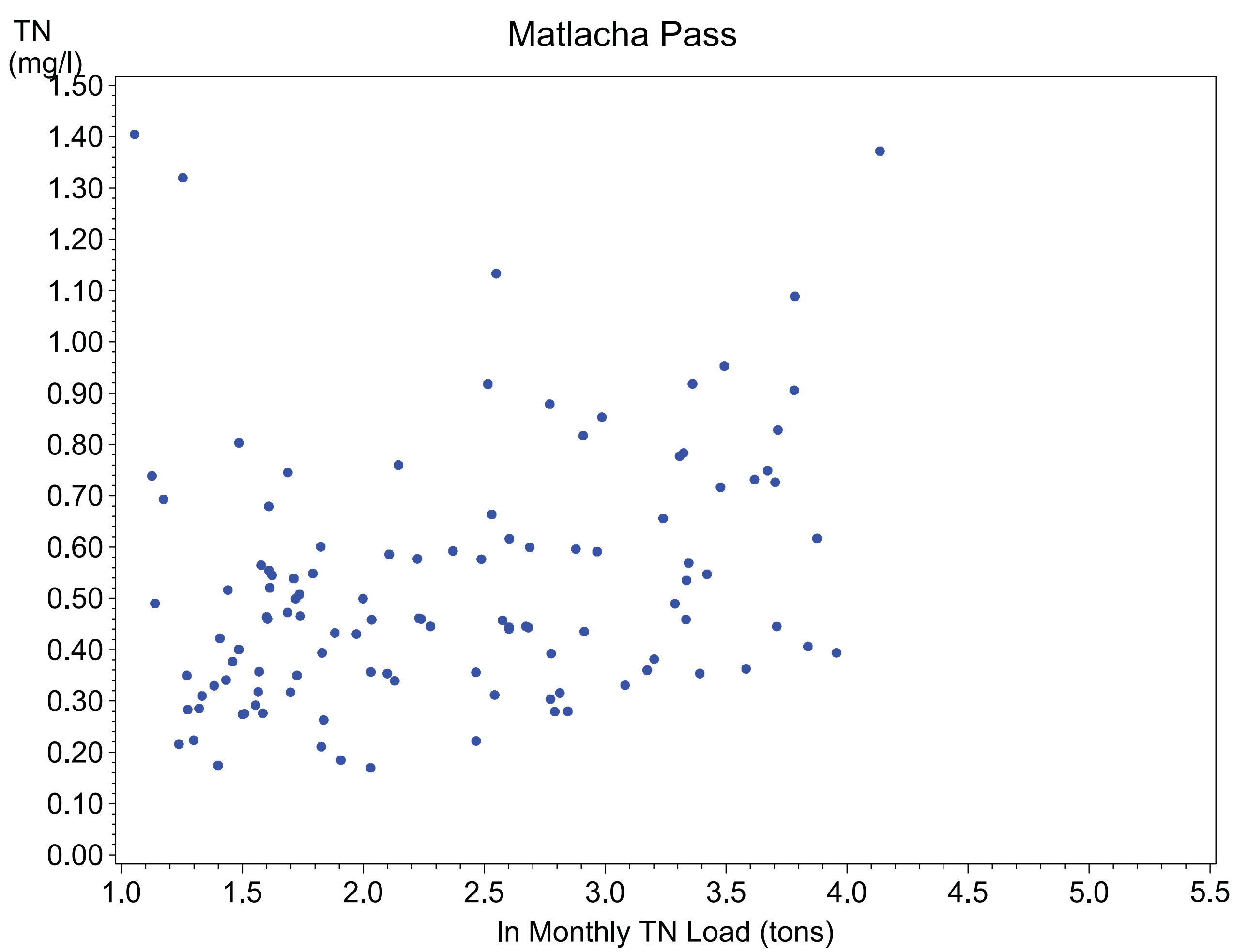

Pine Island Sound
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)


Matlacha Pass
TN (mg/l)
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50
0 10 20 30 40 50 60 70
Monthly TN Load (tons)

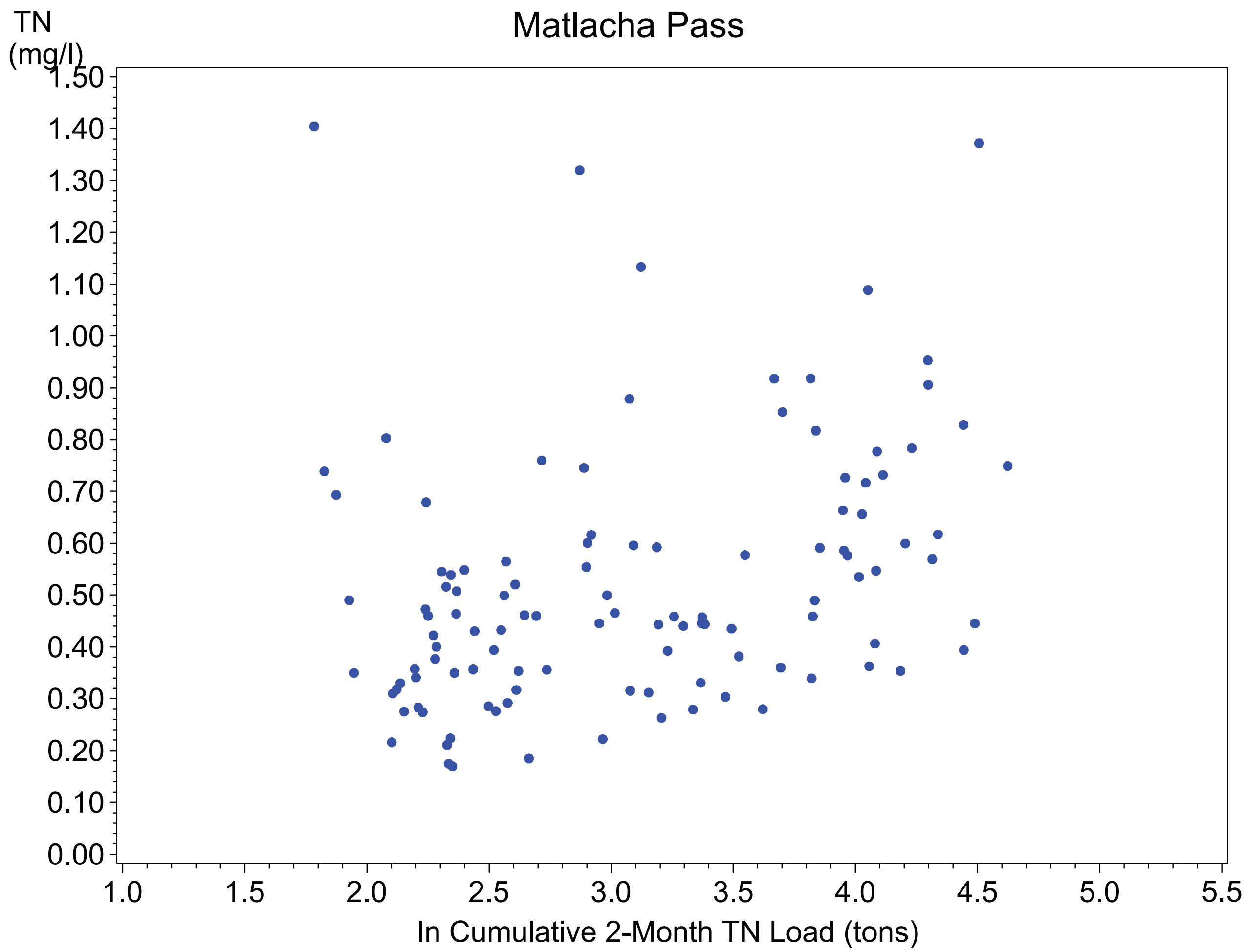

Matlacha Pass
TN (mg/l)
0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 1.00 1.10 1.20 1.30 1.40 1.50
0 10 20 30 40 50 60 70 80 90 100 110
Cumulative 2-Month TN Load (tons)

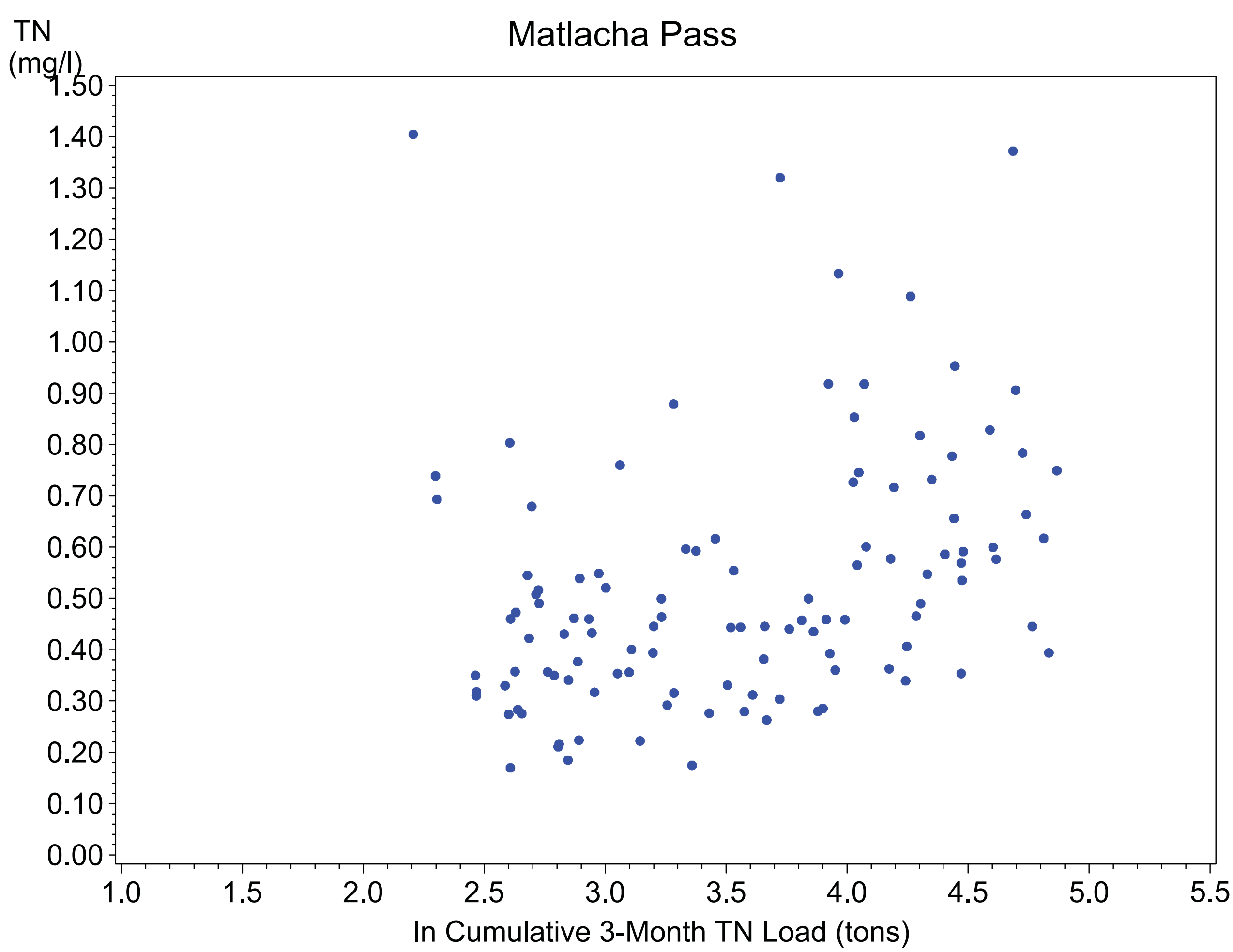


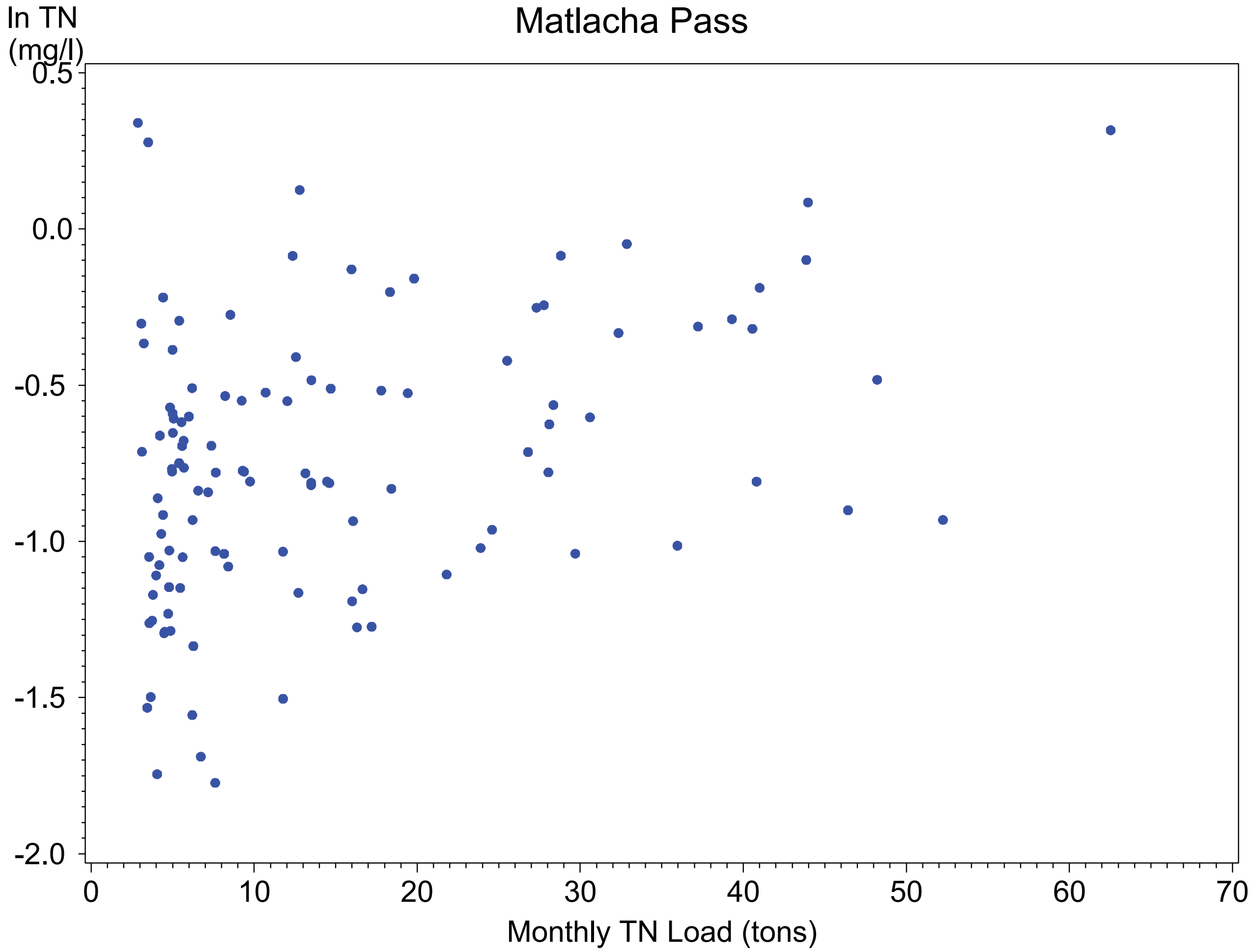
Matlacha Pass
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
20
40
60
80
100
120
140
Cumulative 3-Month TN Load (tons)

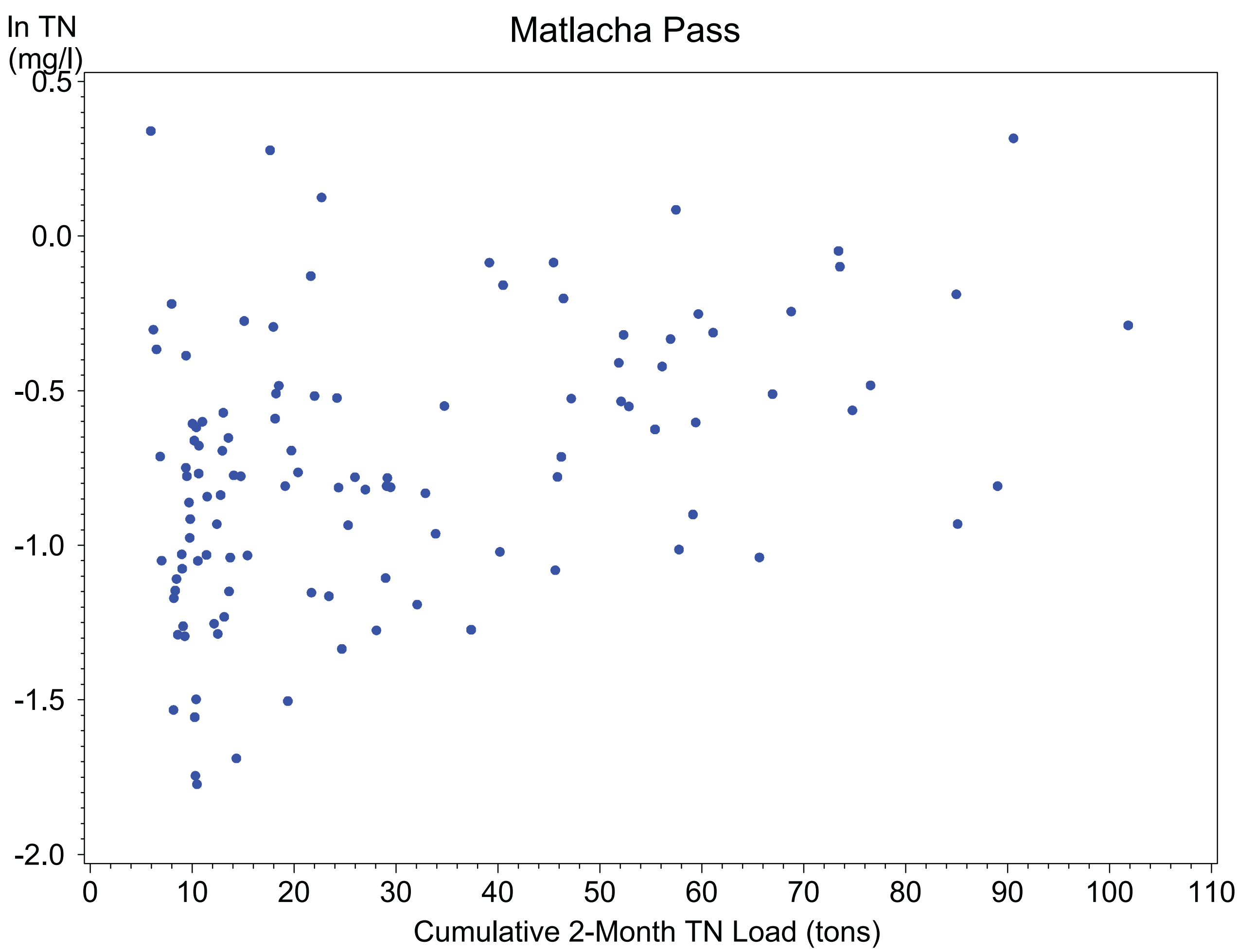


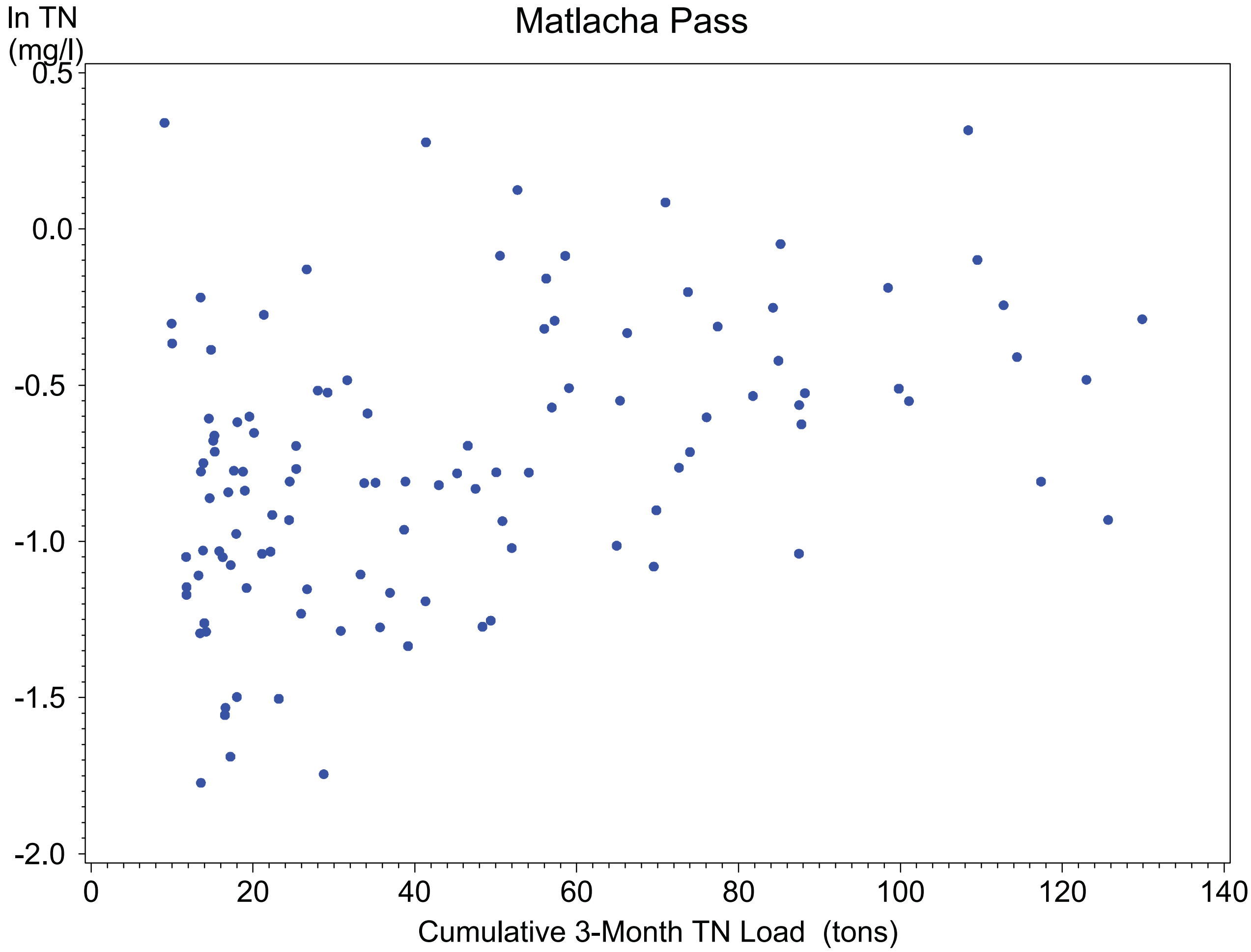
Matlacha Pass
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

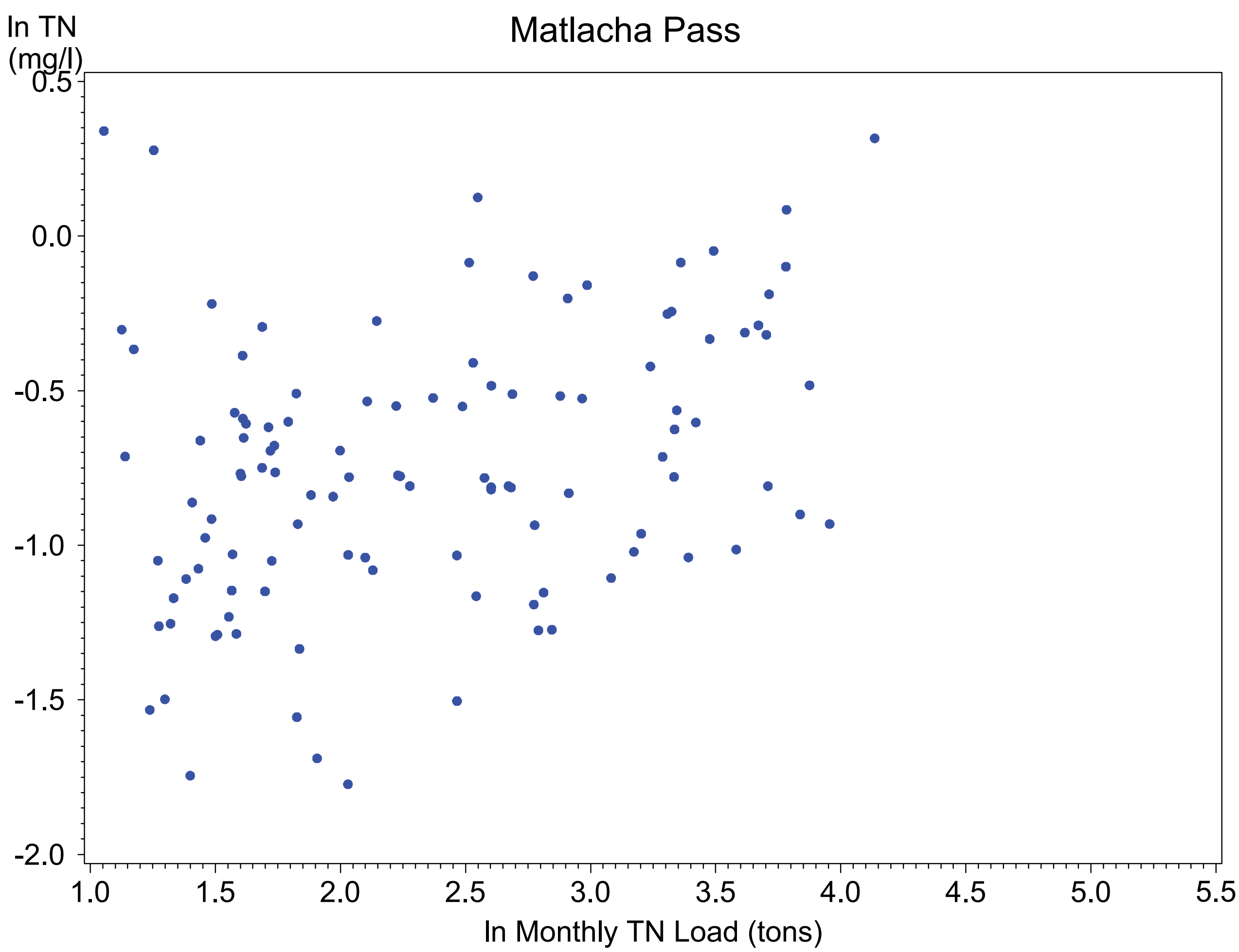

Matlacha Pass
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TN Load (tons)

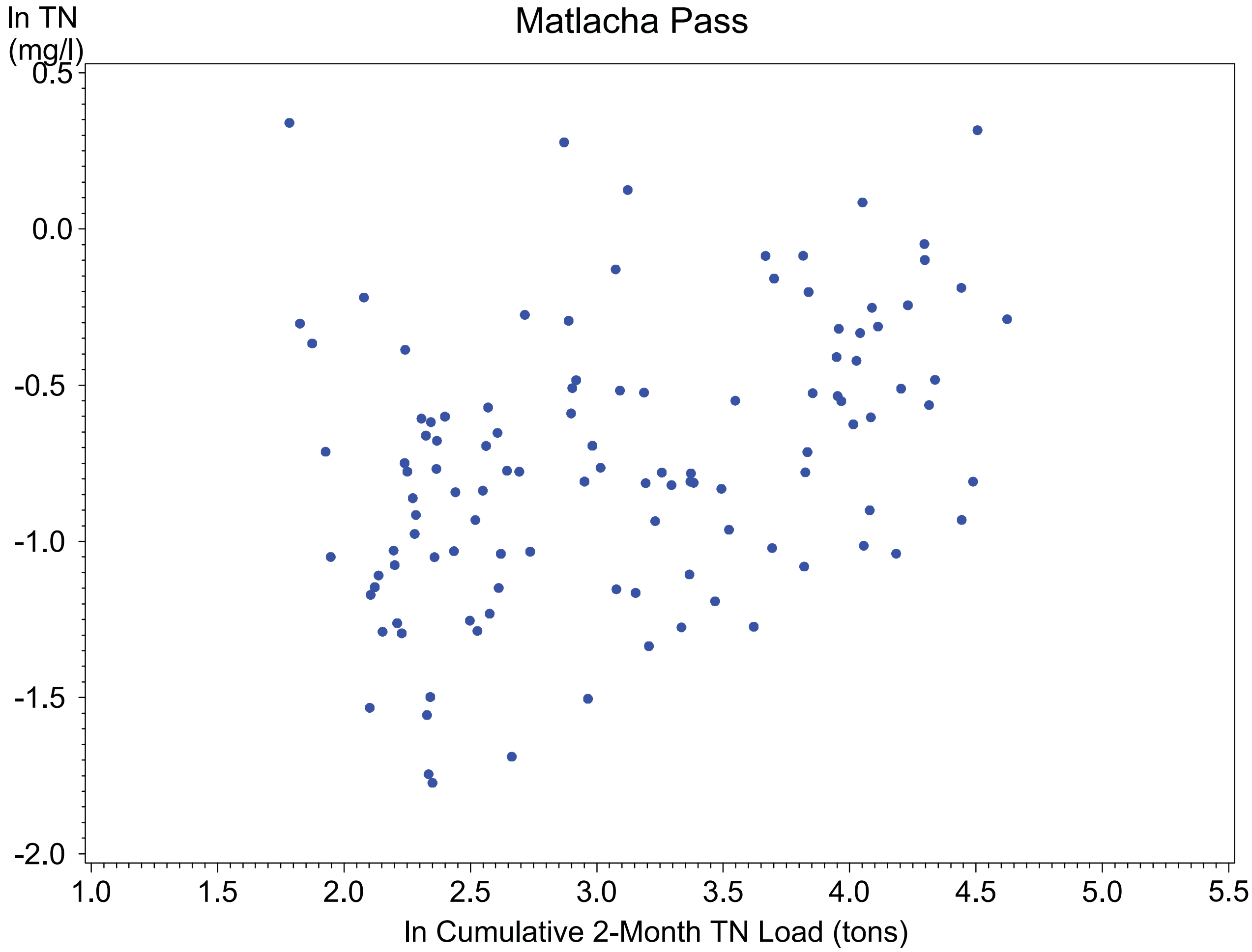

Matlacha Pass
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 3-Month TN Load (tons)


Matlacha Pass
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
10
20
30
40
50
60
70
Monthly TN Load (tons)

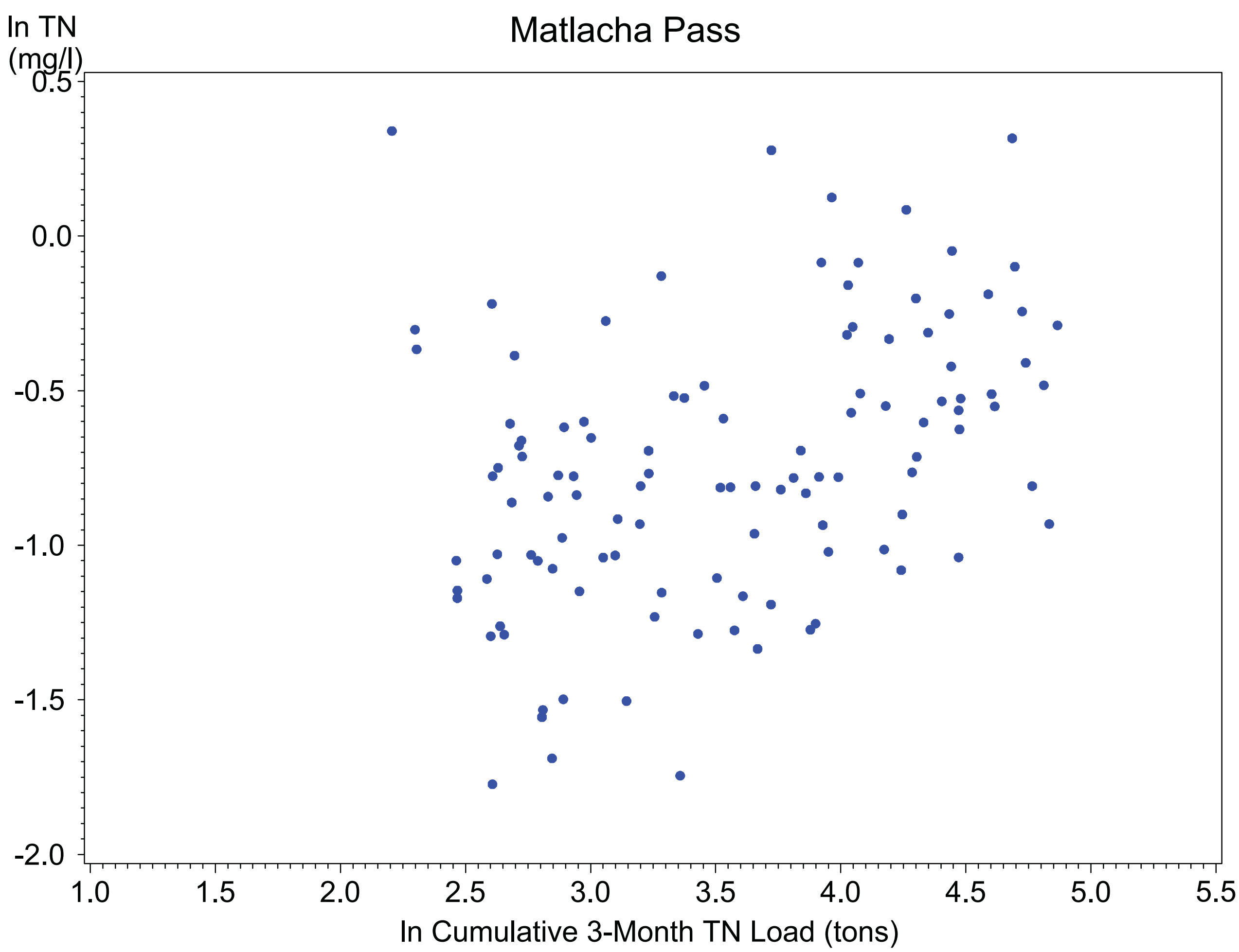

Matlacha Pass
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 2-Month TN Load (tons)


Matlacha Pass
ln TN
(mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
20
40
60
80
100
120
140
Cumulative 3-Month TN Load (tons)

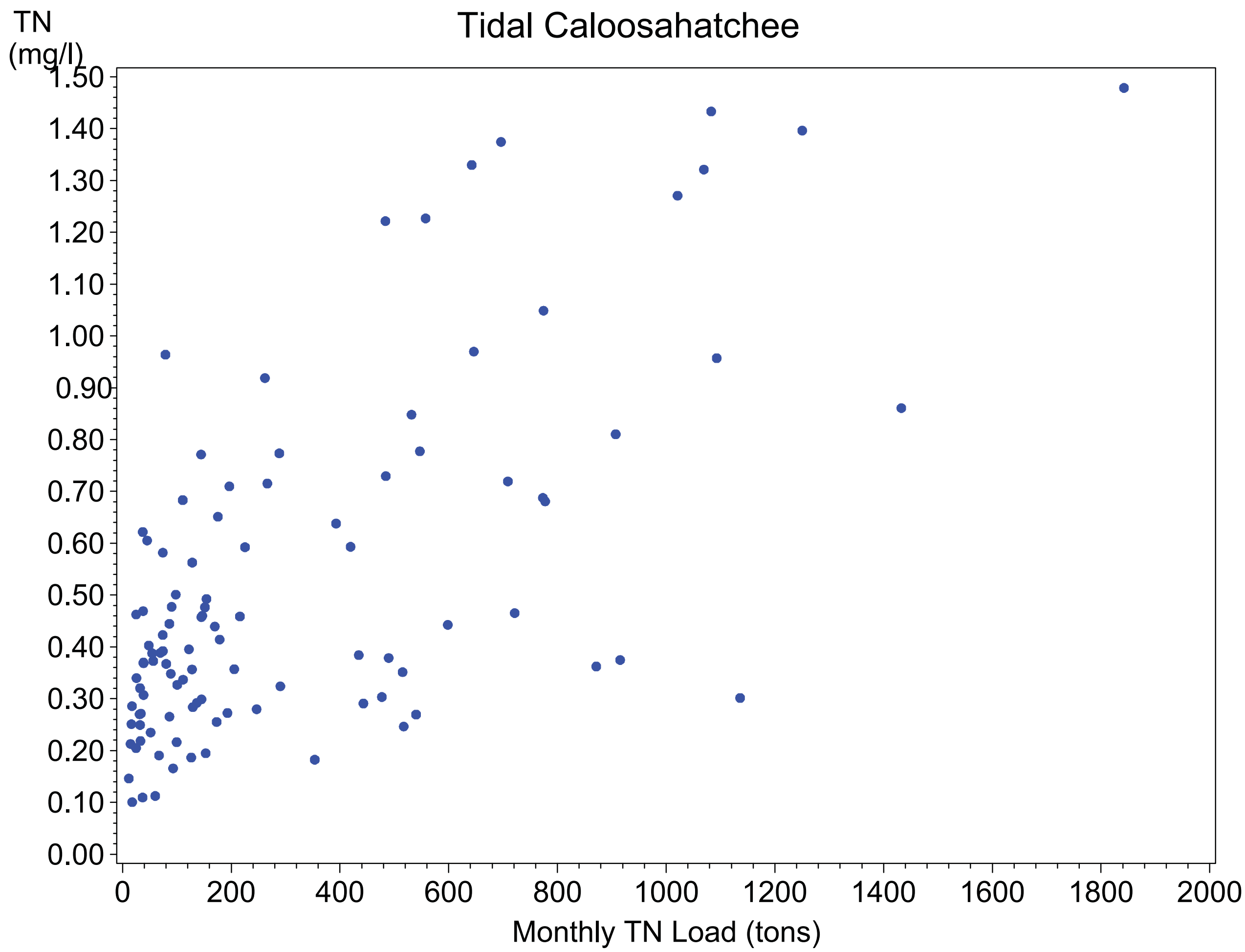

Matlacha Pass
ln TN
(mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

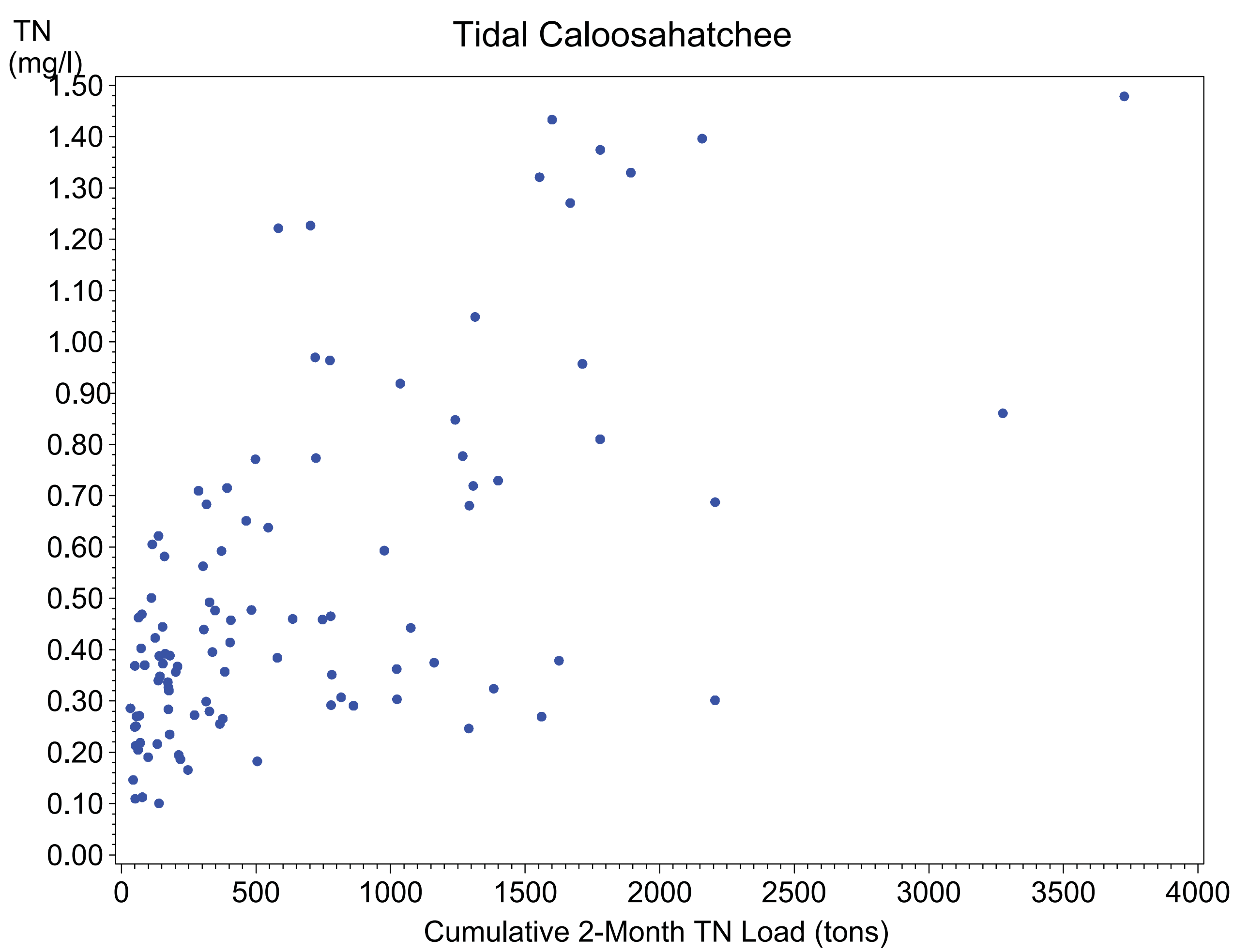


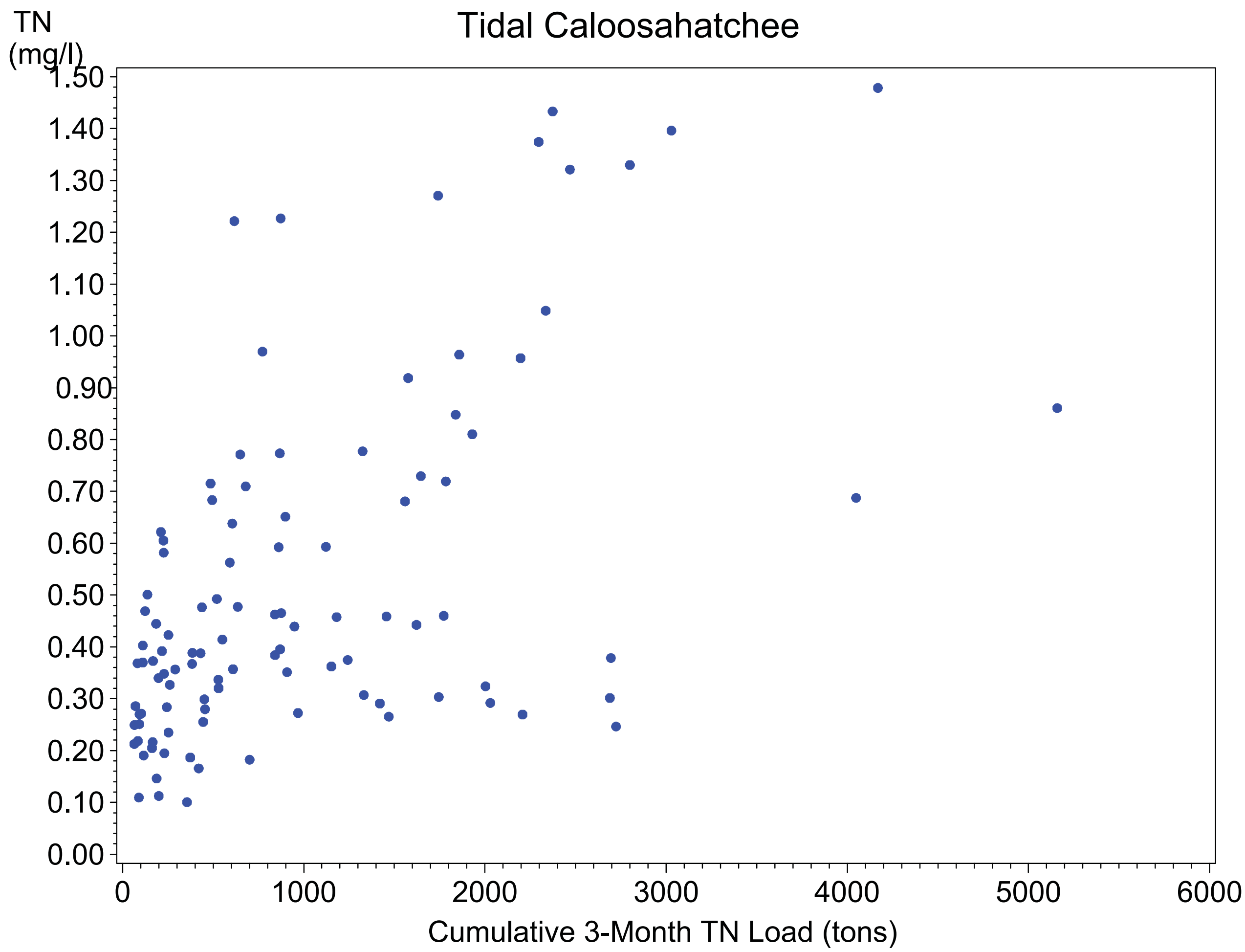
Matlacha Pass
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TN Load (tons)

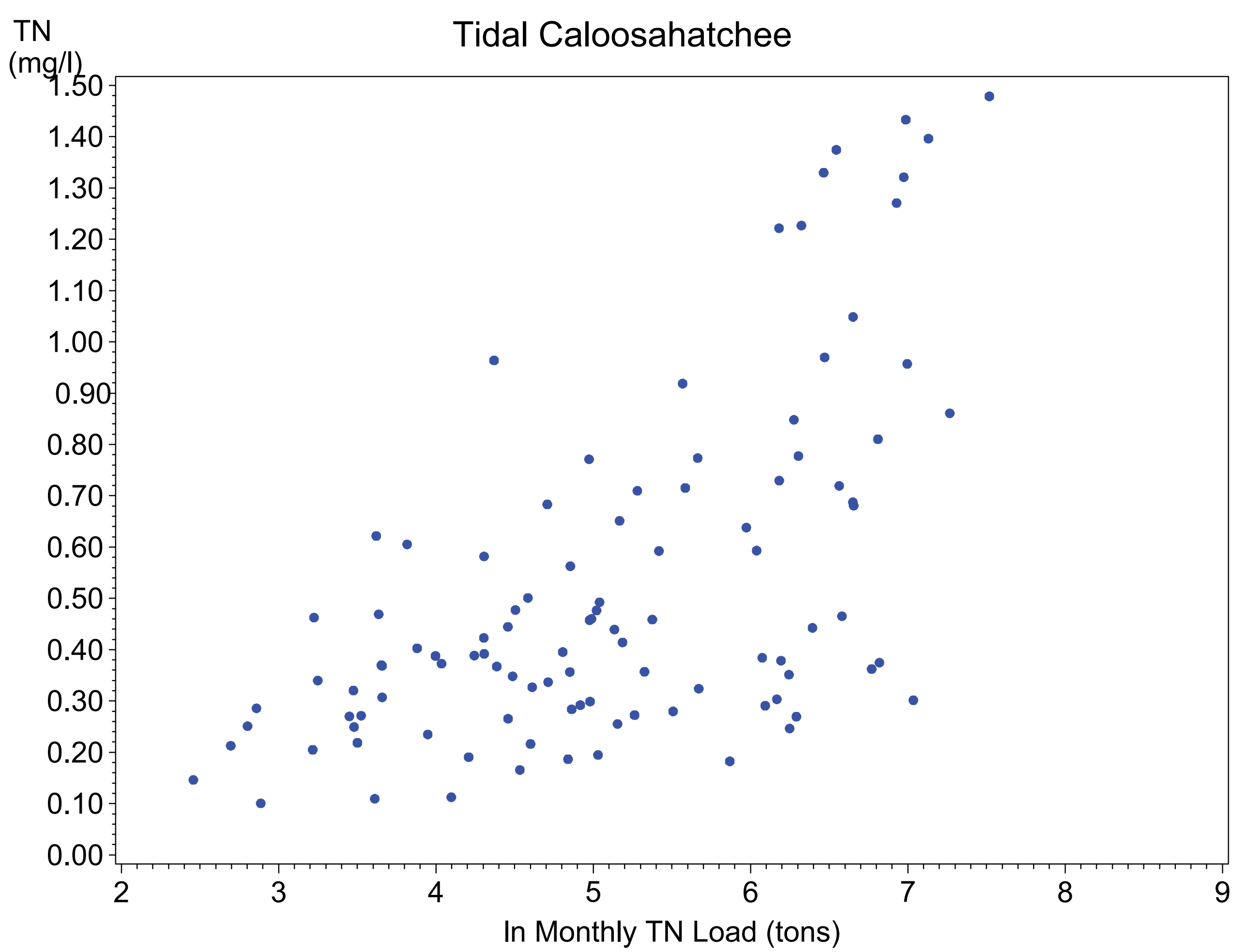


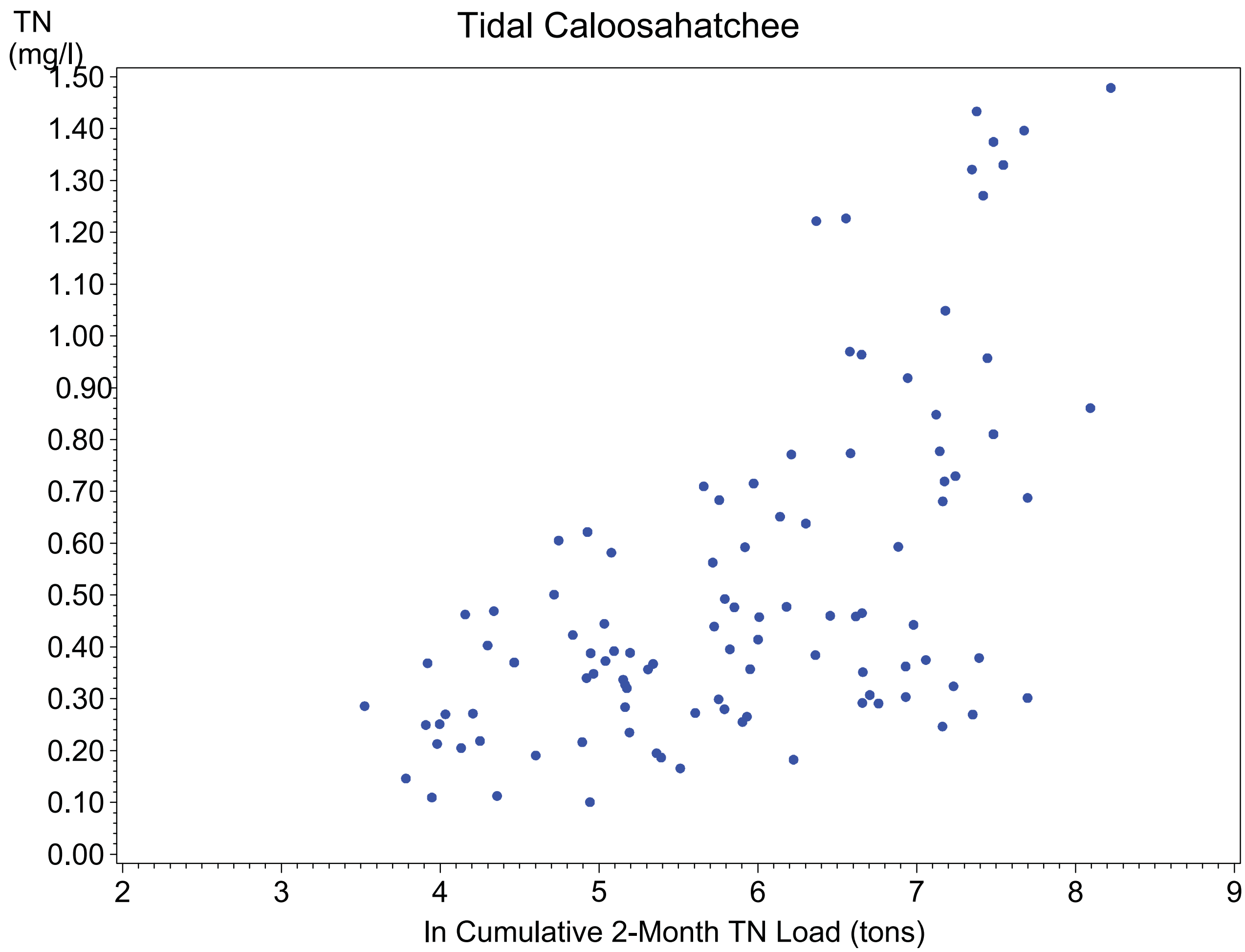
Matlacha Pass
ln TN (mg/l)
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 3-Month TN Load (tons)

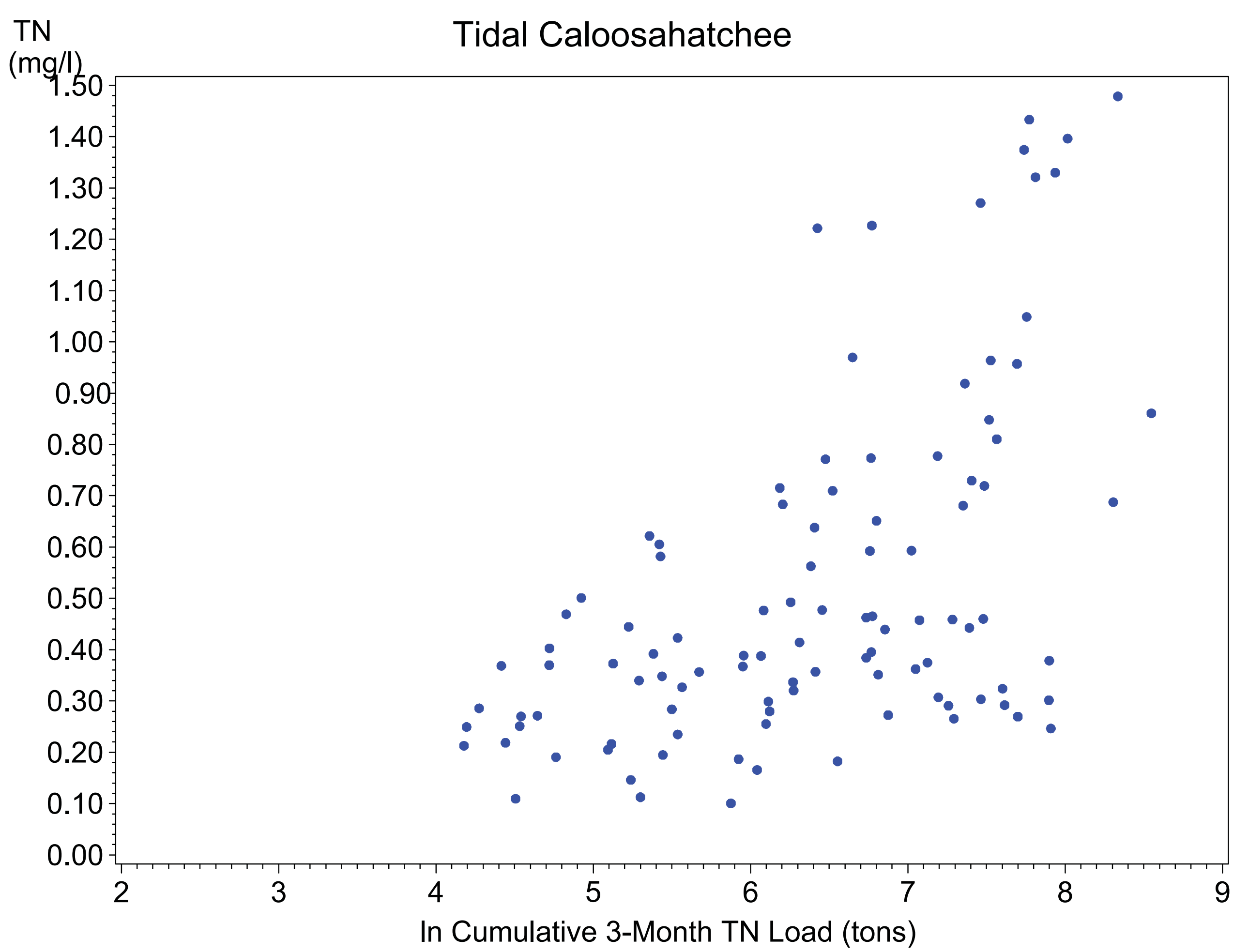

Tidal Caloosahatchee
TN
(mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

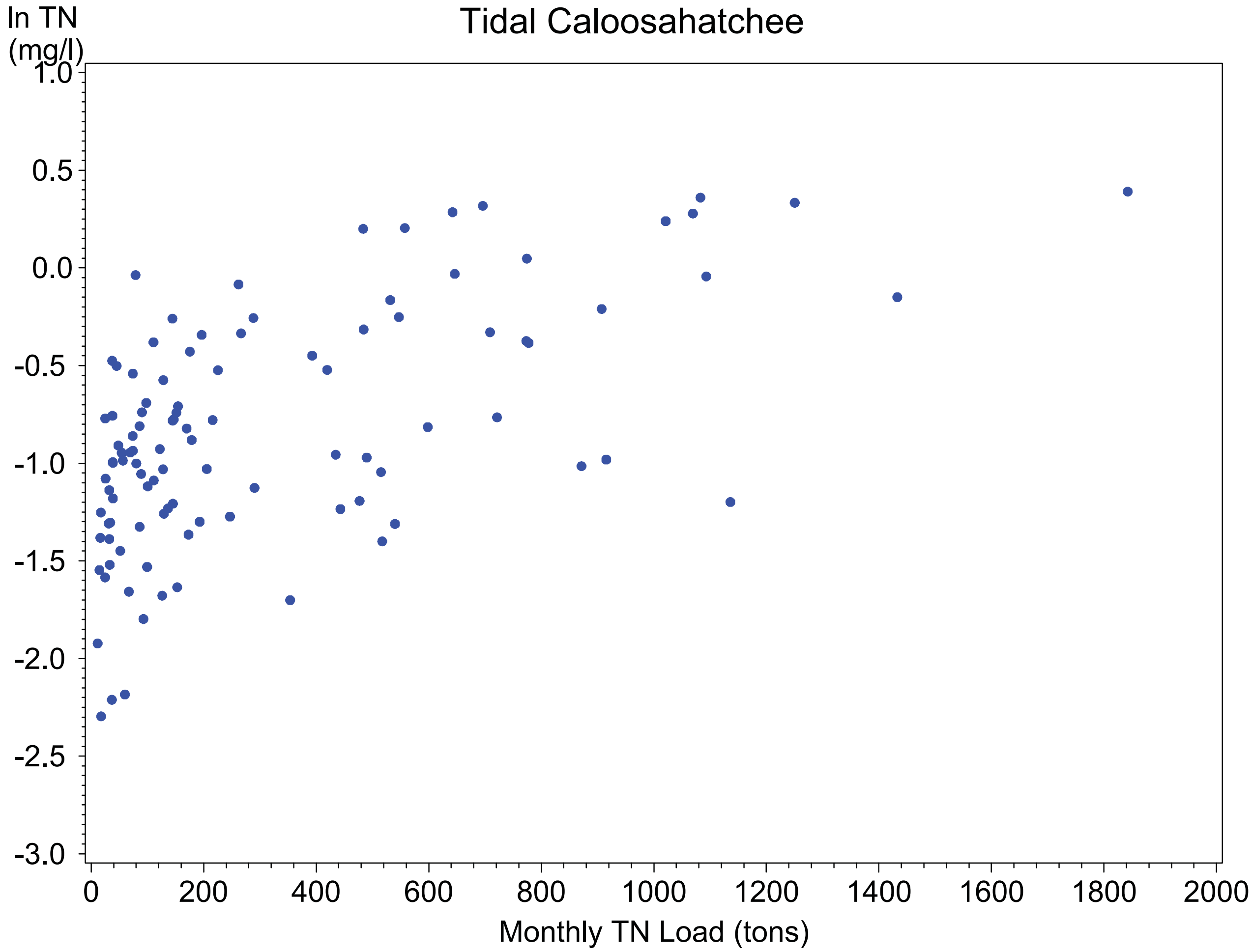

Tidal Caloosahatchee
TN
(mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

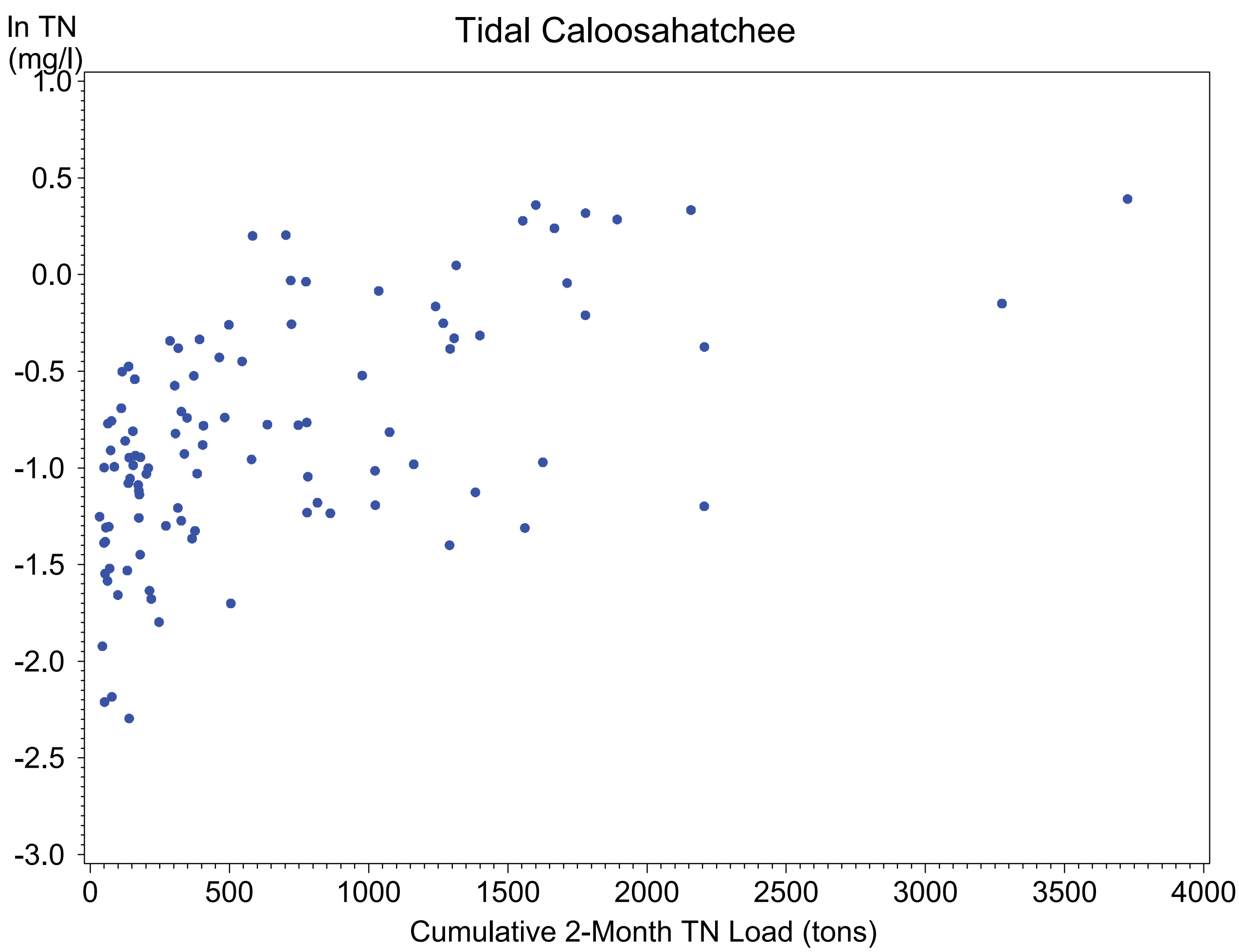

Tidal Caloosahatchee
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

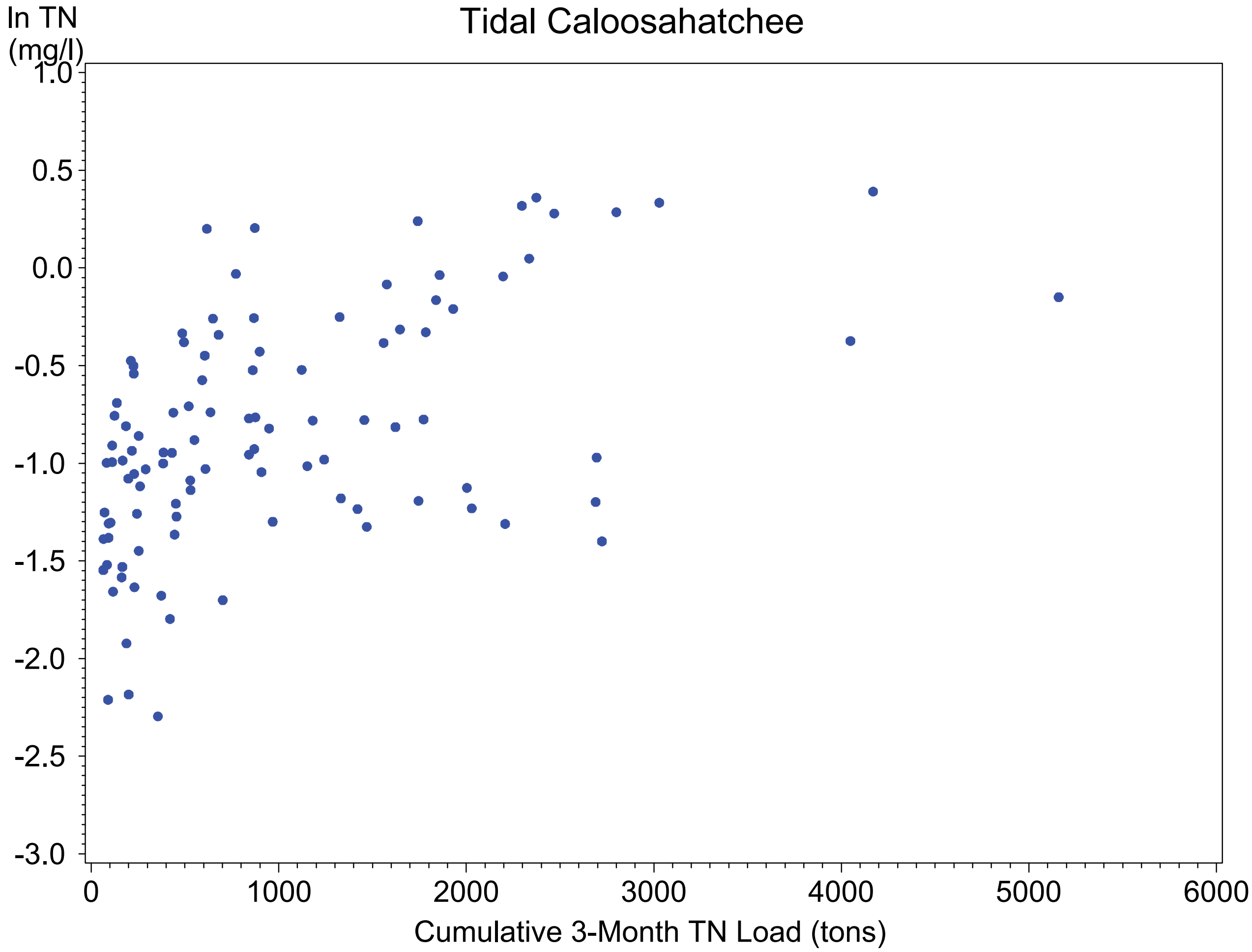

Tidal Caloosahatchee
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)

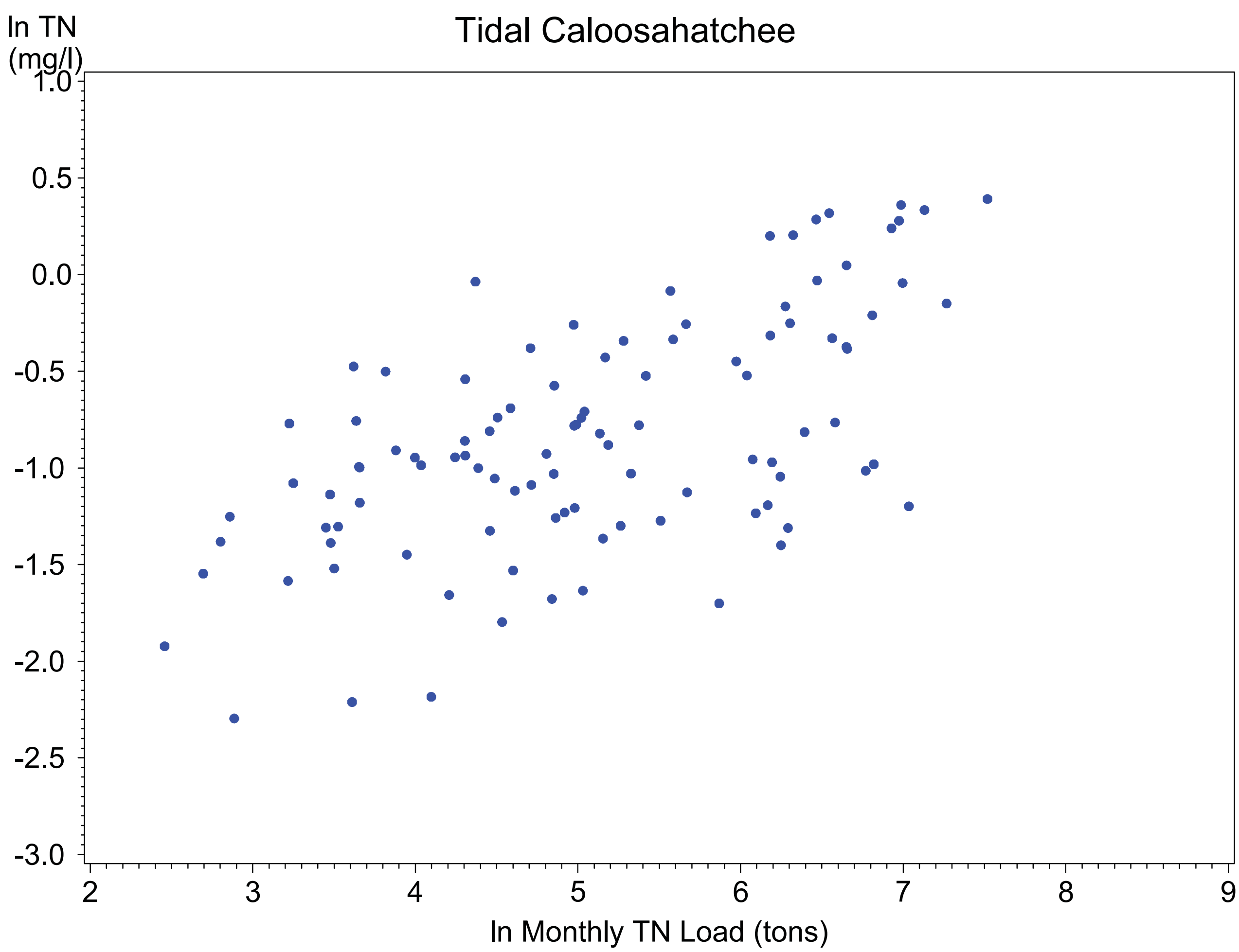

Tidal Caloosahatchee
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

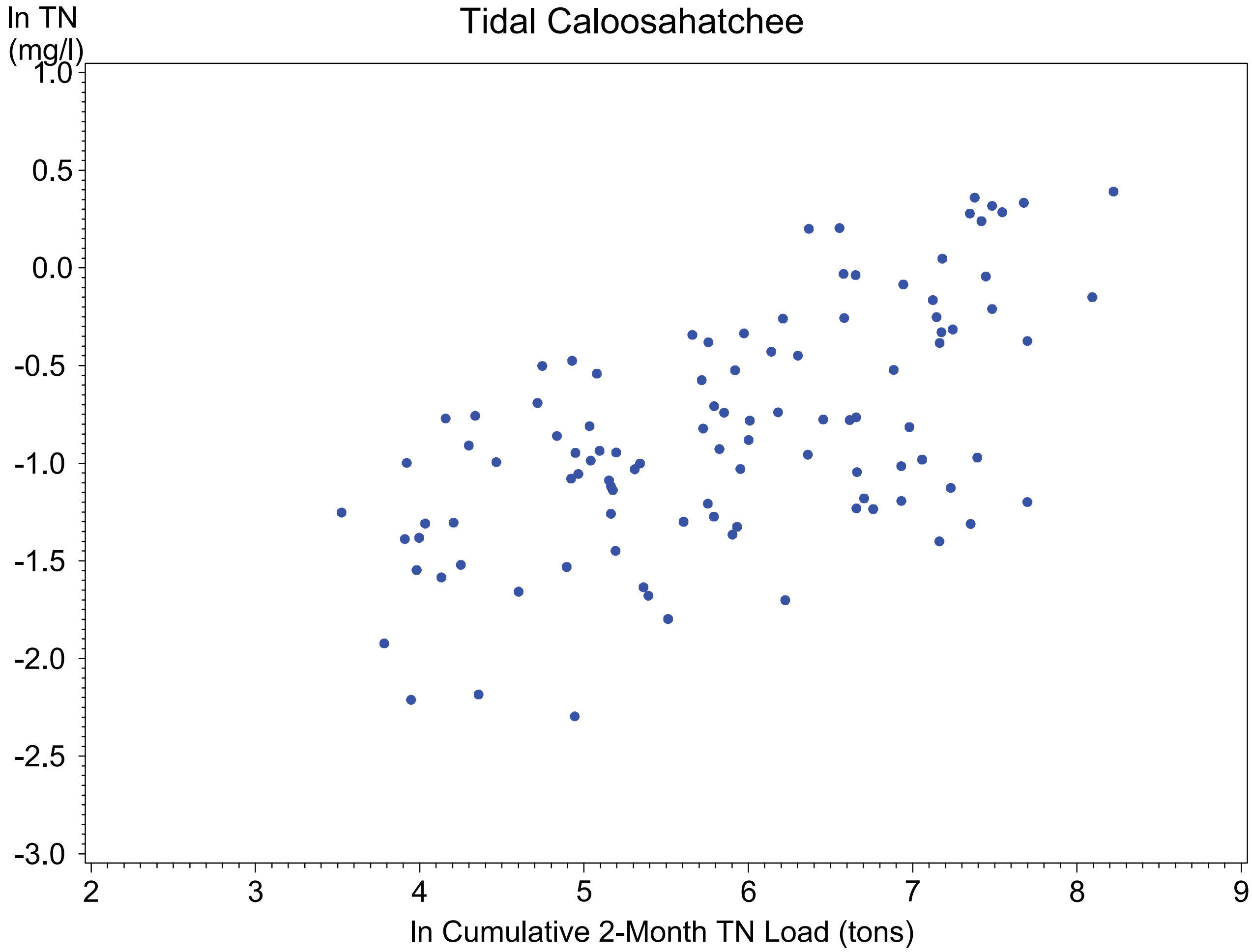

Tidal Caloosahatchee
TN (mg/l)
1.50
1.40
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

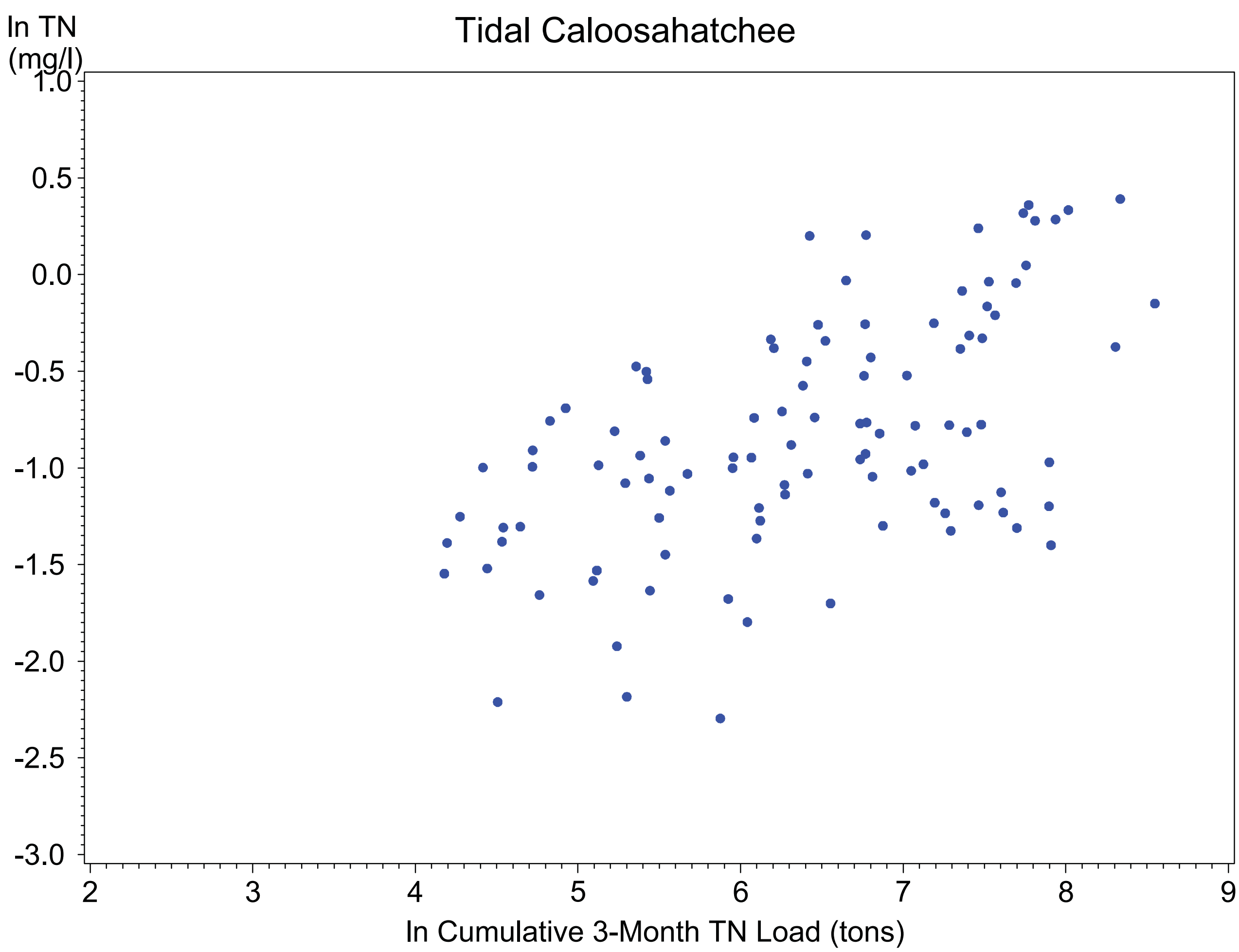

Tidal Caloosahatchee
ln TN (mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

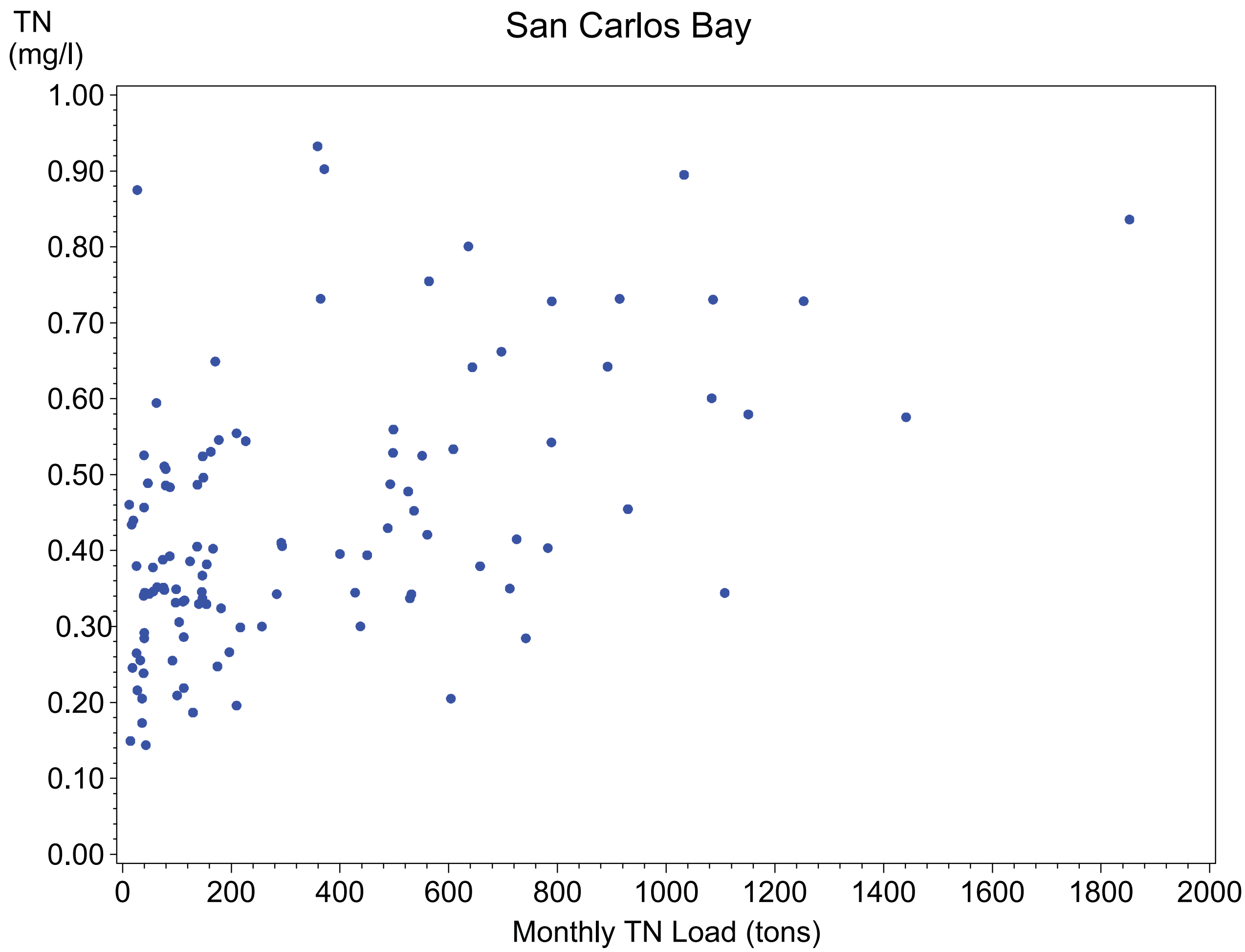

Tidal Caloosahatchee
ln TN (mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

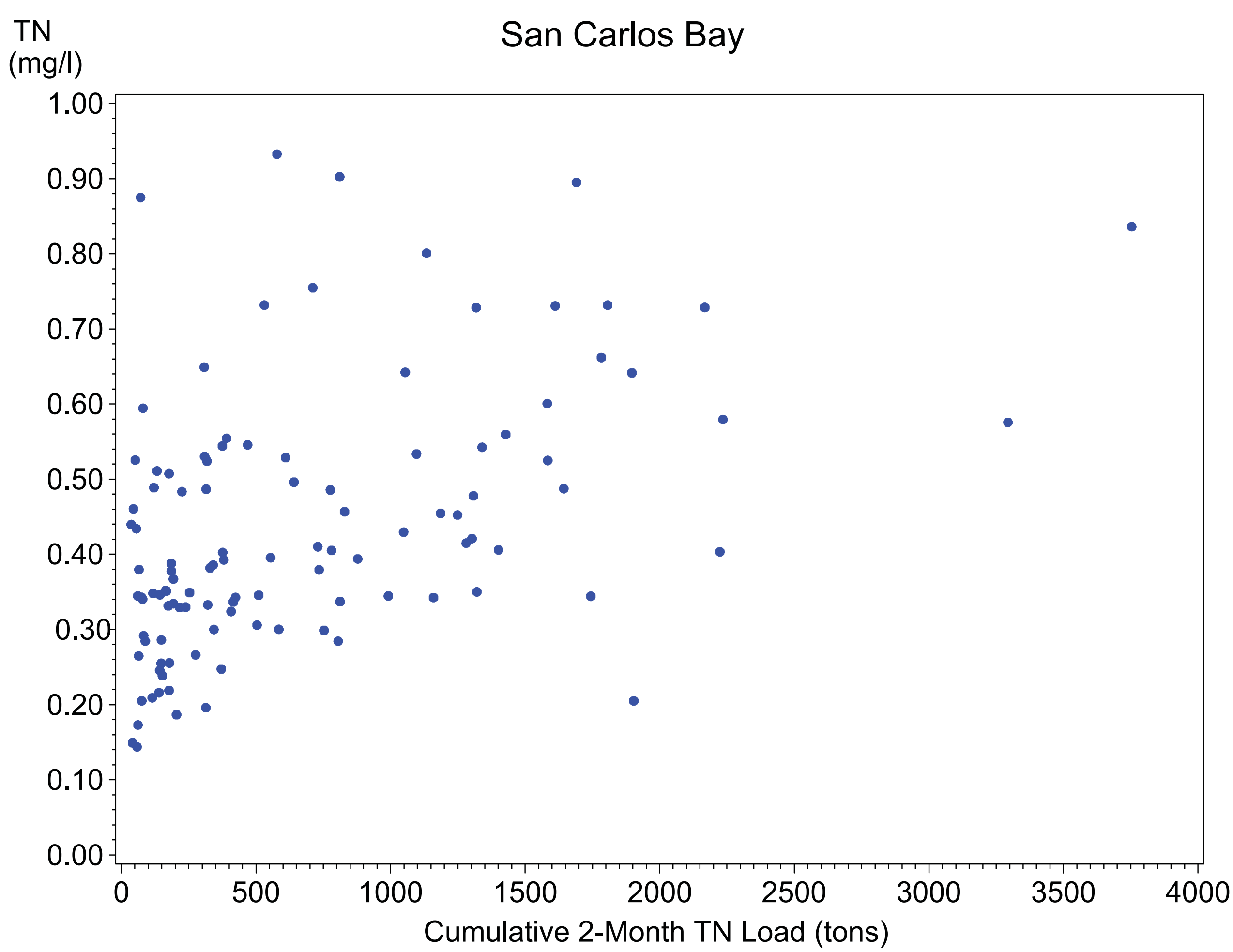

Tidal Caloosahatchee
ln TN
(mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

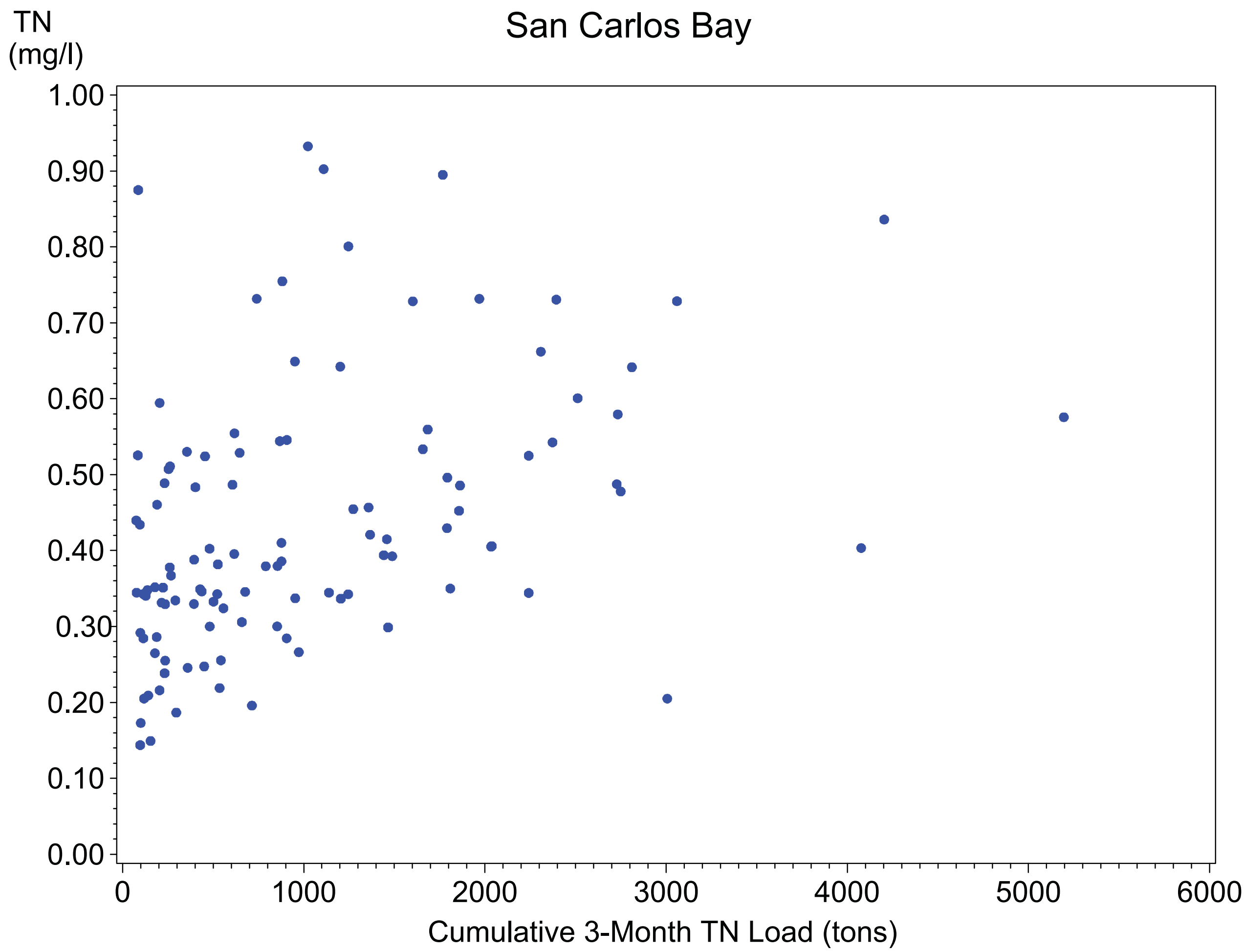

Tidal Caloosahatchee
ln TN
(mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)


ln TN
(mg/l)
Tidal Caloosahatchee
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

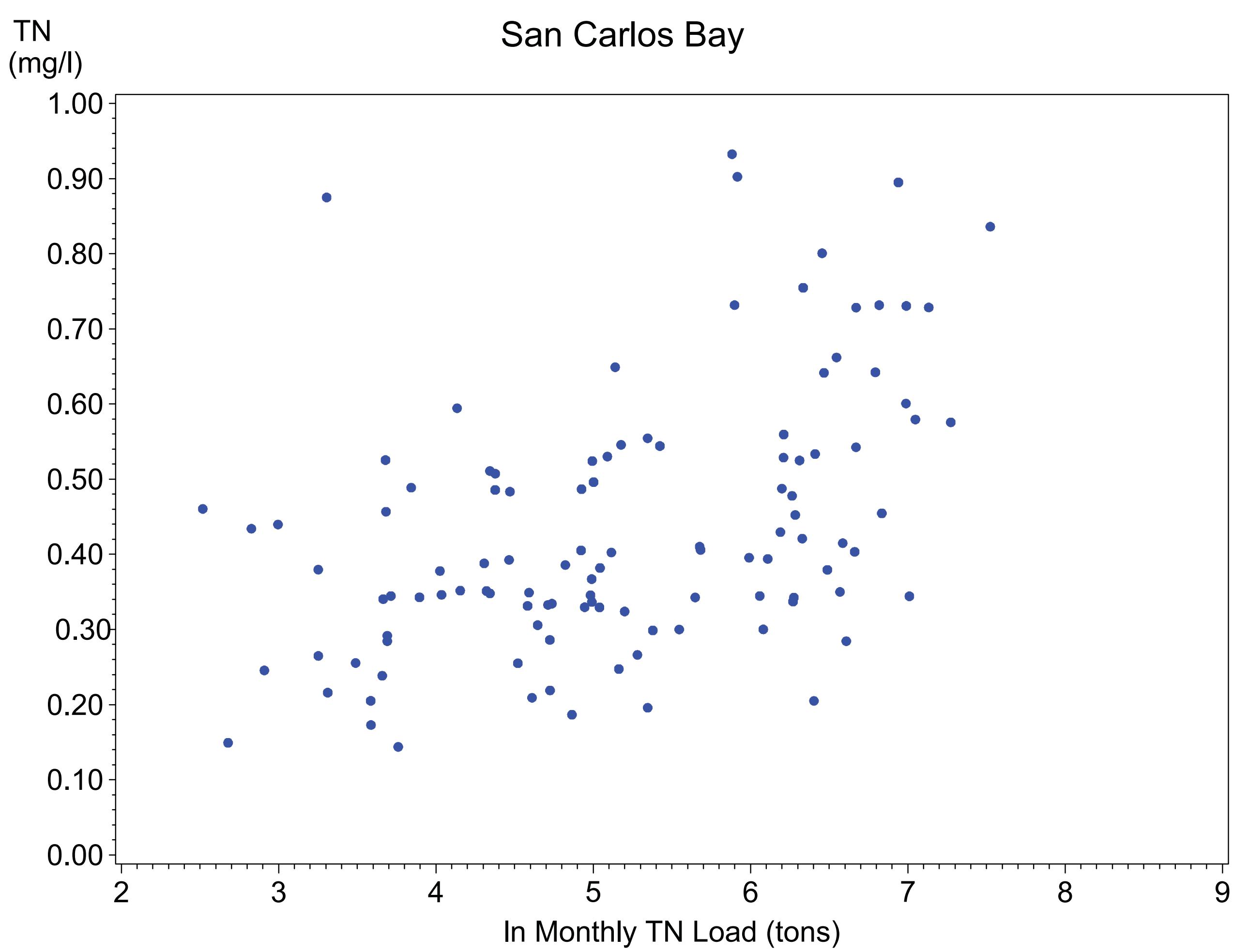

ln TN
(mg/l)
Tidal Caloosahatchee
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)


San Carlos Bay
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

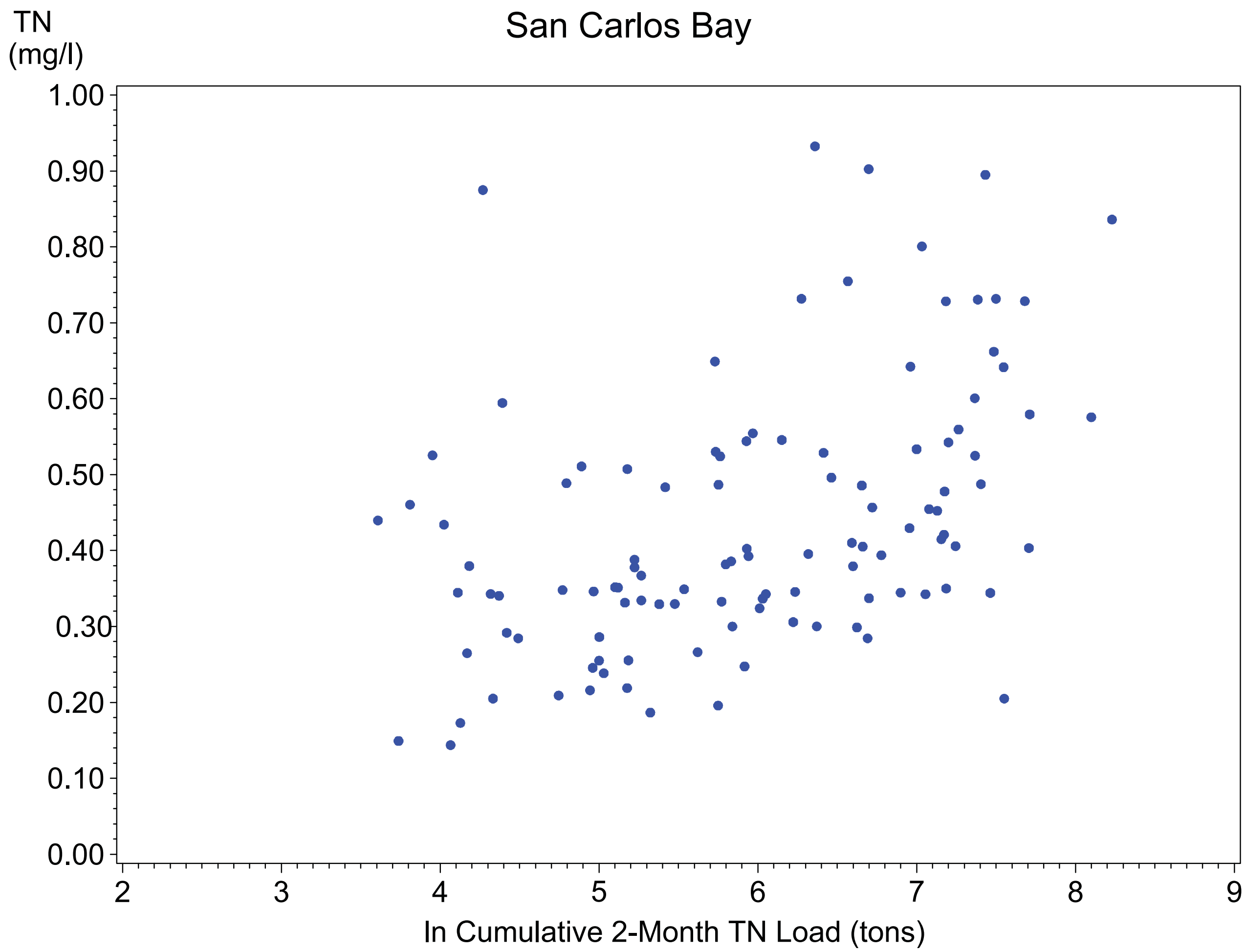

San Carlos Bay
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

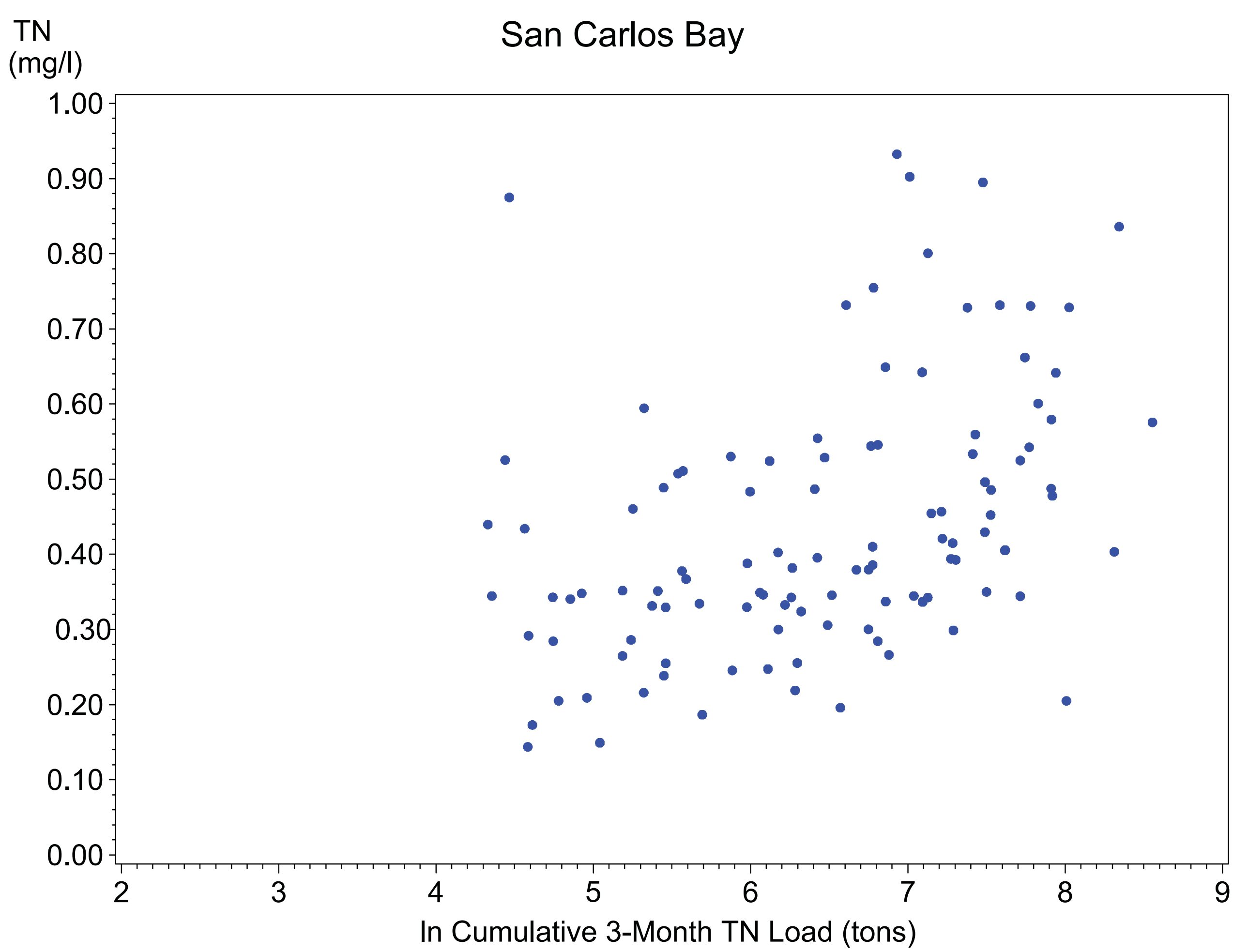


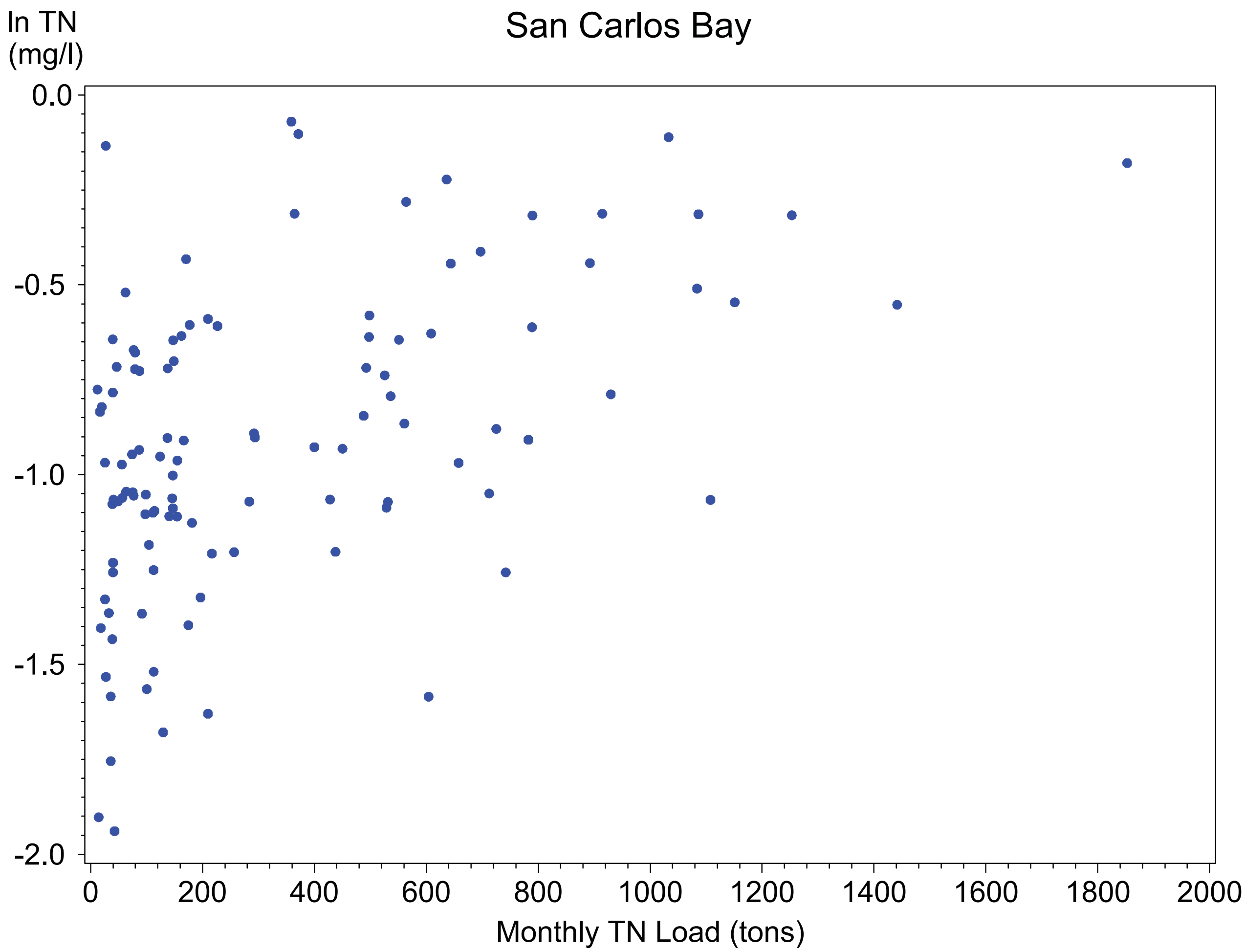
San Carlos Bay
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)



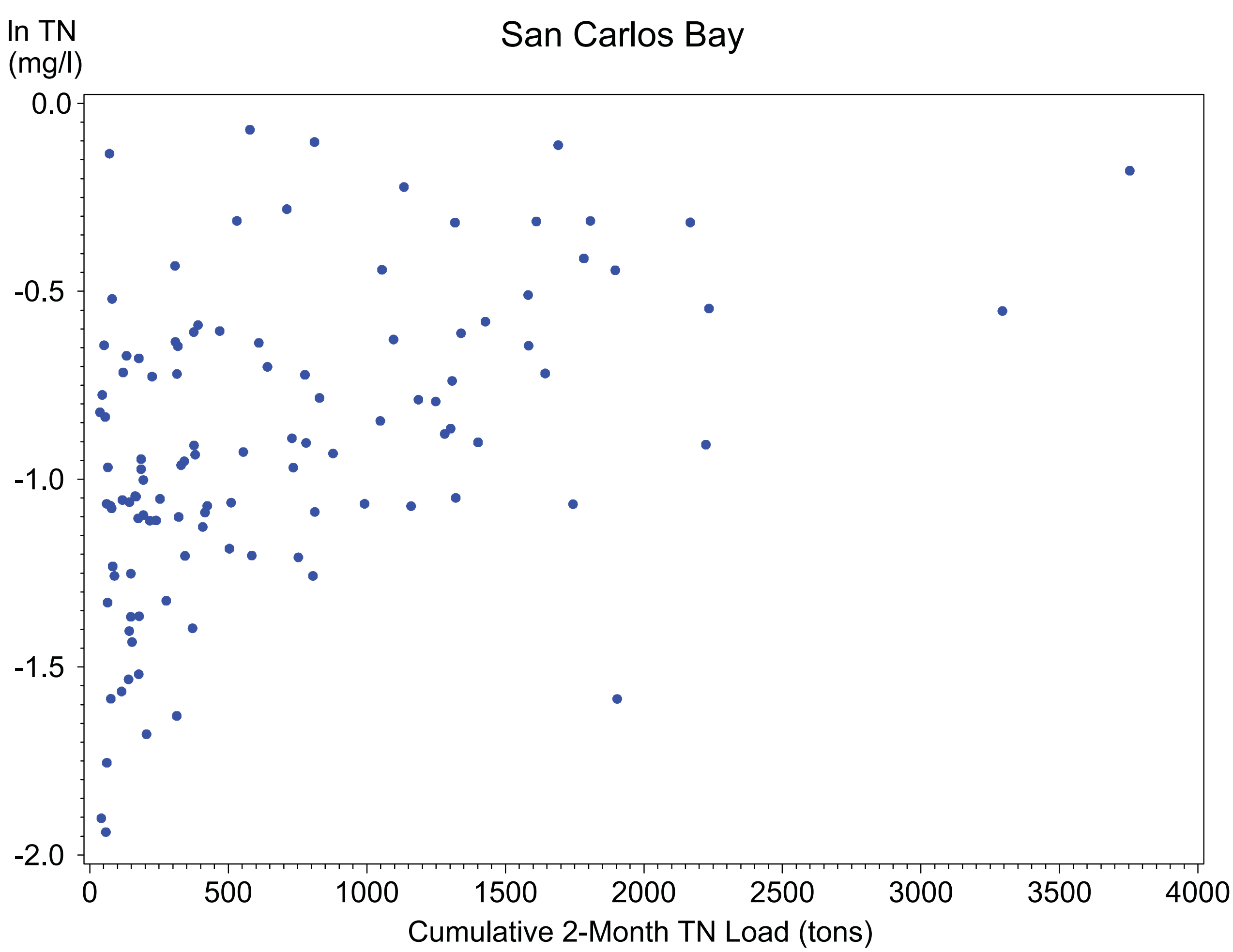
San Carlos Bay
TN (mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)


San Carlos Bay
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

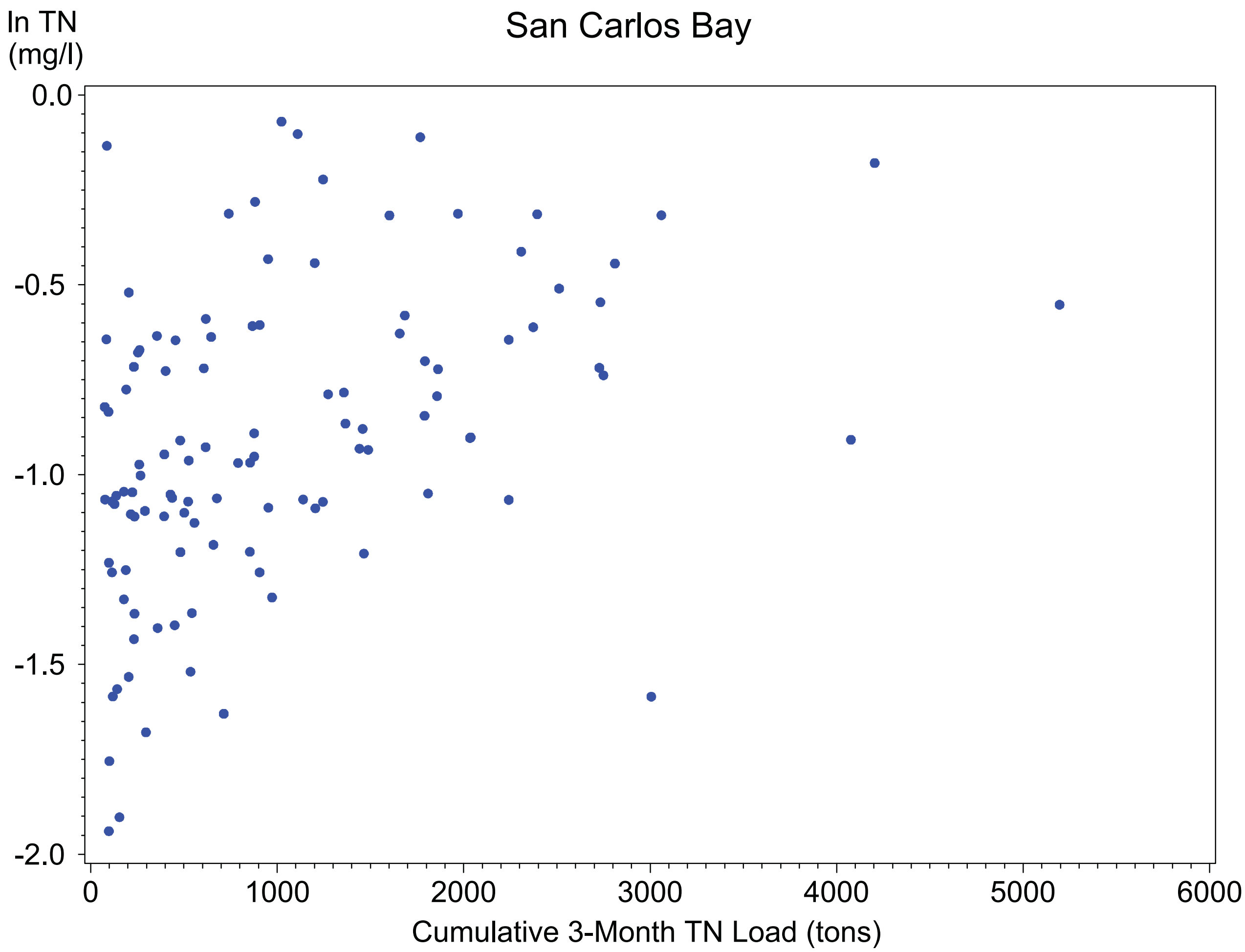

San Carlos Bay
TN
(mg/l)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

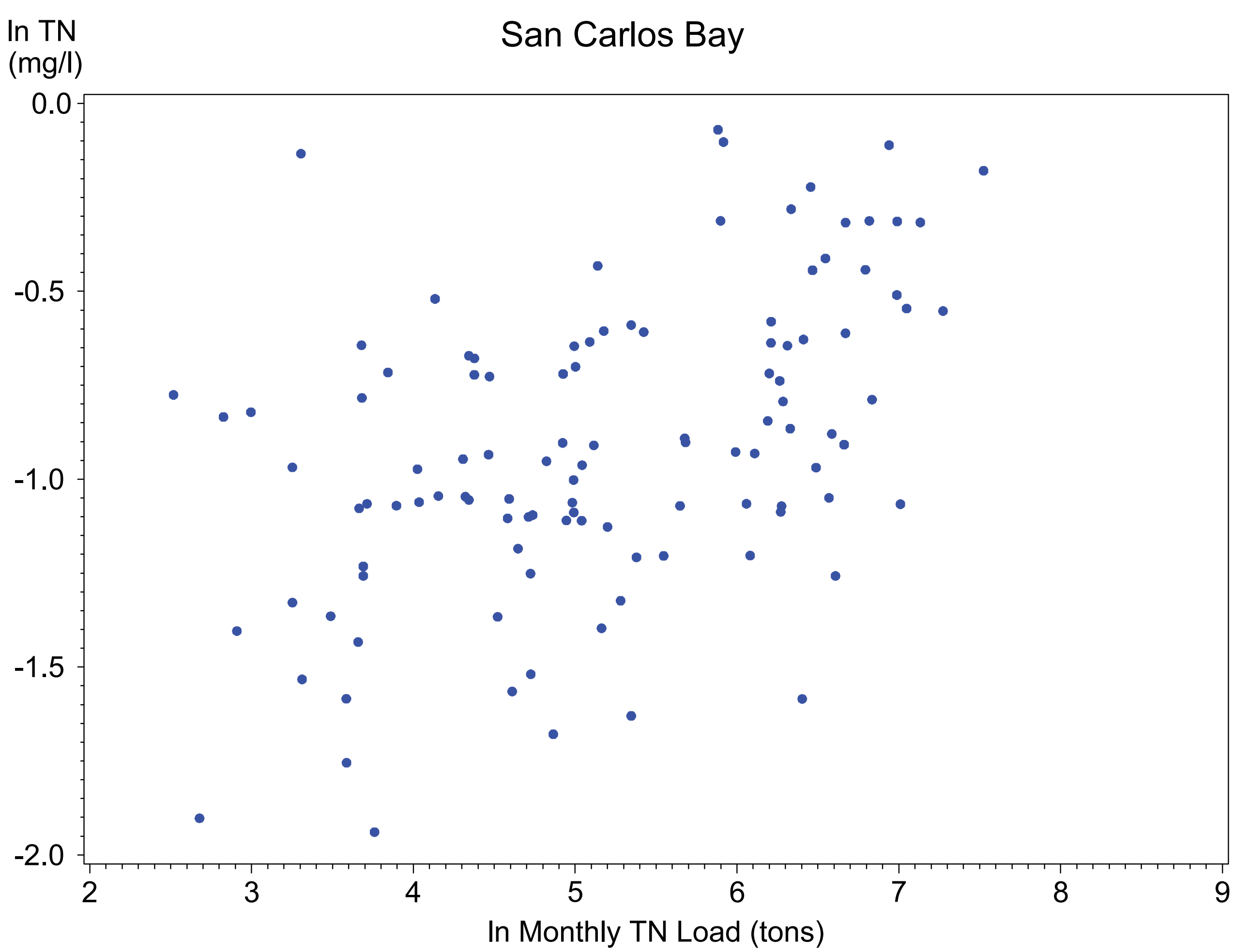


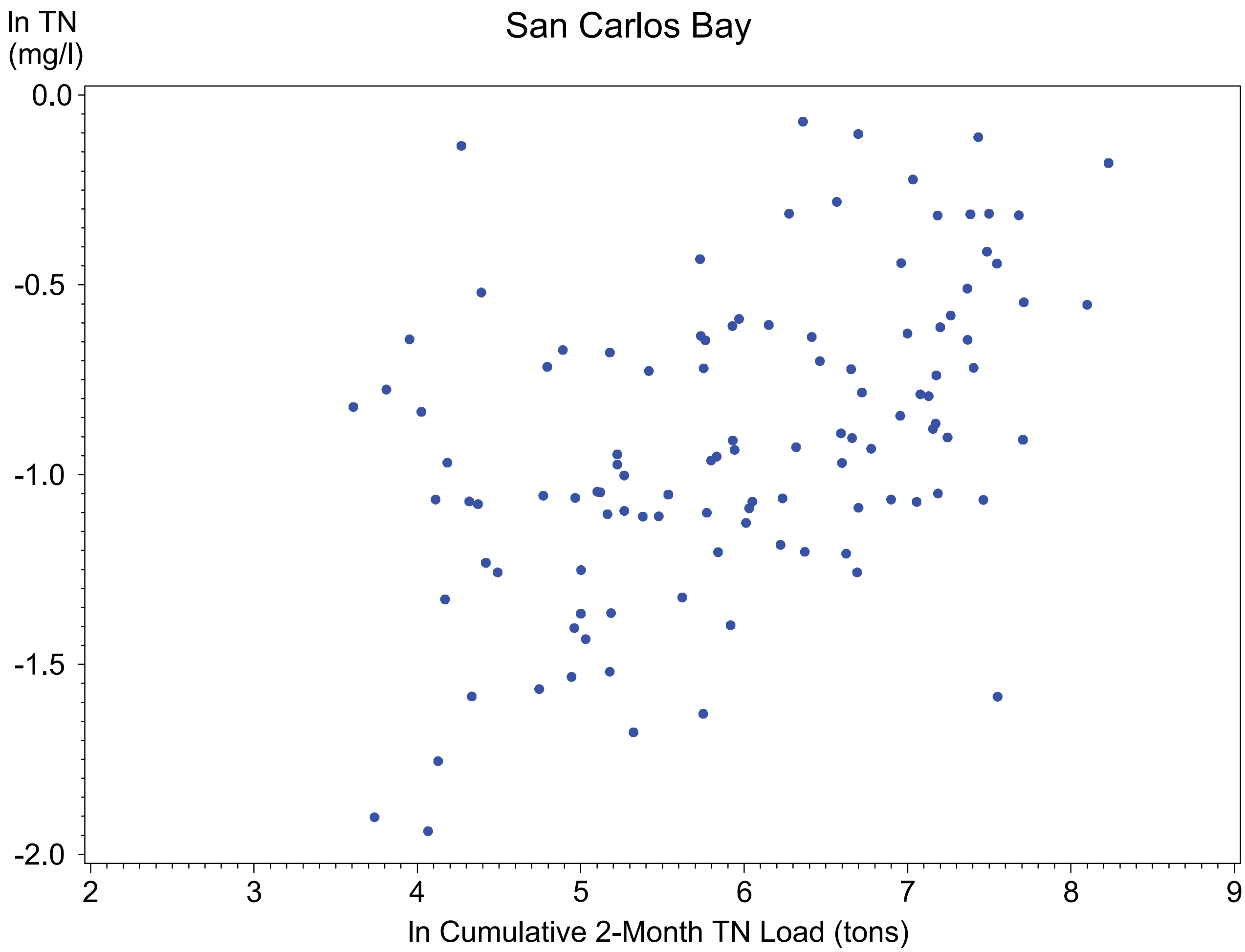
ln TN
(mg/l)
San Carlos Bay
0.0
-0.5
-1.0
-1.5
-2.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)



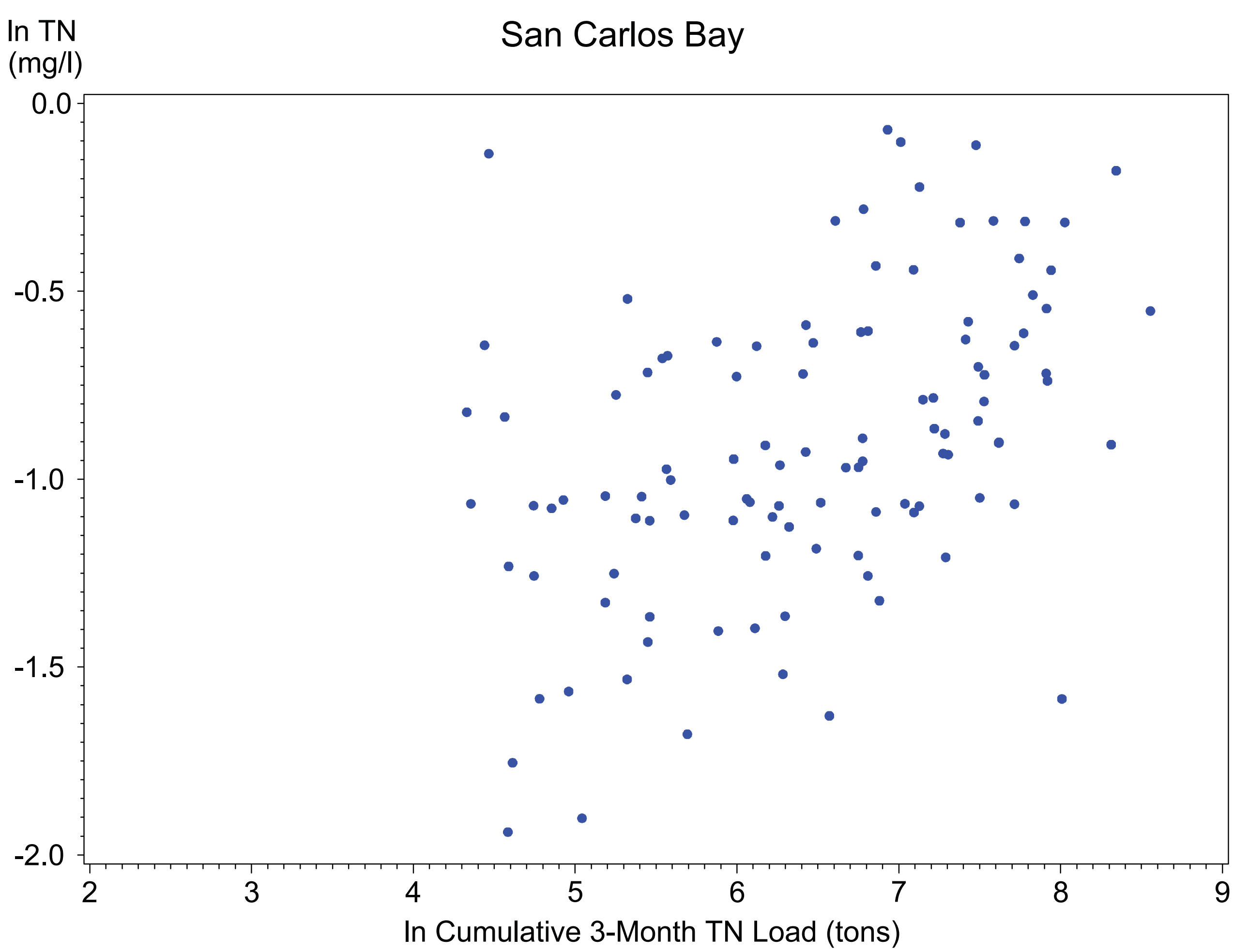
ln TN
(mg/l)
San Carlos Bay
0.0
-0.5
-1.0
-1.5
-2.0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)


San Carlos Bay
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

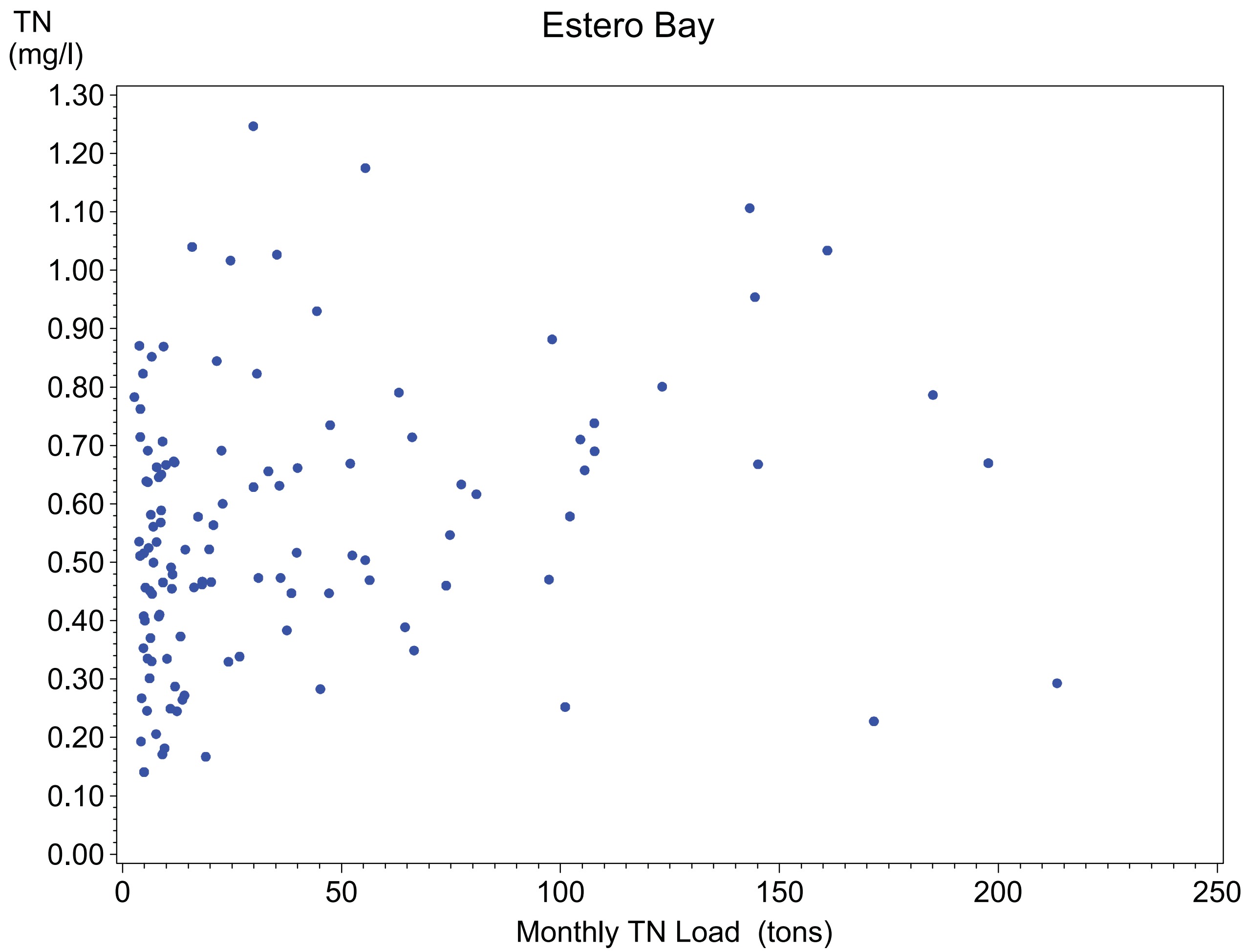

San Carlos Bay
ln TN (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
2
3
4
5
6
7
8
9
ln Monthly TN Load (tons)

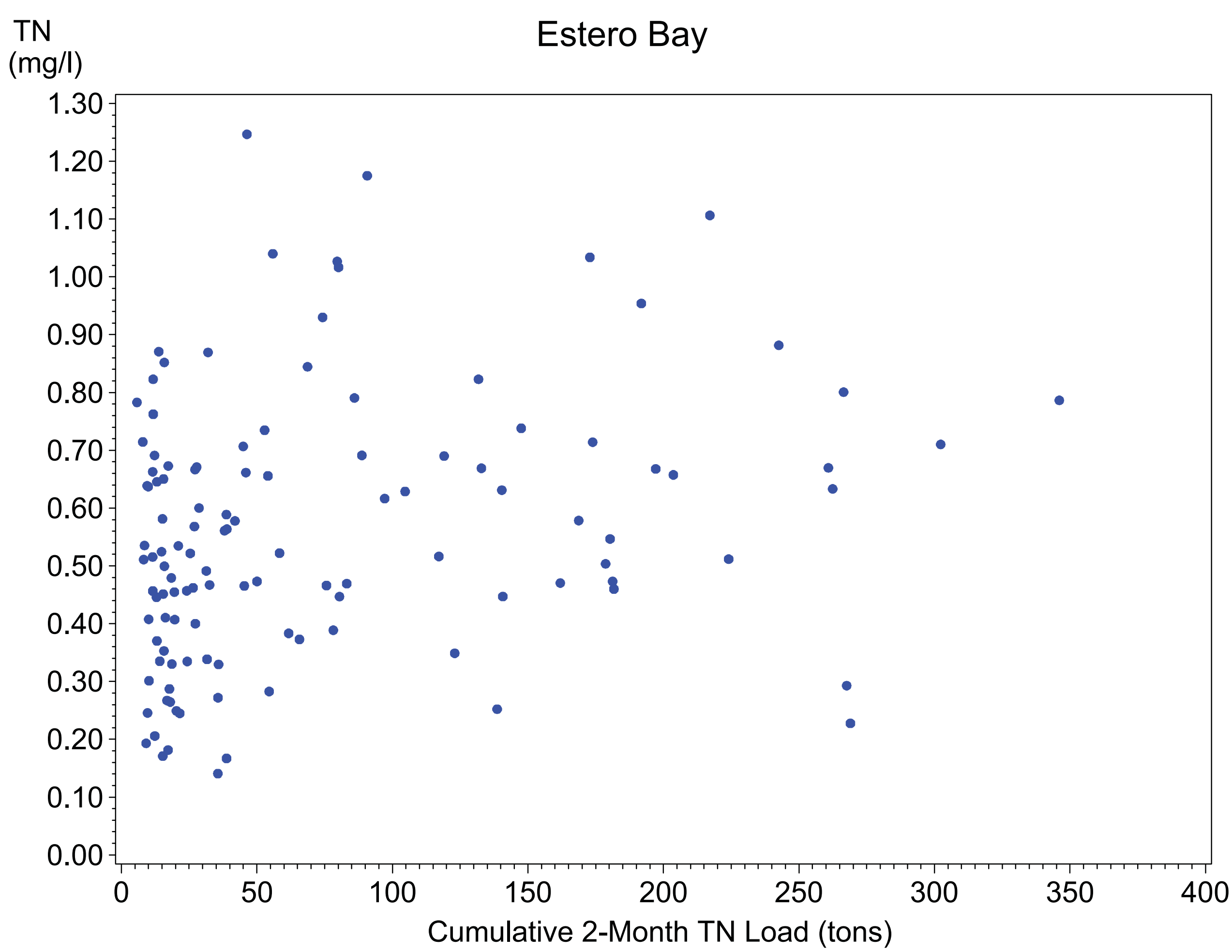


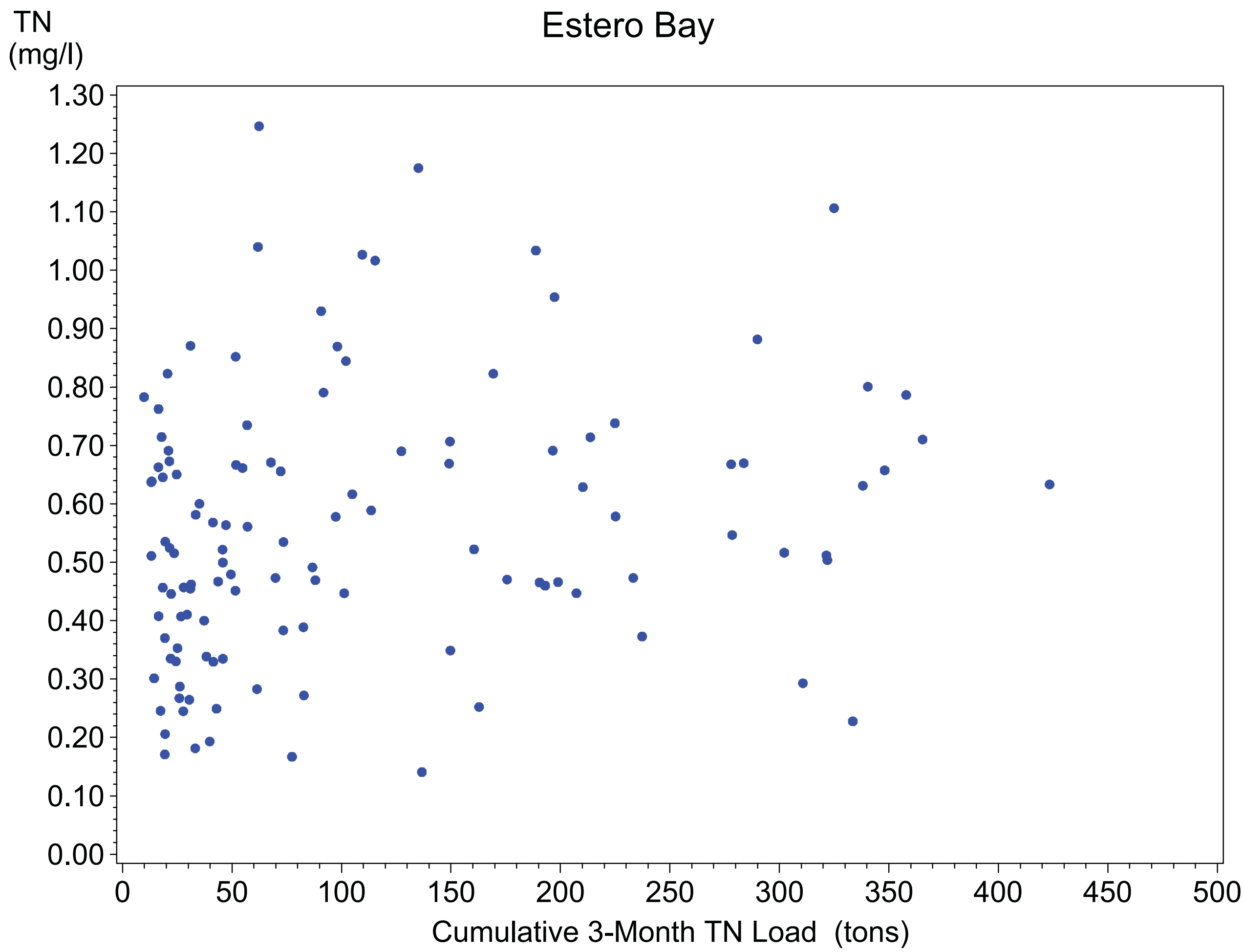
San Carlos Bay
ln TN
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
2
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)



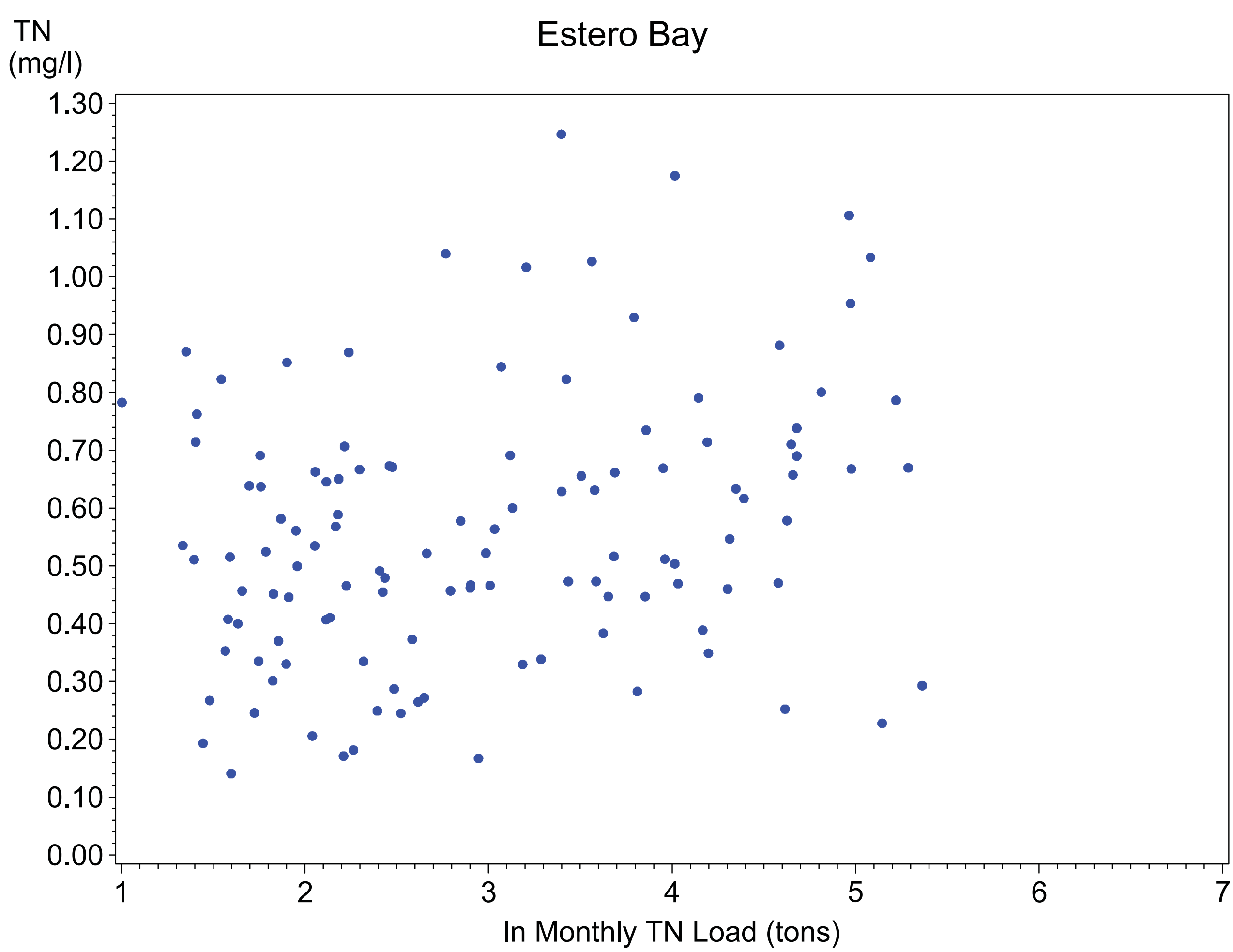
San Carlos Bay
ln TN
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
2
3
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)


TN
(mg/l)
Estero Bay
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
50
100
150
200
250
Monthly TN Load (tons)

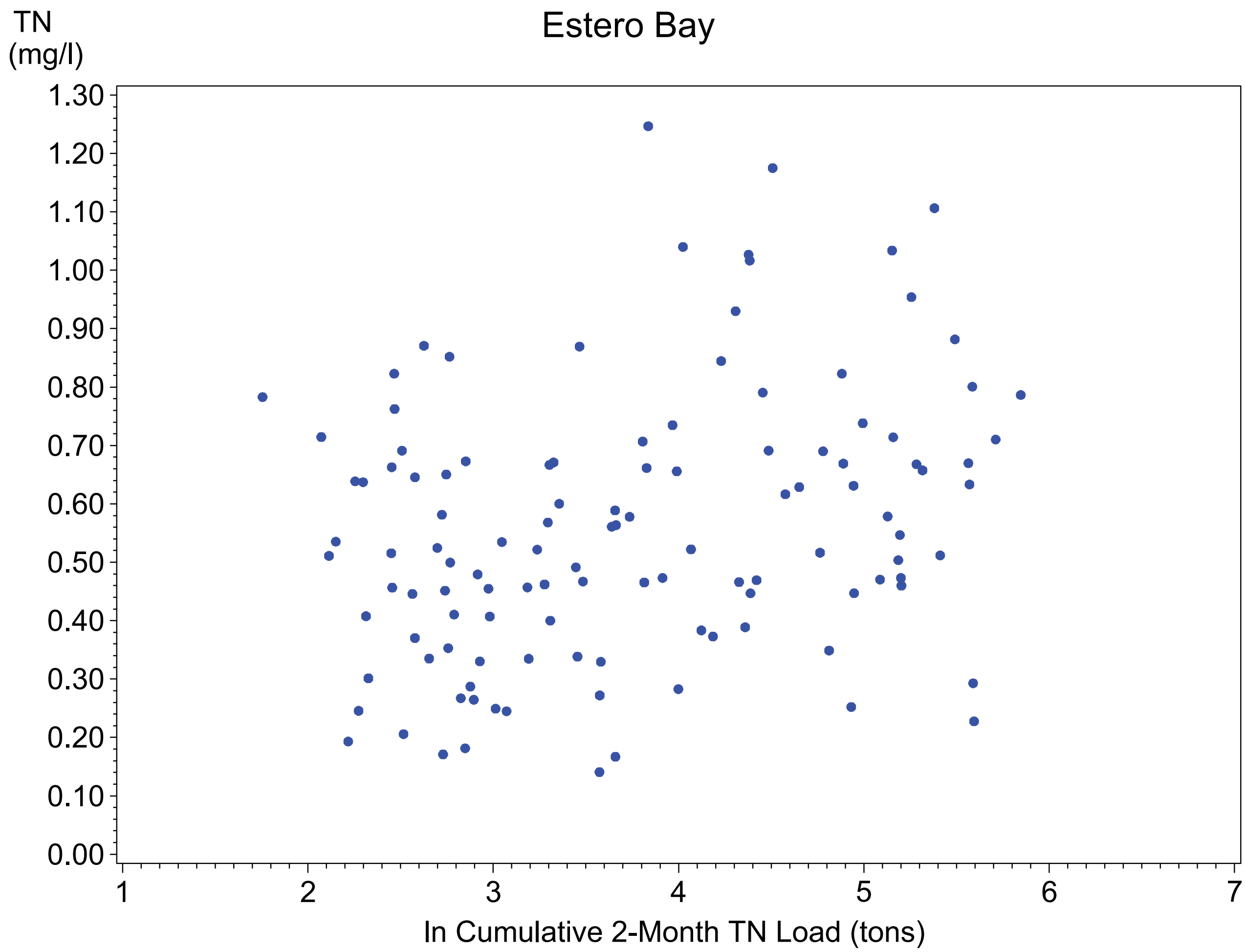

TN
(mg/l)
Estero Bay
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TN Load (tons)

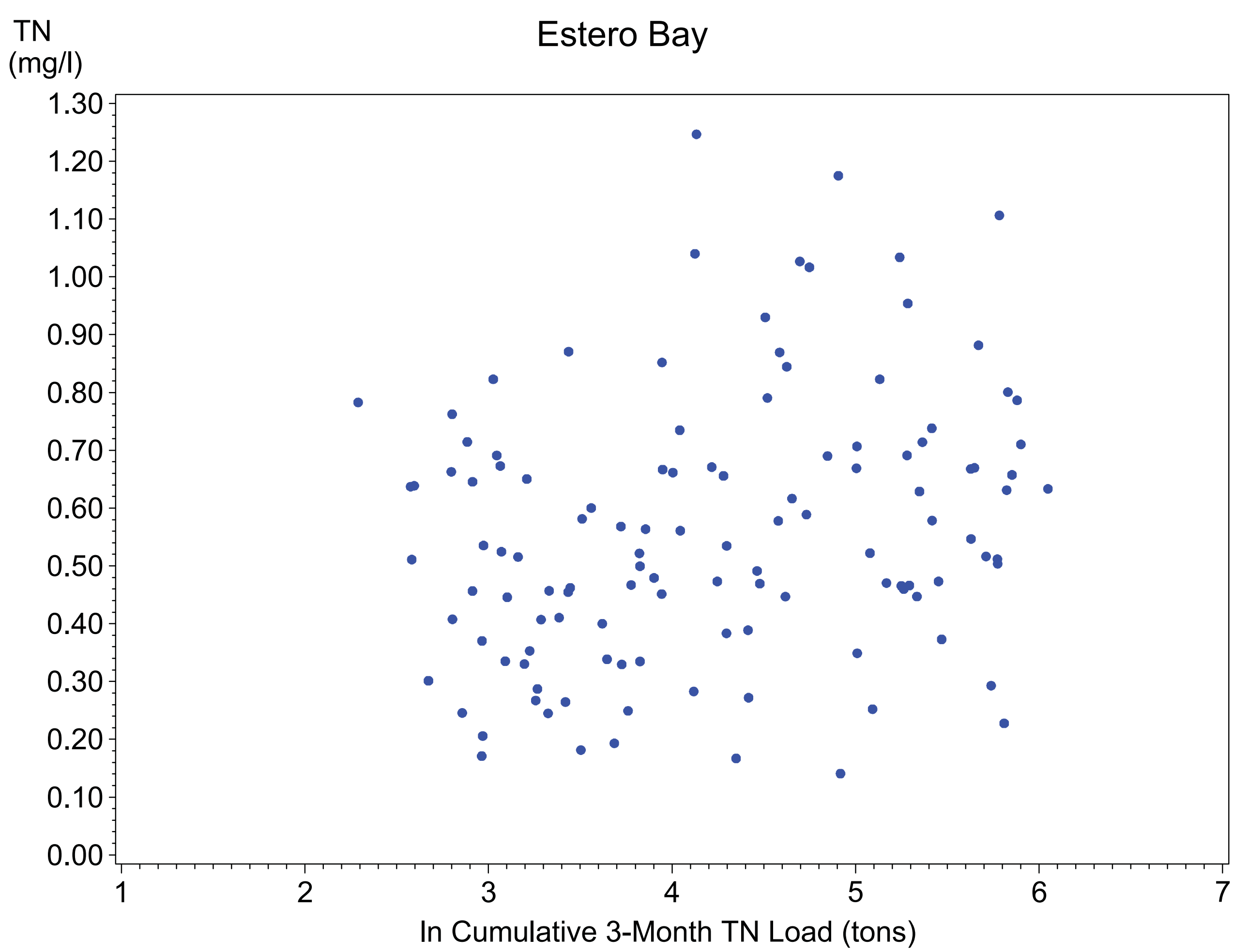


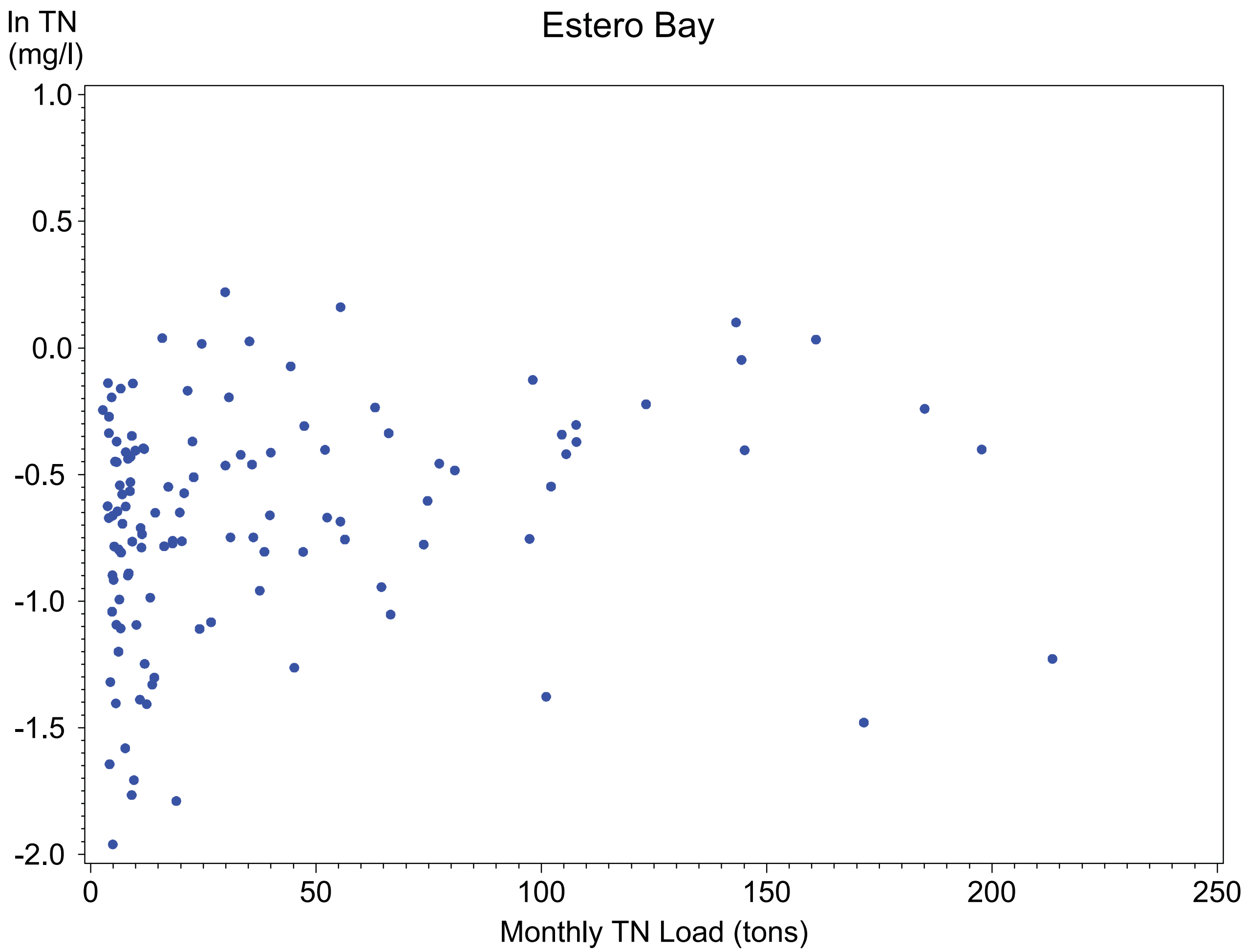
Estero Bay
TN
(mg/l)
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
0
50
100
150
200
250
300
350
400
450
500
Cumulative 3-Month TN Load (tons)

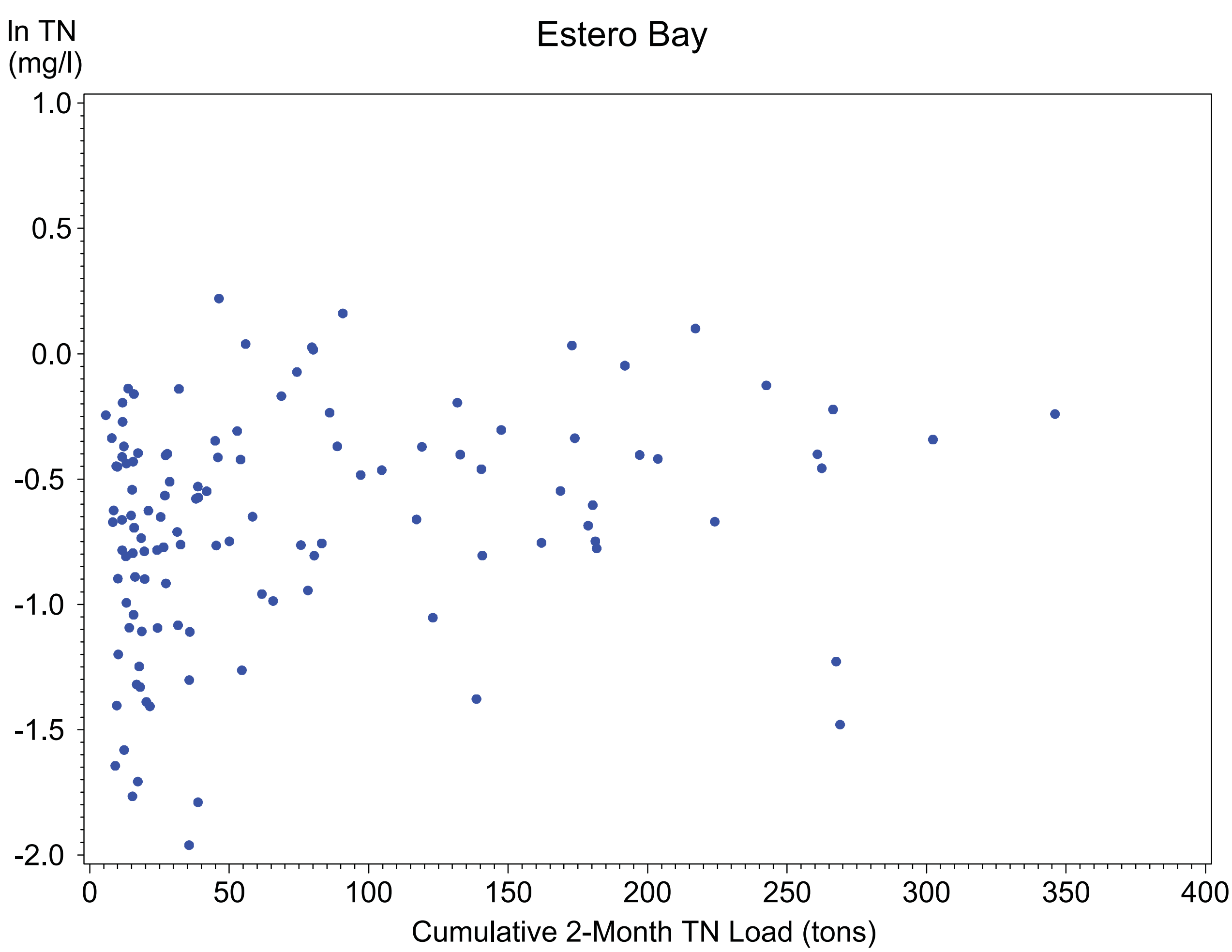


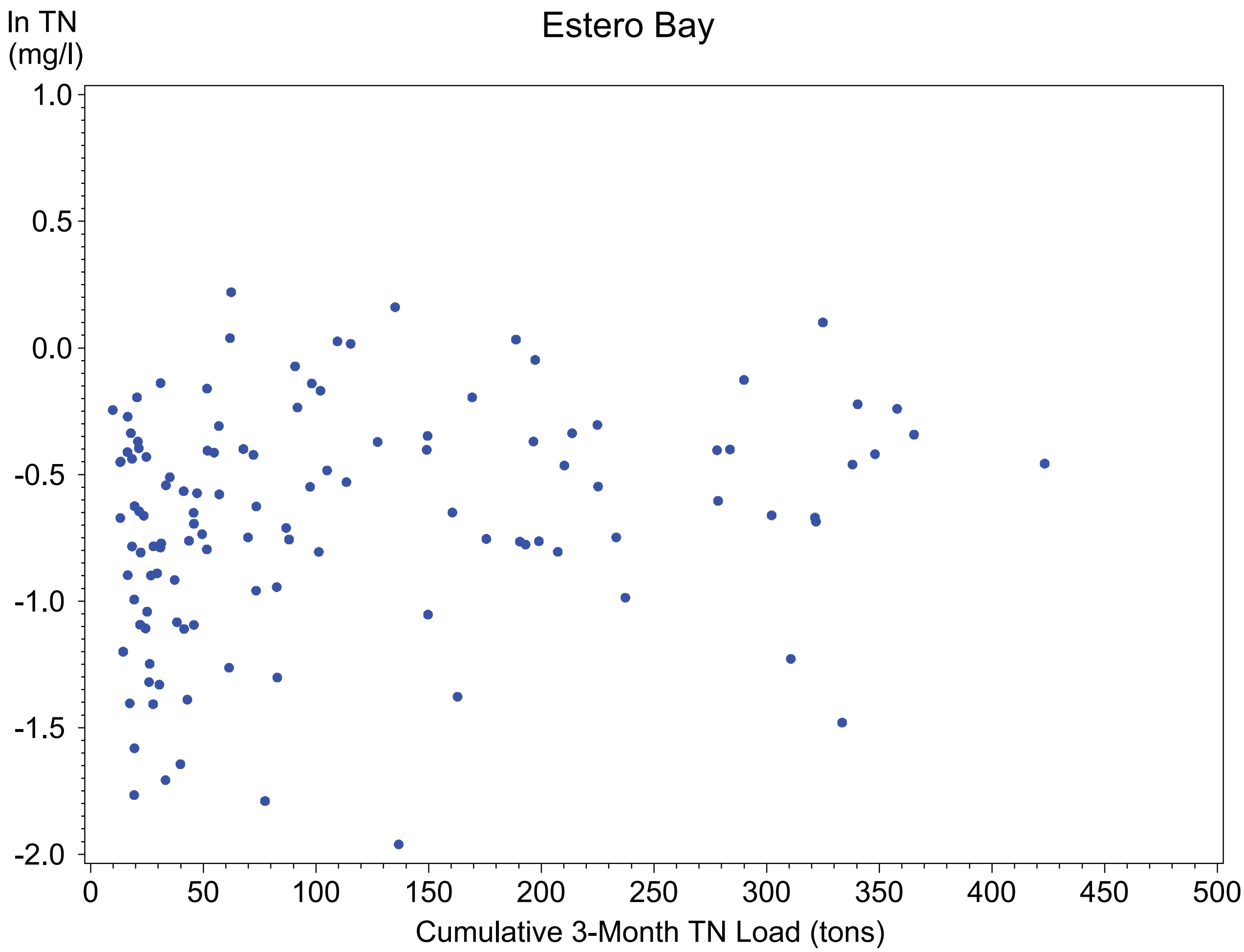
Estero Bay
TN
(mg/l)
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Monthly TN Load (tons)

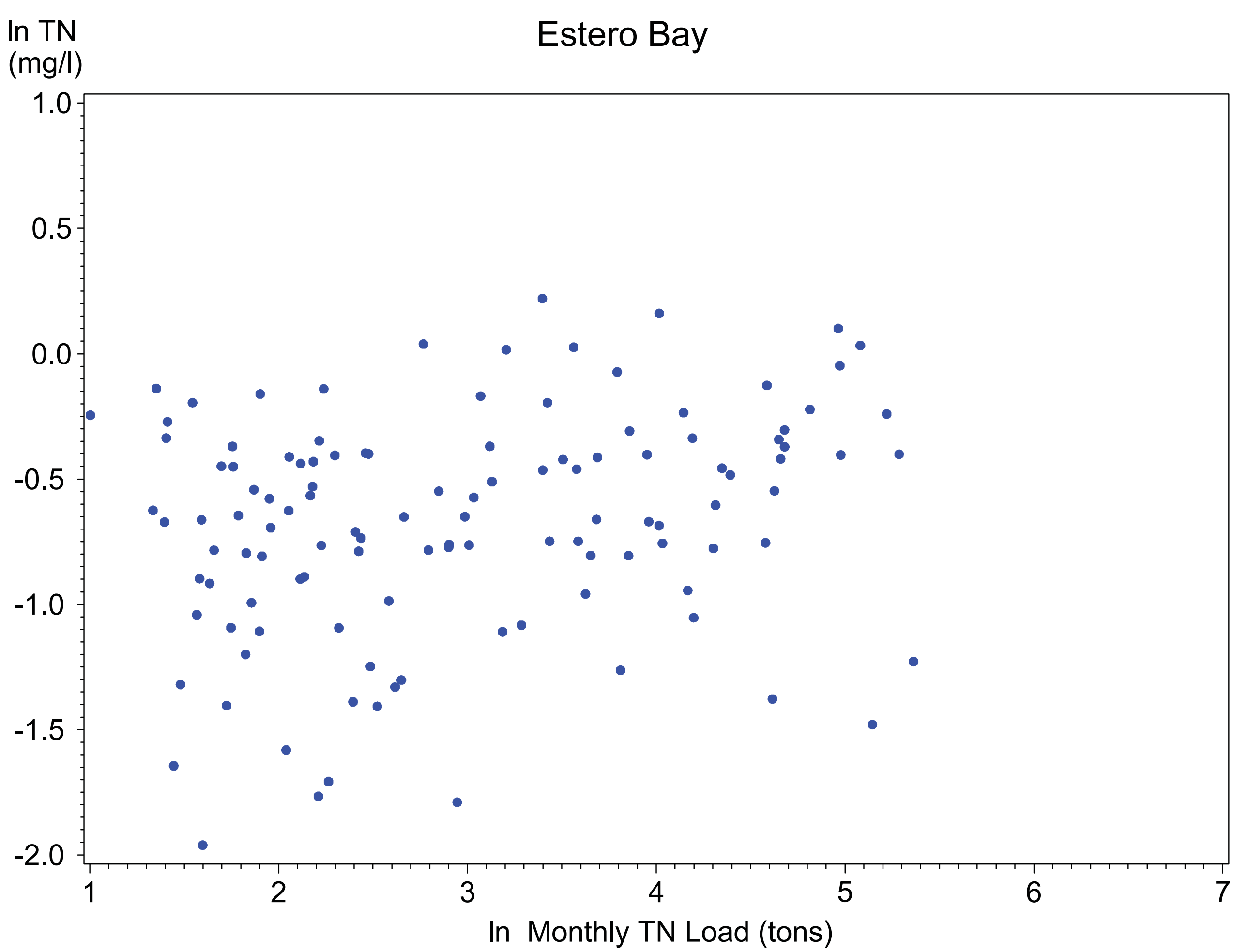

Estero Bay
TN
(mg/l)
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Cumulative 2-Month TN Load (tons)

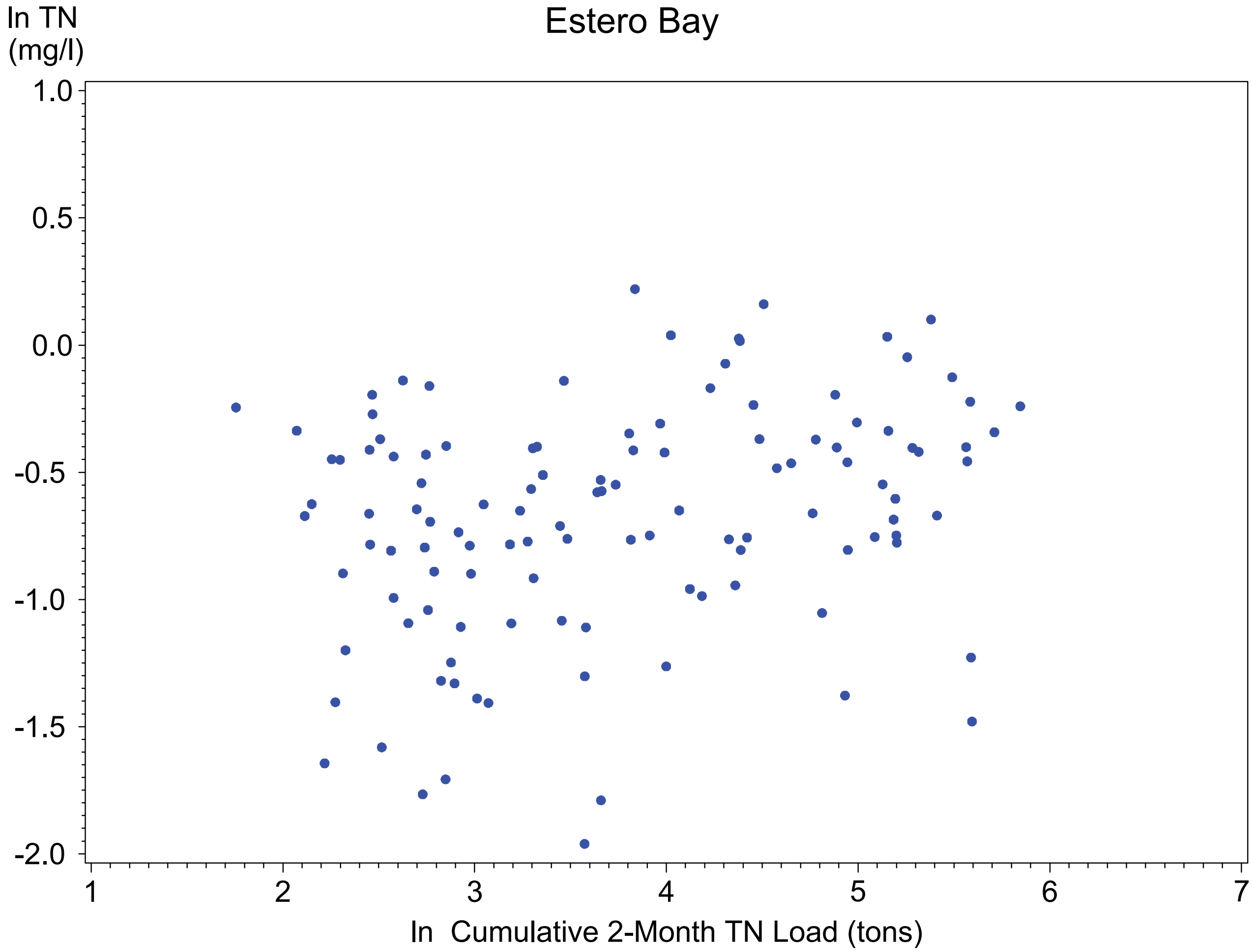

Estero Bay
TN
(mg/l)
1.30
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1
2
3
4
5
6
7
ln Cumulative 3-Month TN Load (tons)

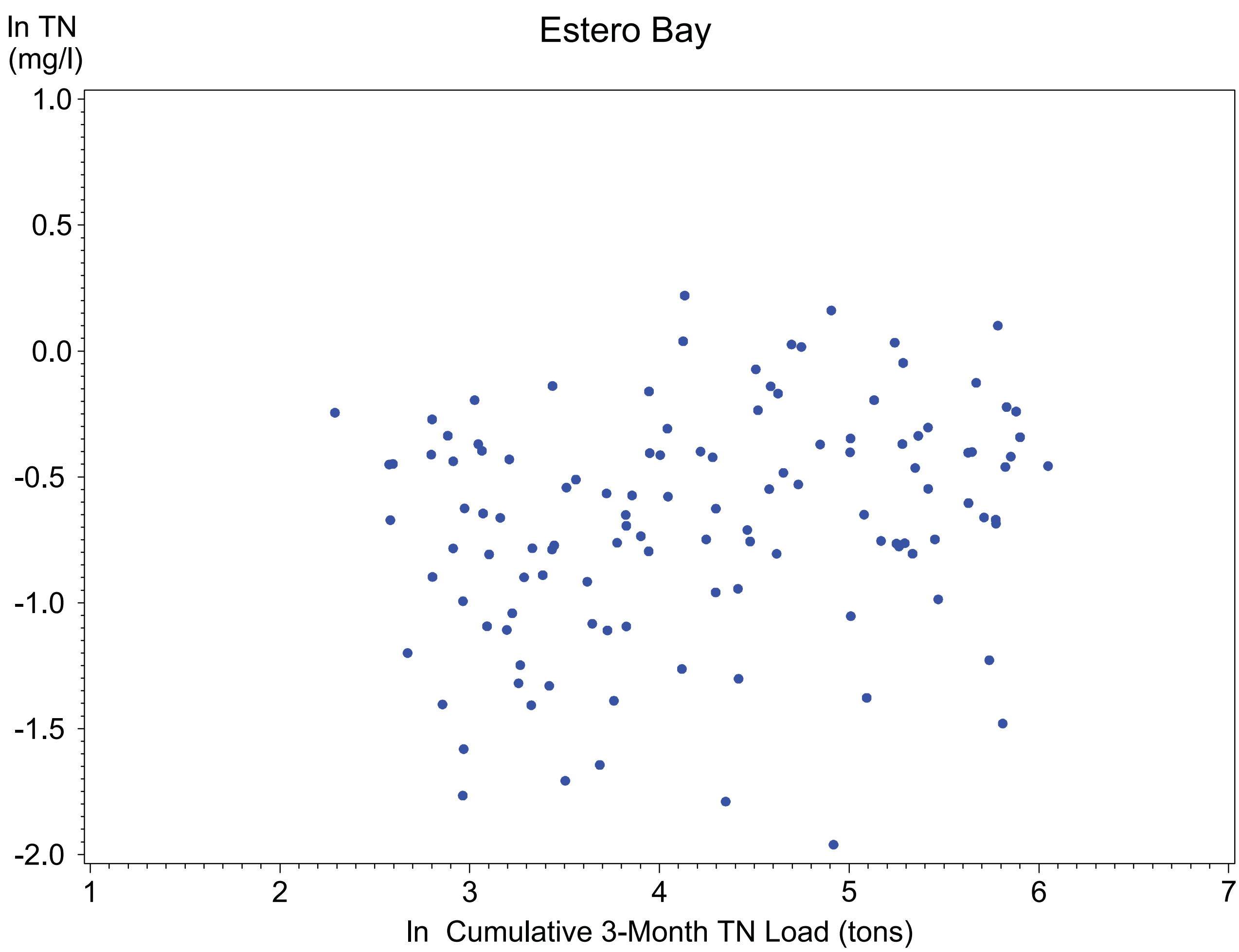

Estero Bay
ln TN
(mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
50
100
150
200
250
Monthly TN Load (tons)


Estero Bay
ln TN
(mg/l)
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TN Load (tons)

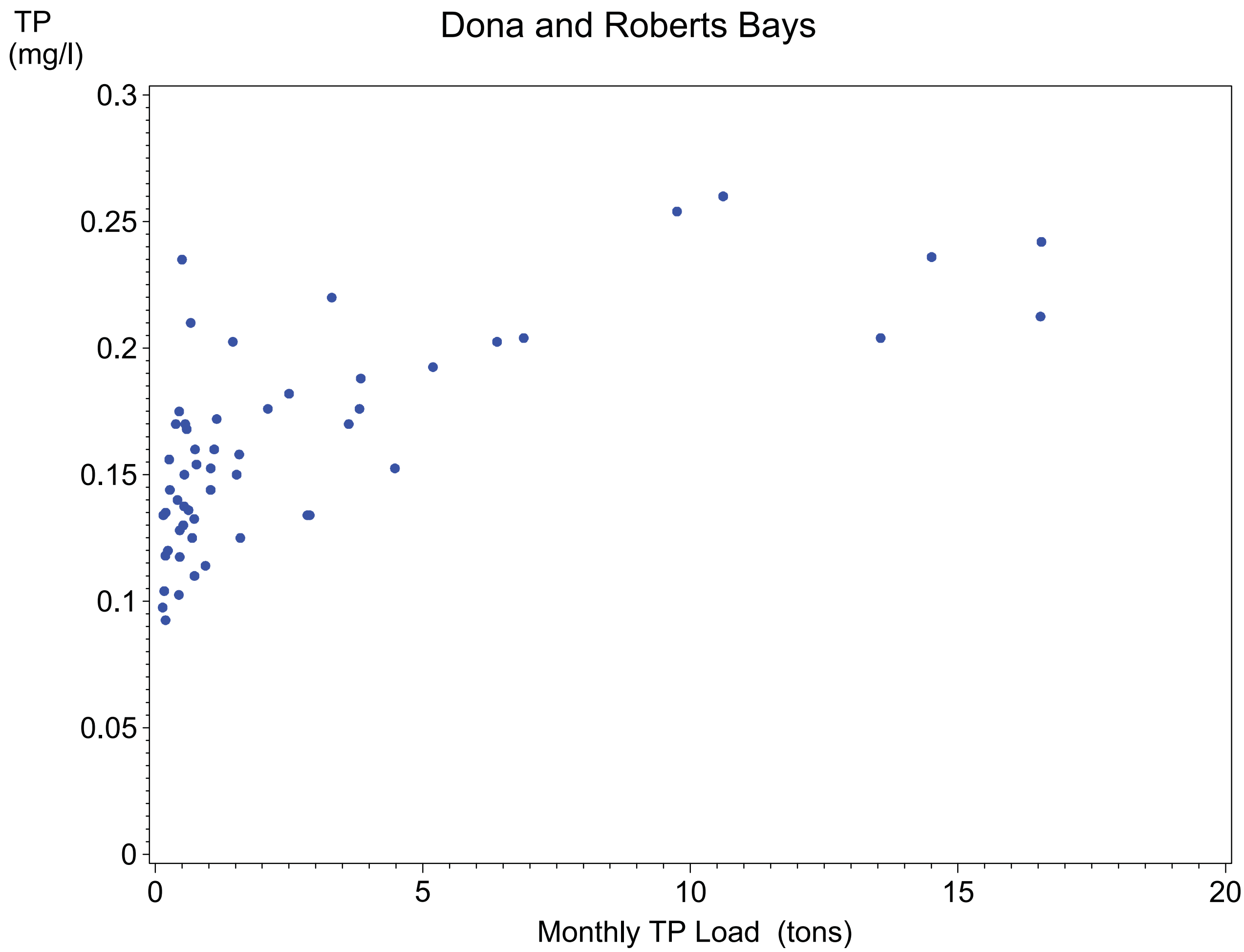

ln TN
(mg/l)
Estero Bay
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
0
50
100
150
200
250
300
350
400
450
500
Cumulative 3-Month TN Load (tons)

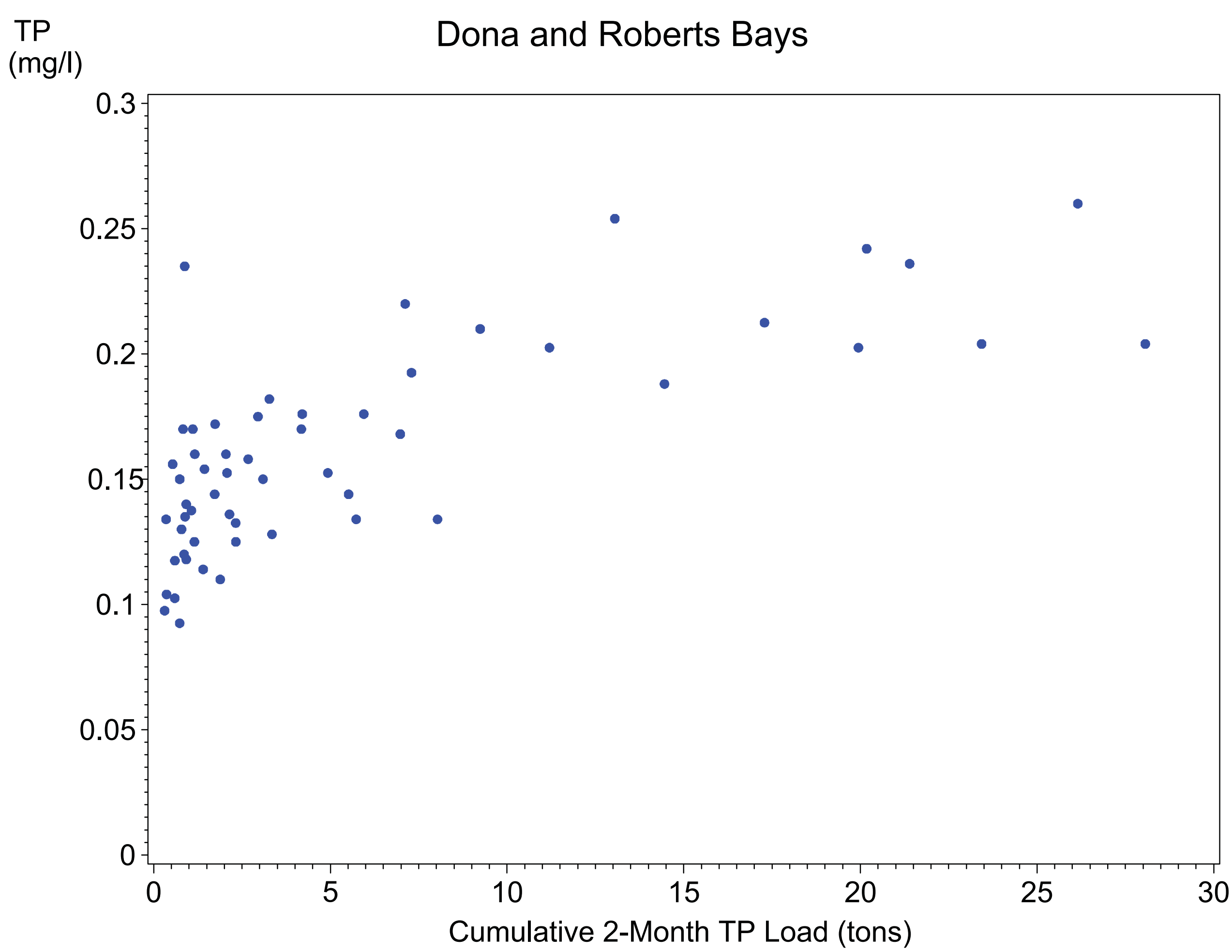

ln TN
(mg/l)
Estero Bay
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1
2
3
4
5
6
7
ln Monthly TN Load (tons)

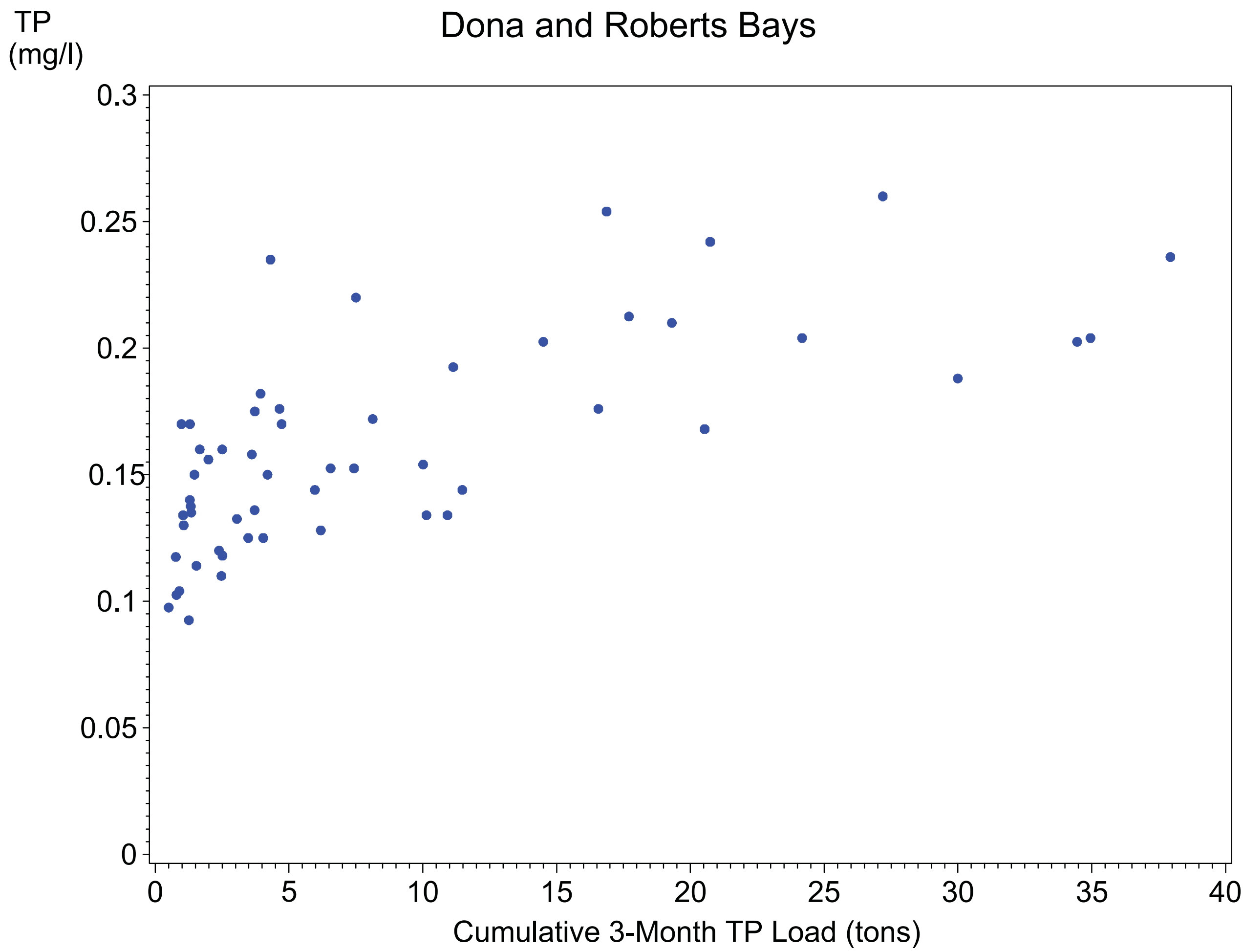

ln TN
(mg/l)
Estero Bay
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1
2
3
4
5
6
7
ln Cumulative 2-Month TN Load (tons)

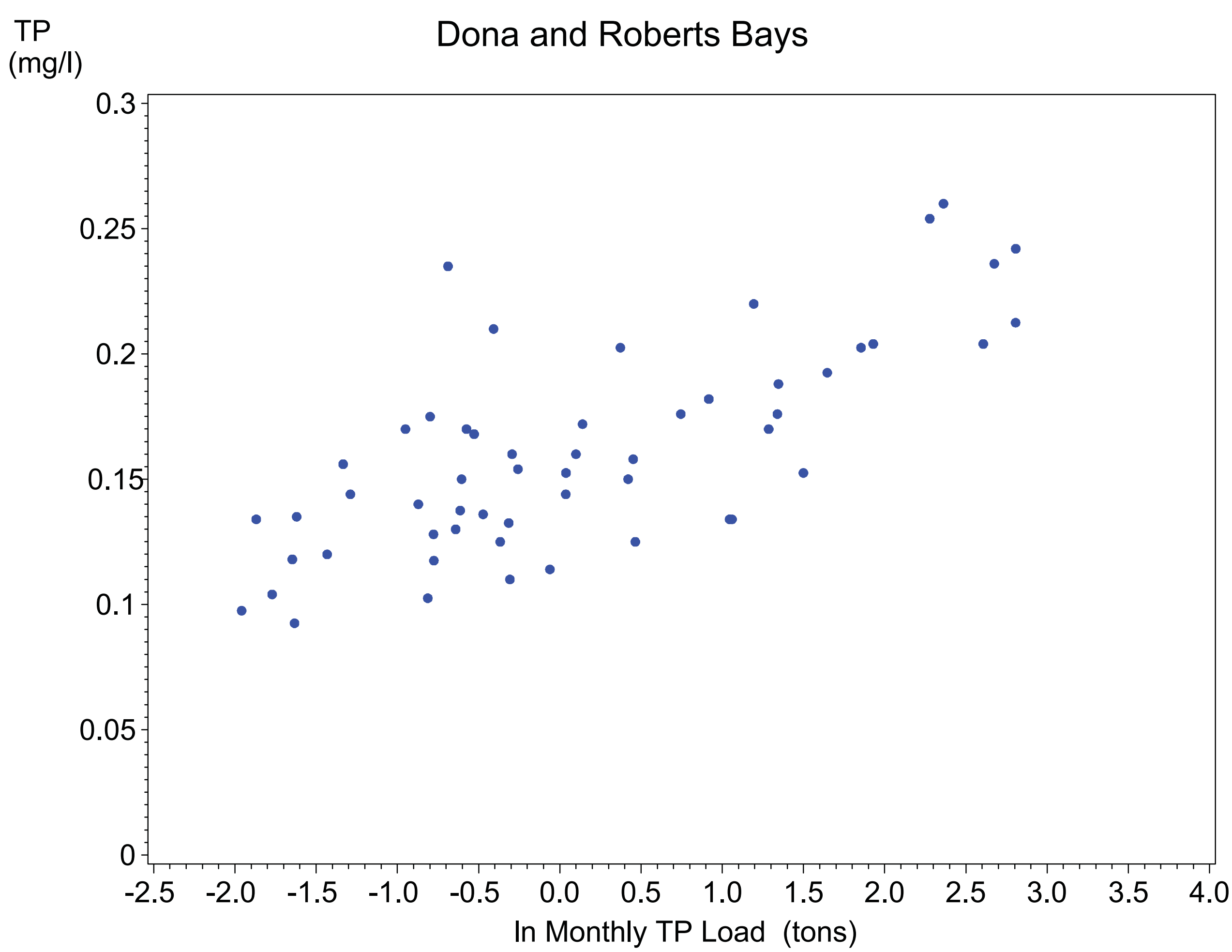

ln TN
(mg/l)
Estero Bay
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
1
2
3
4
5
6
7
ln Cumulative 3-Month TN Load (tons)

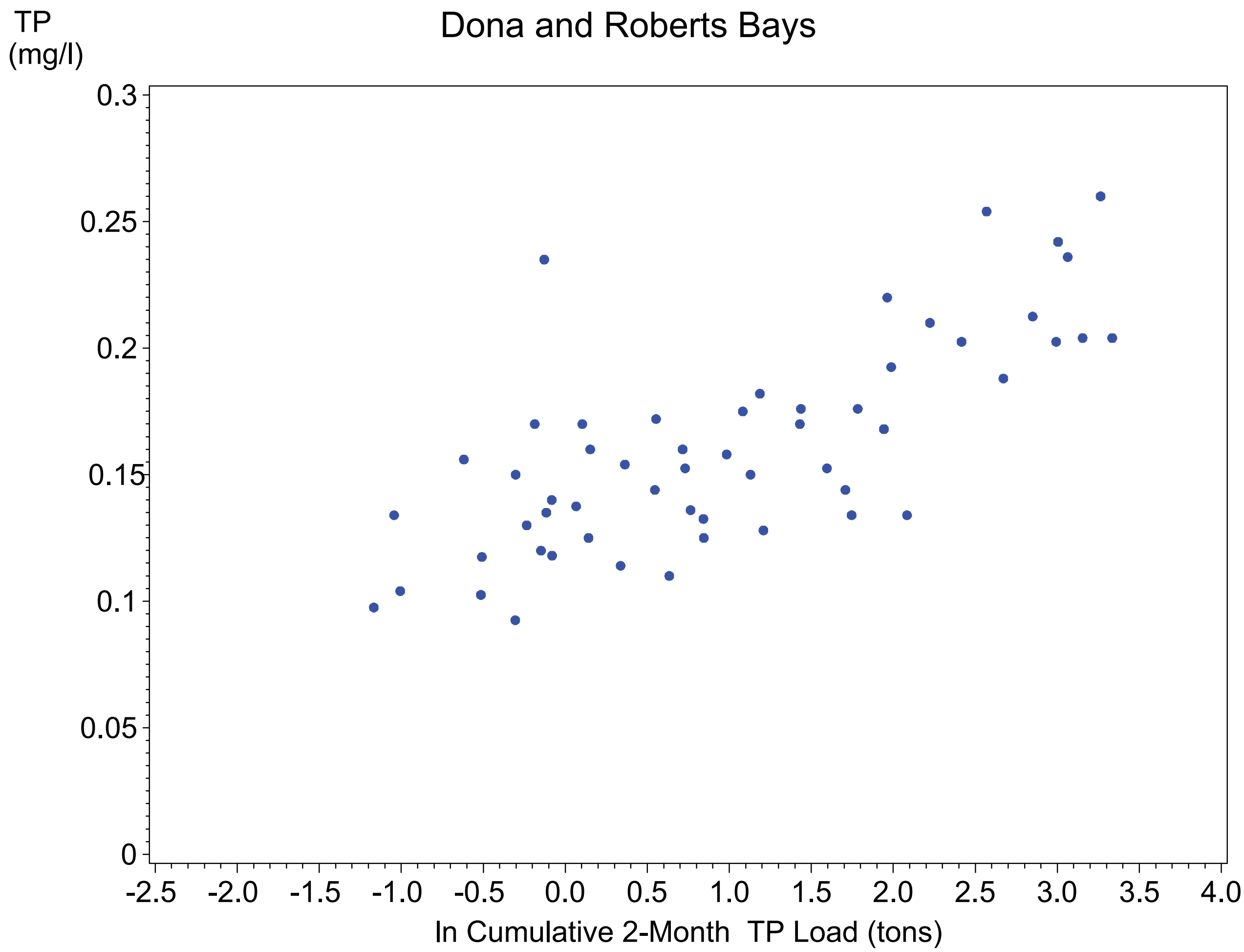
Attachment 4
TP concentration as a function of TP load

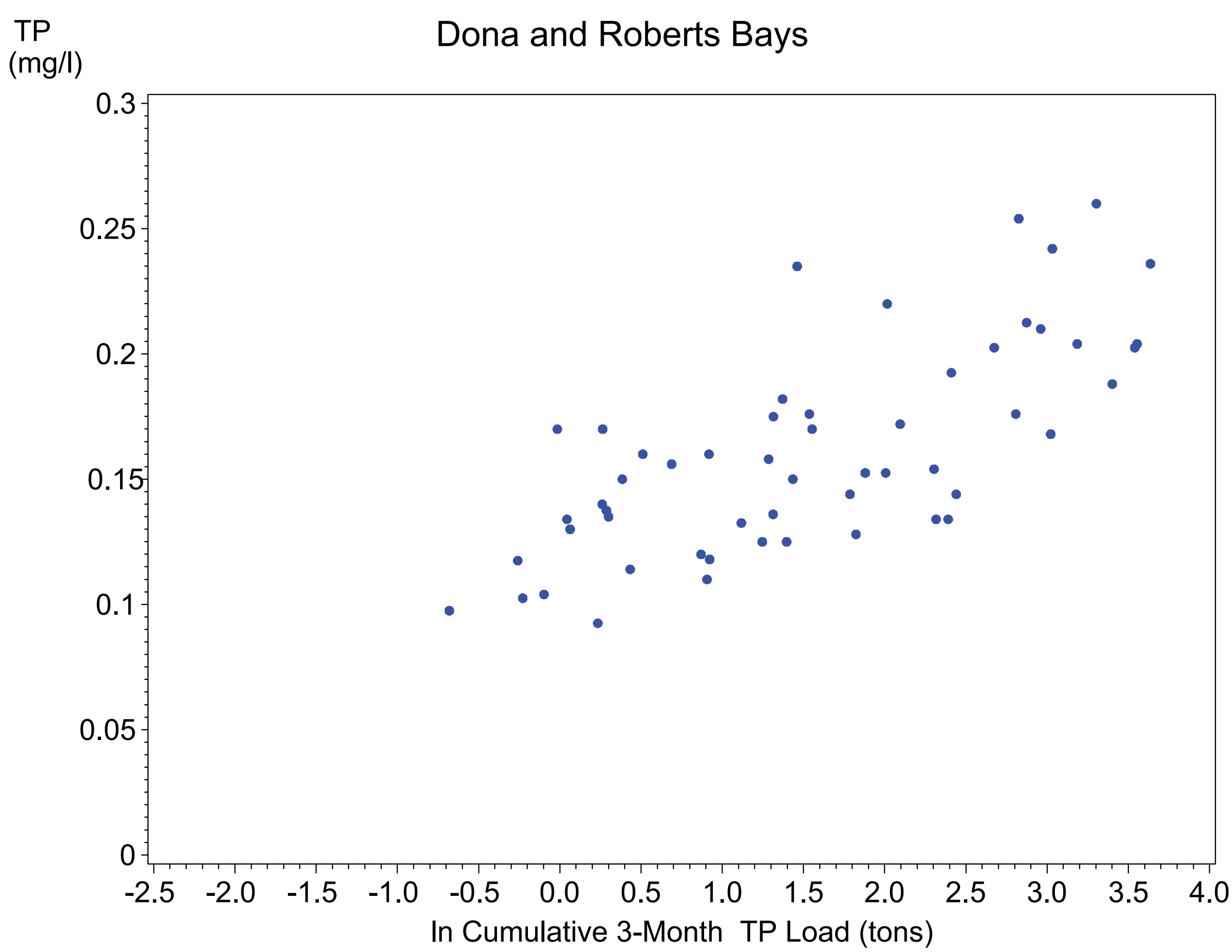

TP
(mg/l)
Dona and Roberts Bays
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
Monthly TP Load (tons)

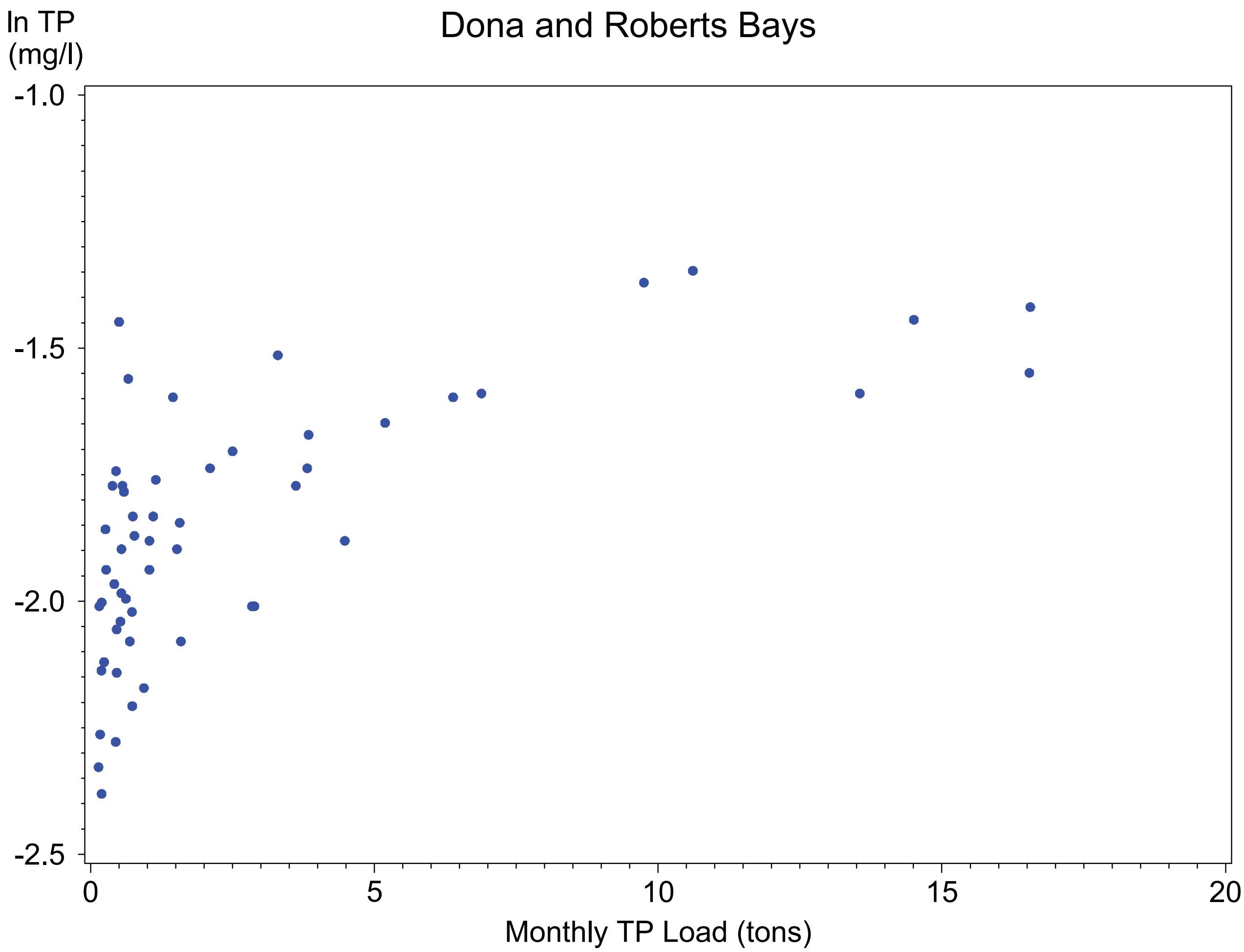

TP
(mg/l)
Dona and Roberts Bays
0.3
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
25
30
Cumulative 2-Month TP Load (tons)

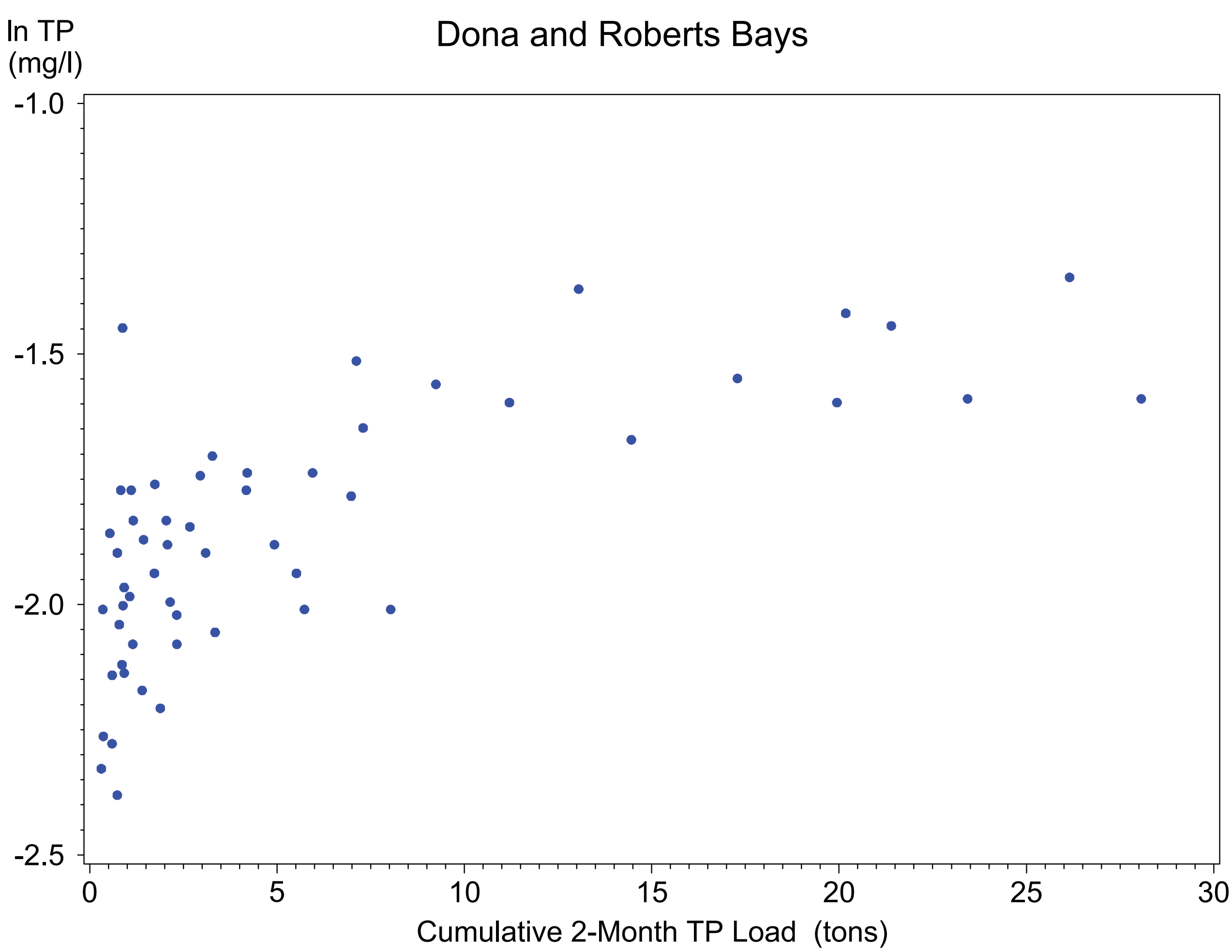

TP
(mg/l)
Dona and Roberts Bays
0.3
0.25
0.2
0.15
0.1
0.05
0
0 5 10 15 20 25 30 35 40
Cumulative 3-Month TP Load (tons)

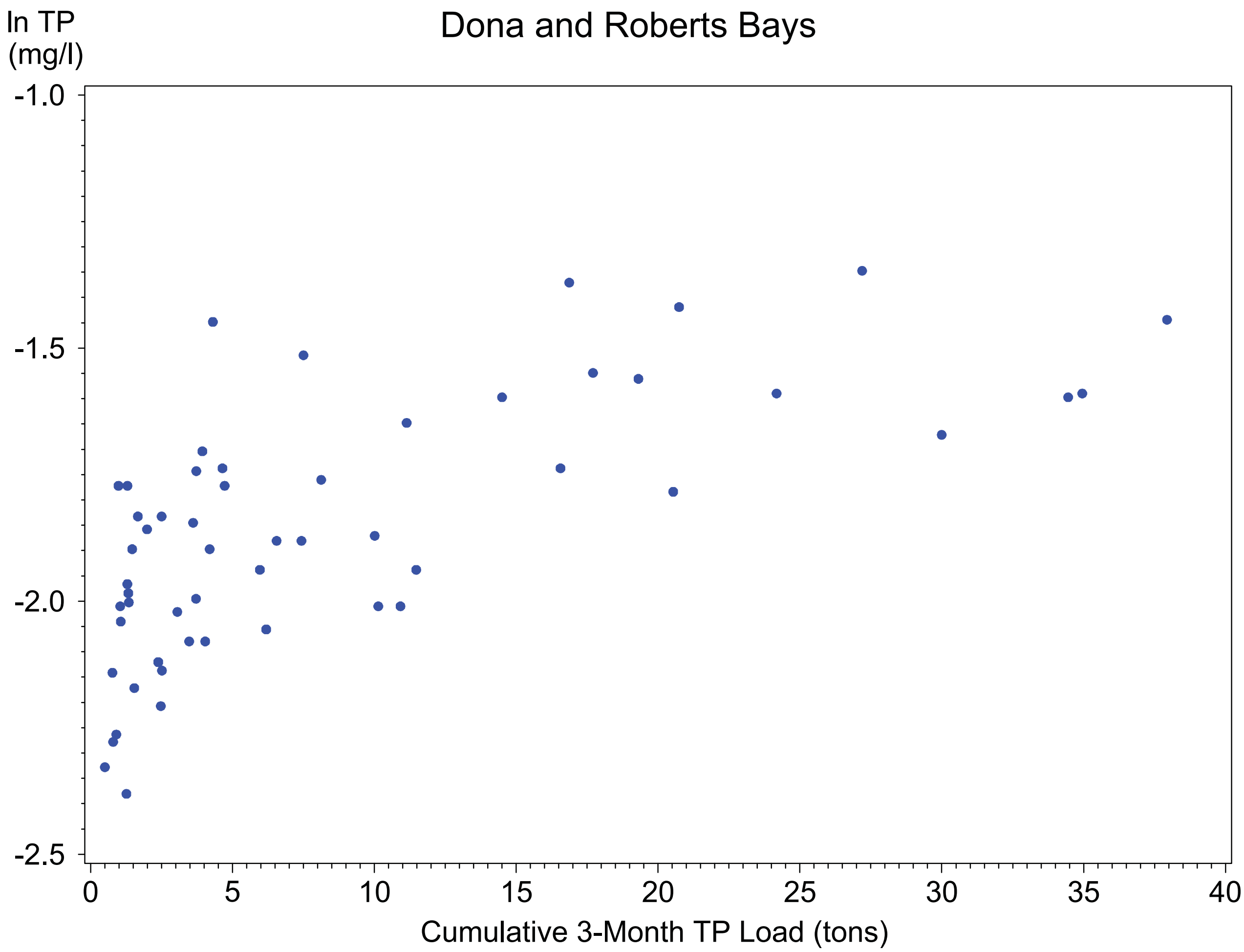

TP
(mg/l)
Dona and Roberts Bays
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
ln Monthly TP Load (tons)

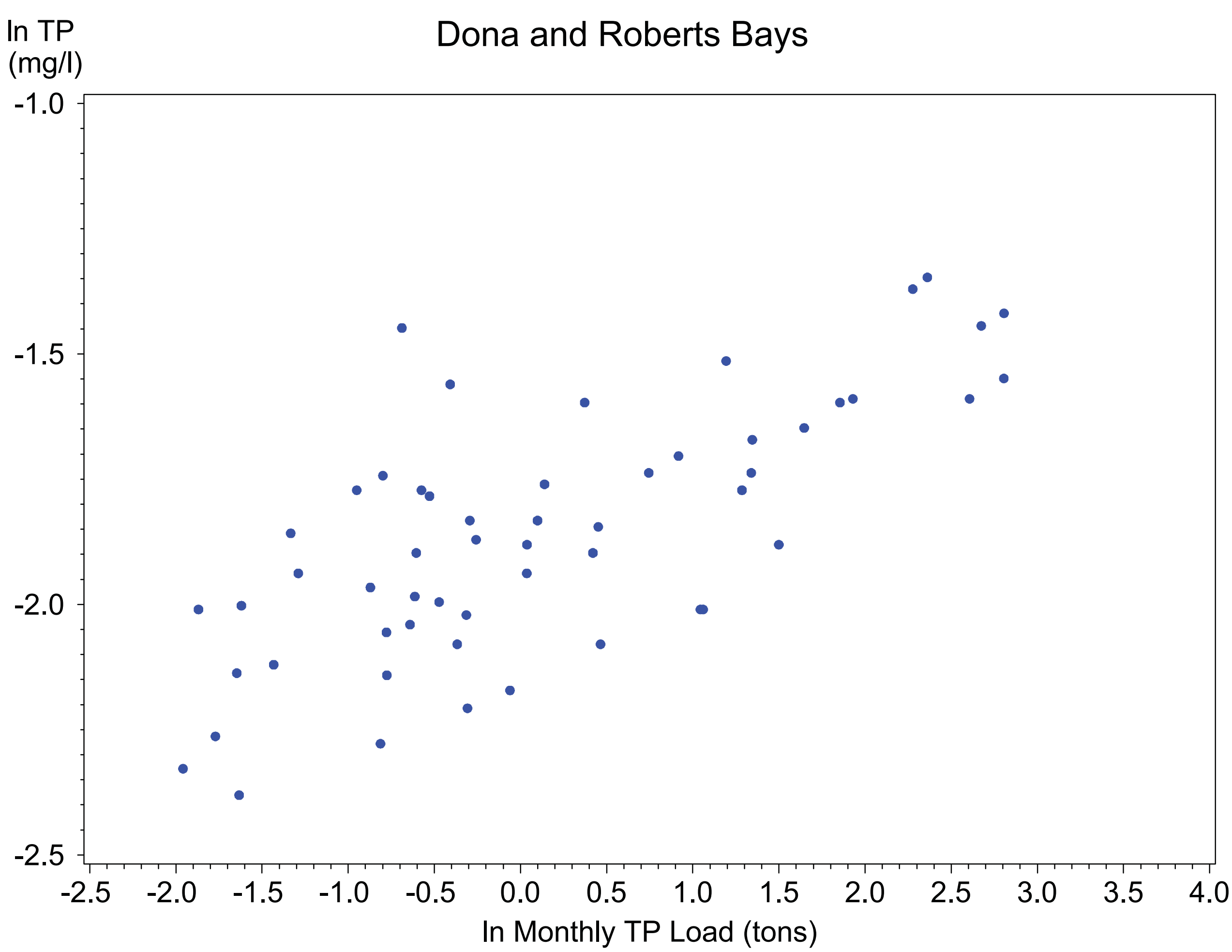

Dona and Roberts Bays
TP (mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
ln Cumulative 2-Month TP Load (tons)

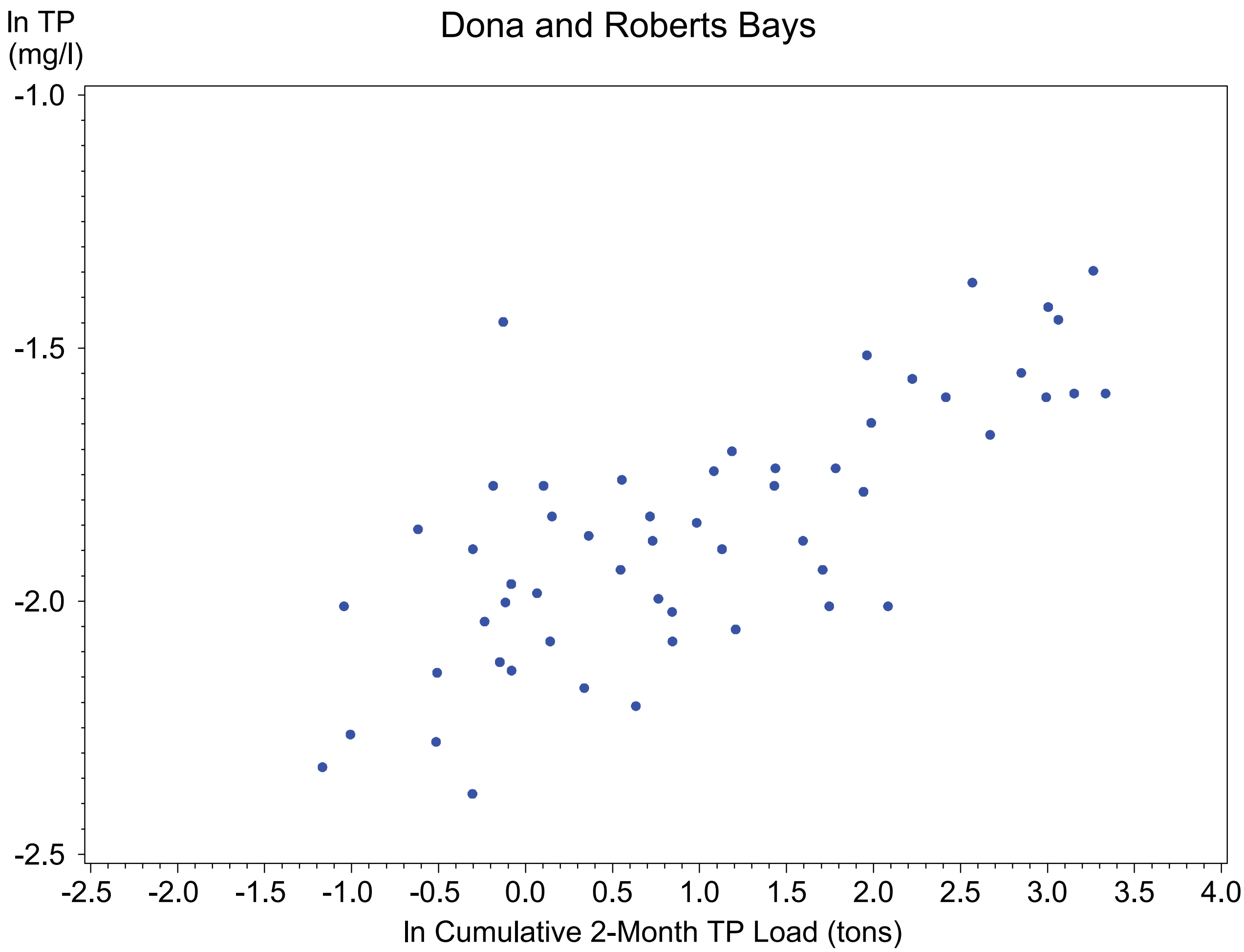

Dona and Roberts Bays
TP (mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
ln Cumulative 3-Month TP Load (tons)


Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
0
5
10
15
20
Monthly TP Load (tons)

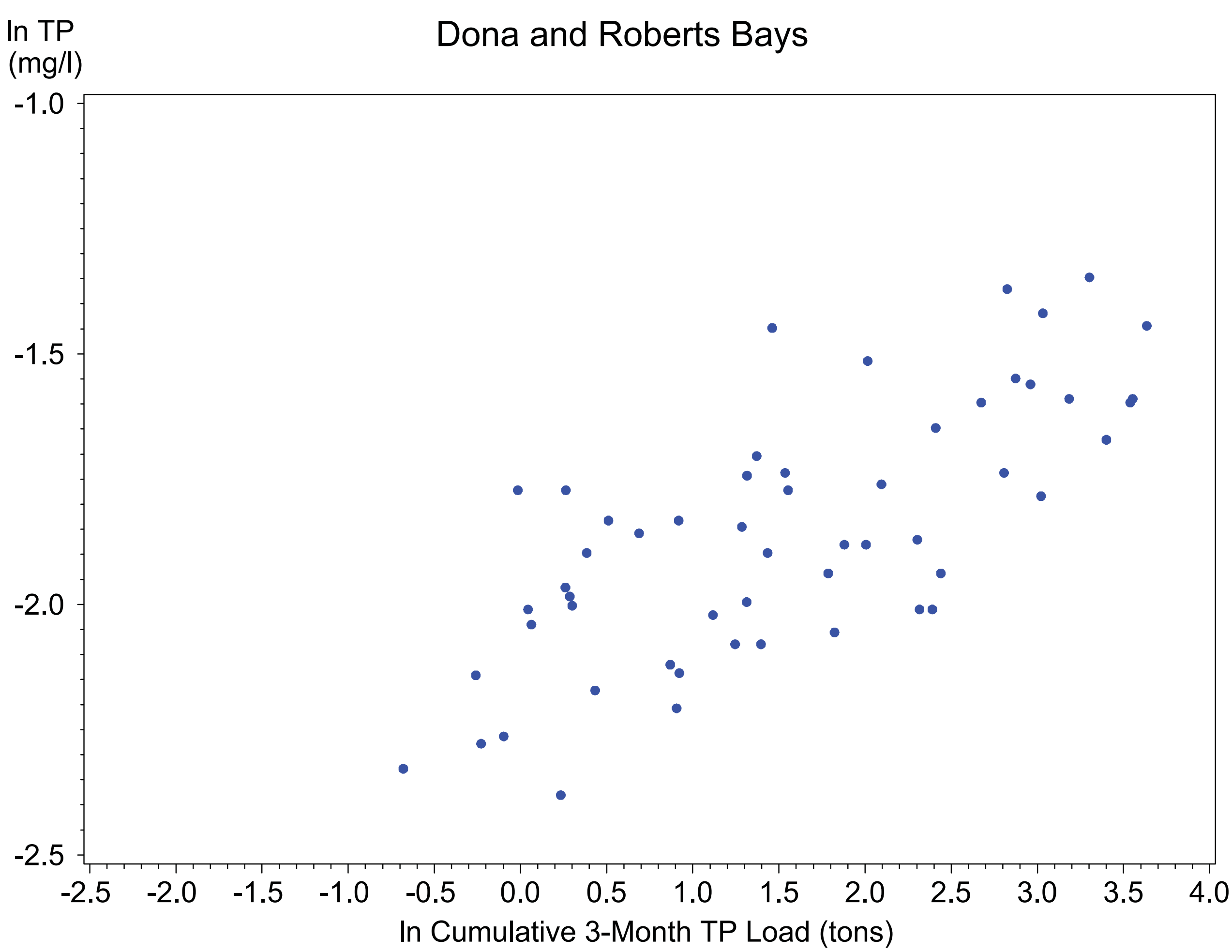

Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
0
5
10
15
20
25
30
Cumulative 2-Month TP Load (tons)


Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
0
5
10
15
20
25
30
35
40
Cumulative 3-Month TP Load (tons)

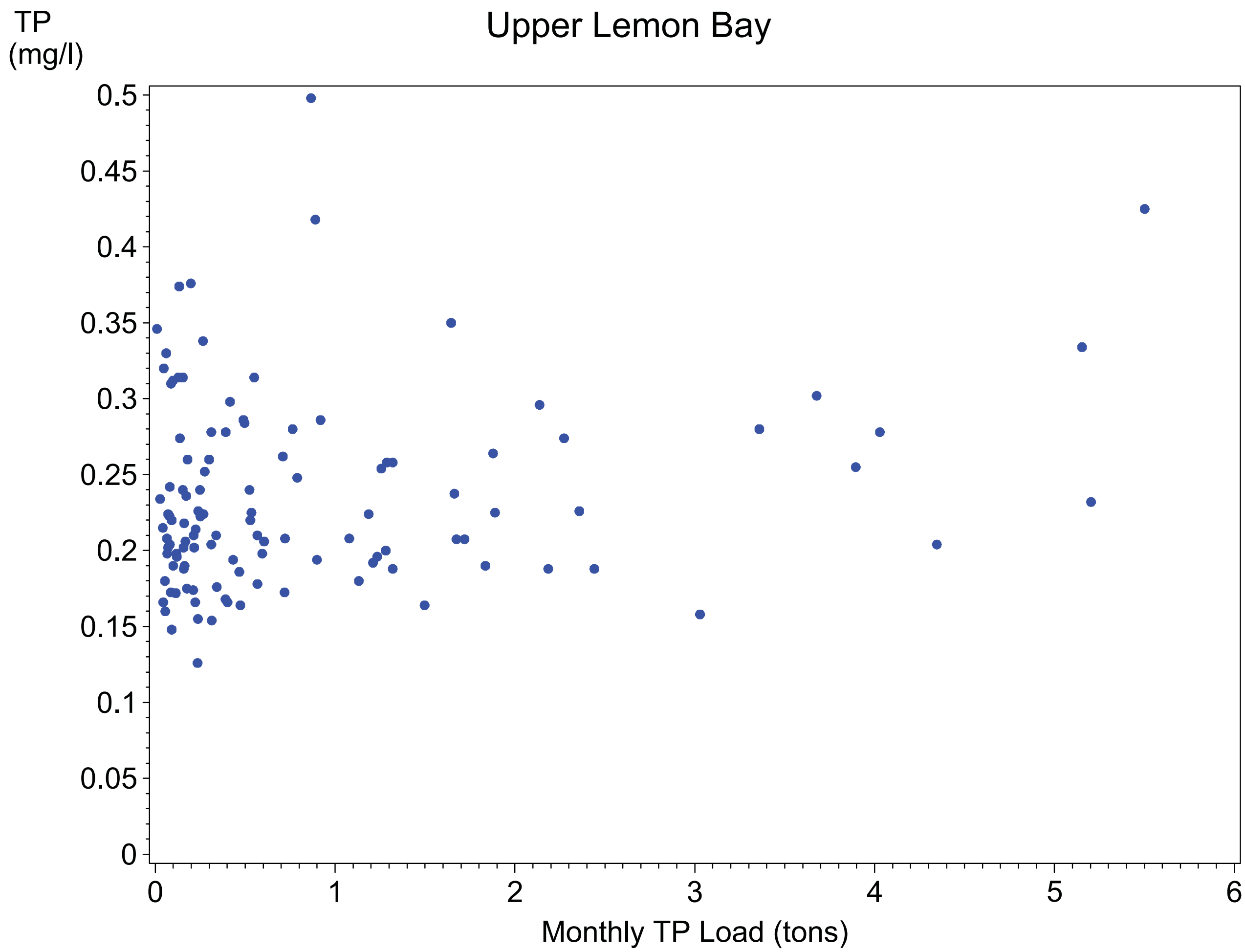

Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ln Monthly TP Load (tons)



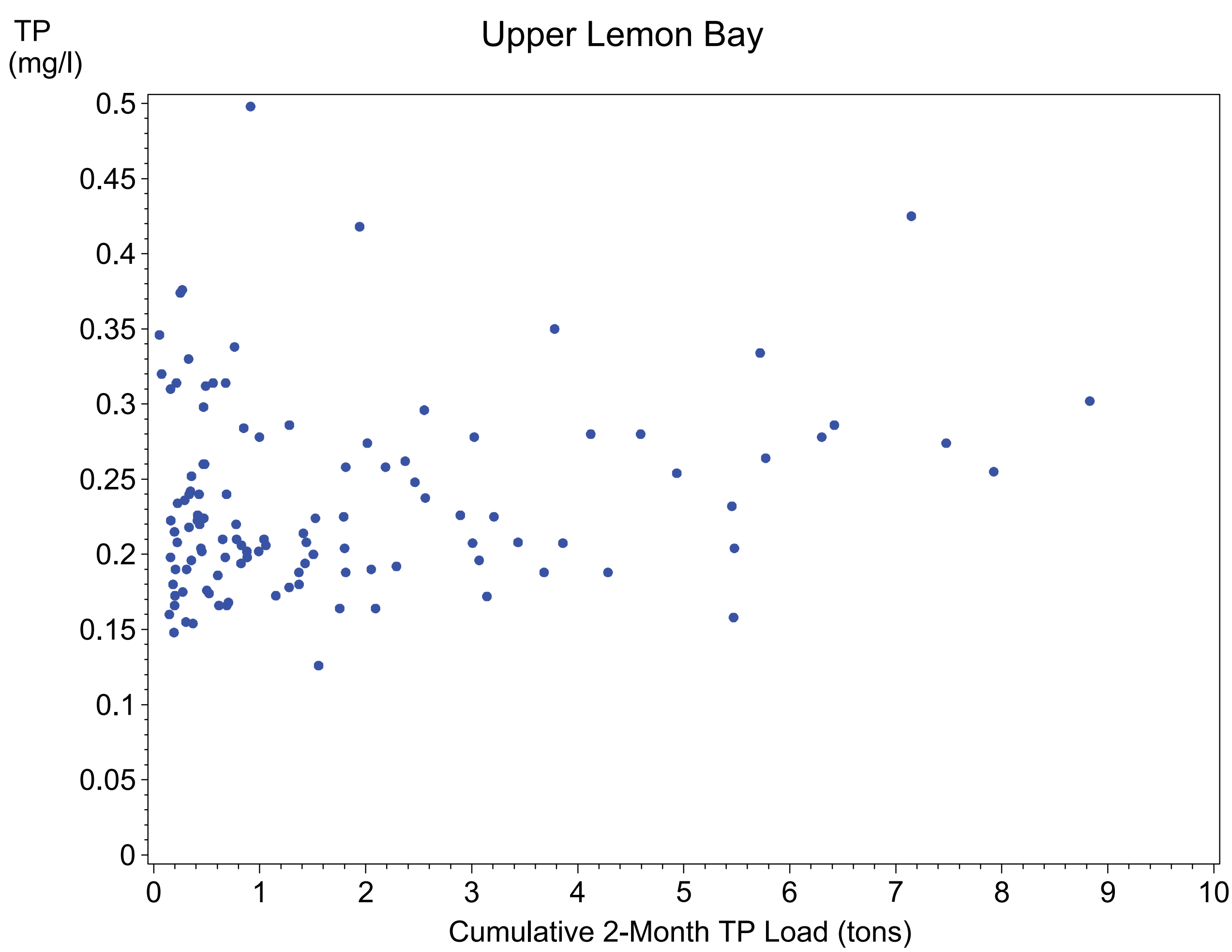
Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
ln Cumulative 2-Month TP Load (tons)



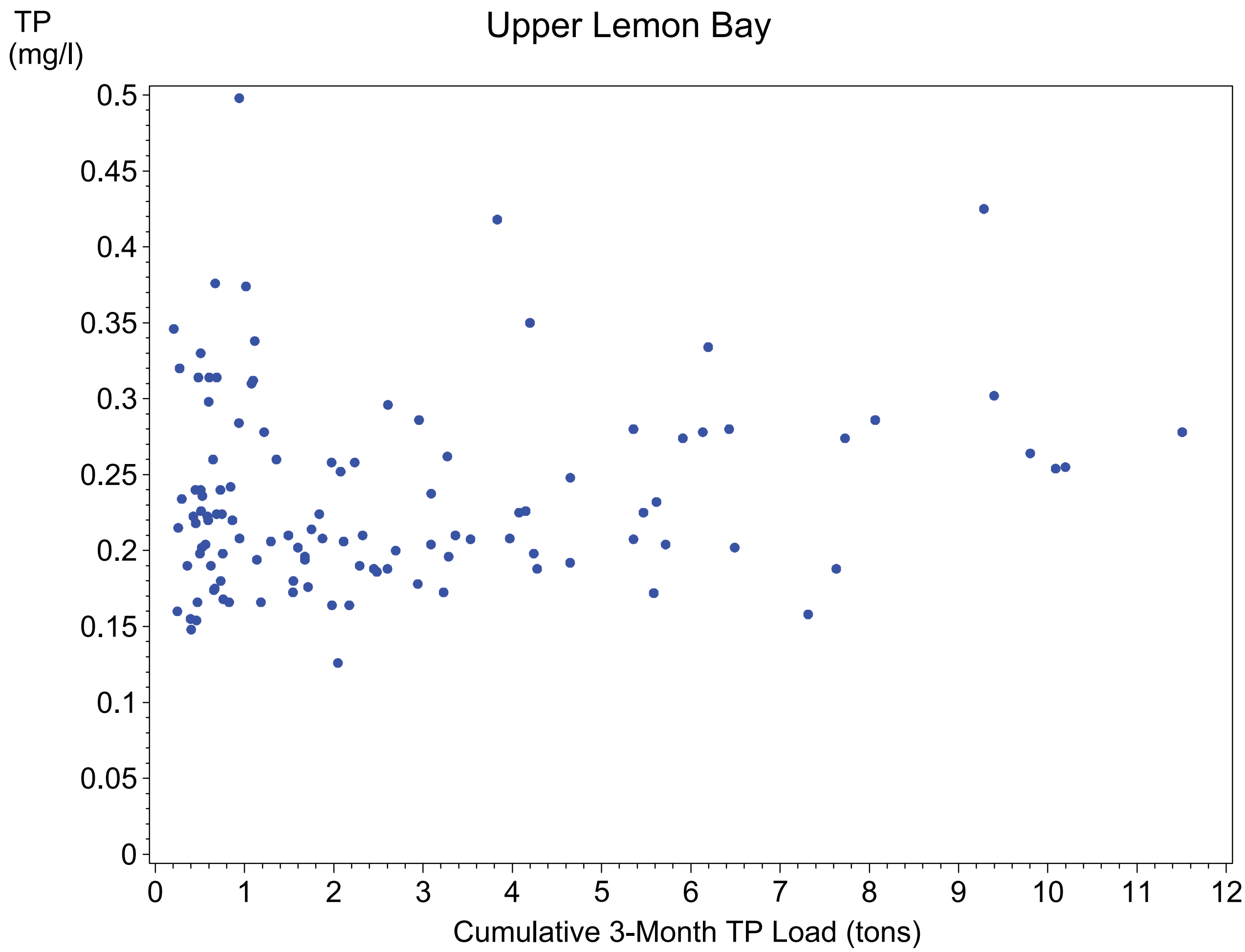
Dona and Roberts Bays
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
ln Cumulative 3-Month TP Load (tons)

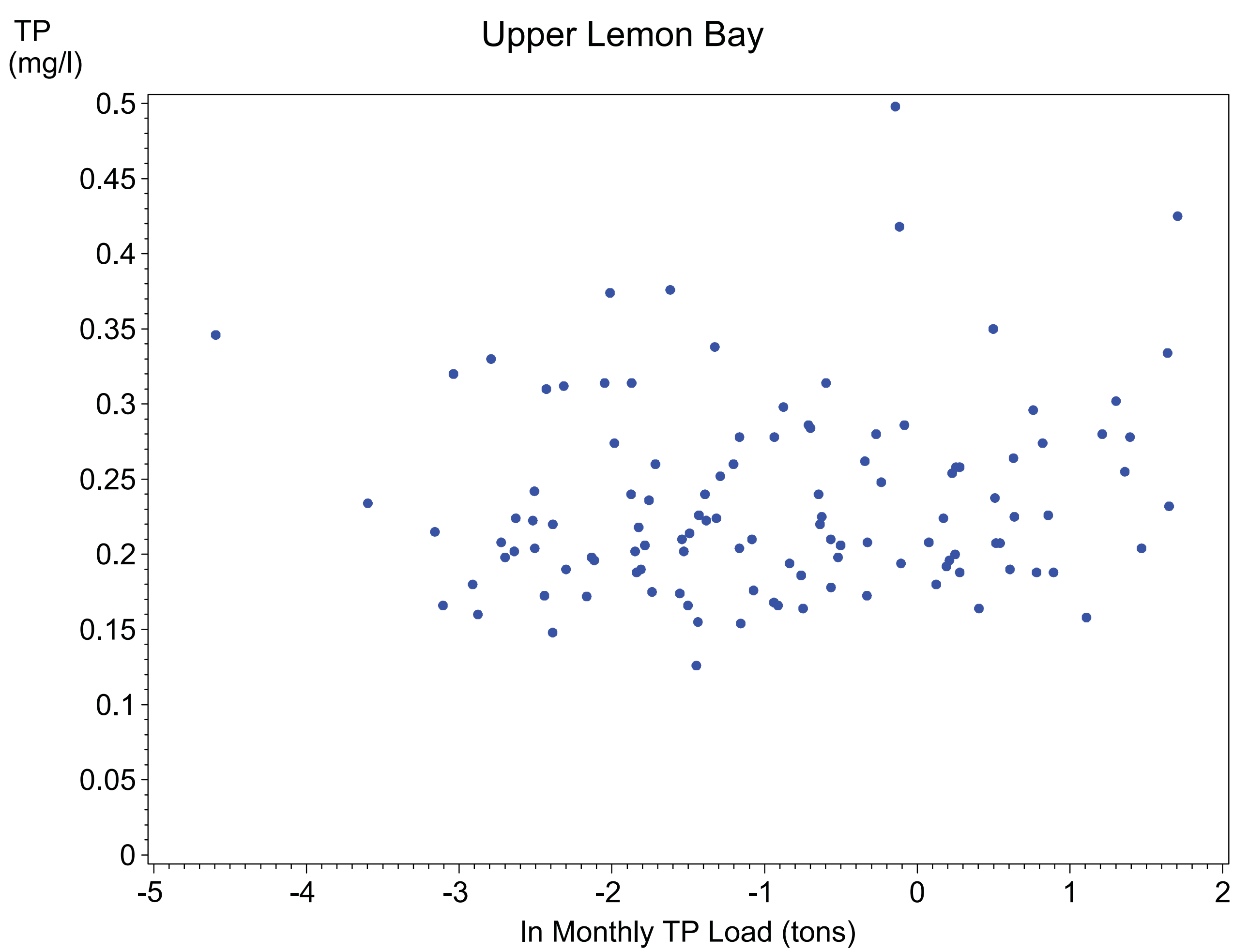


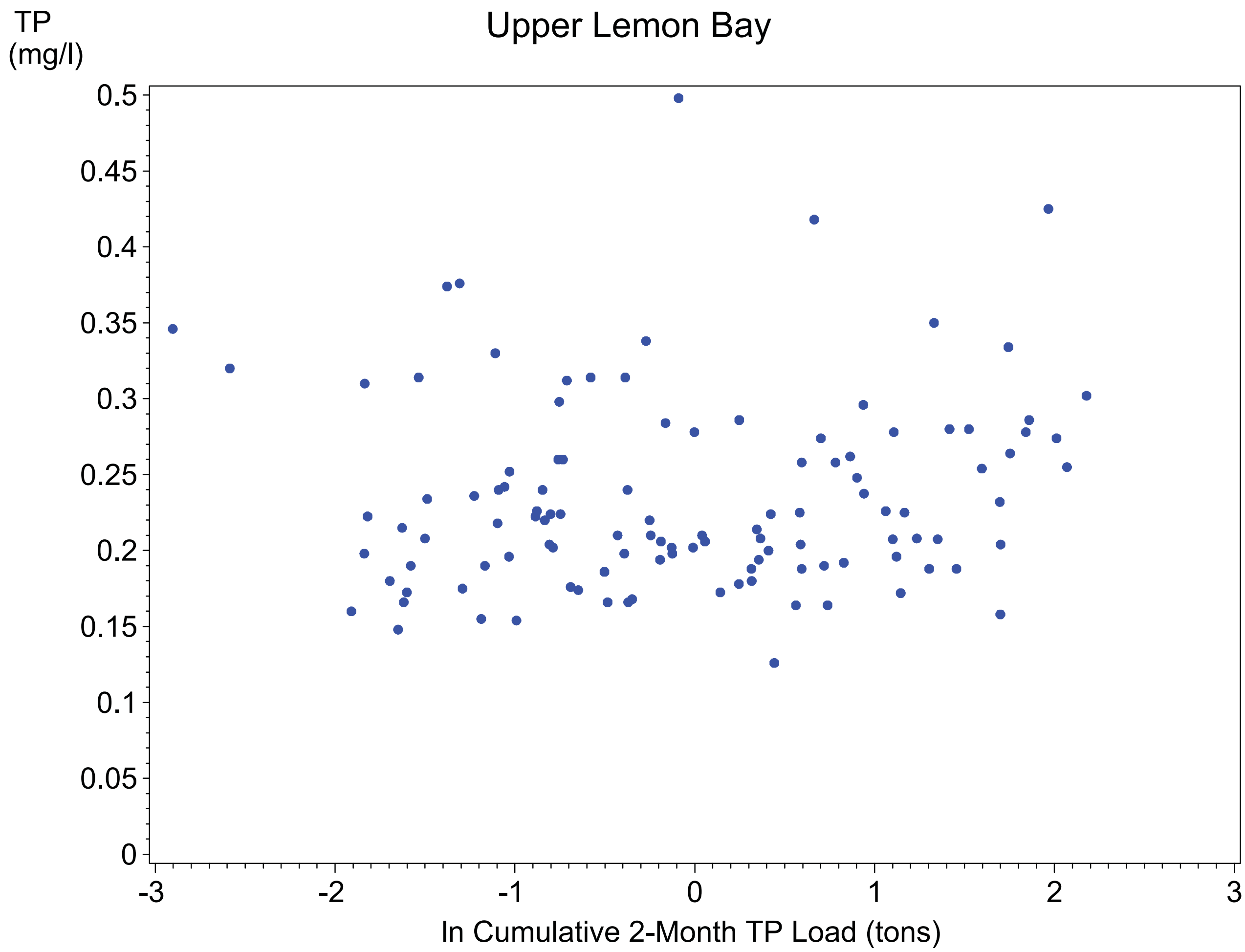
Upper Lemon Bay
TP
(mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
Monthly TP Load (tons)



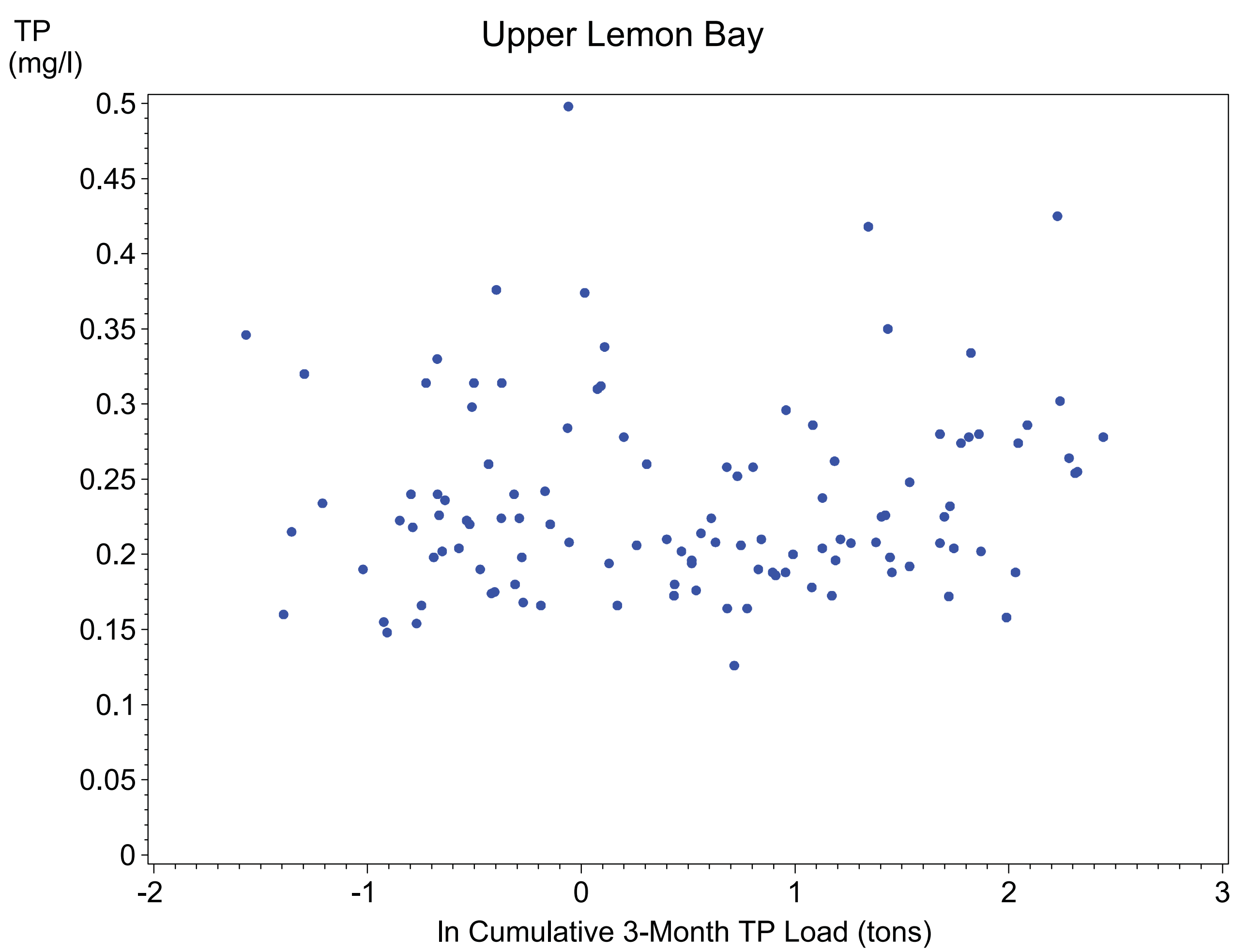
Upper Lemon Bay
TP
(mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
7
8
9
10
Cumulative 2-Month TP Load (tons)


Upper Lemon Bay
TP (mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 1 2 3 4 5 6 7 8 9 10 11 12
Cumulative 3-Month TP Load (tons)

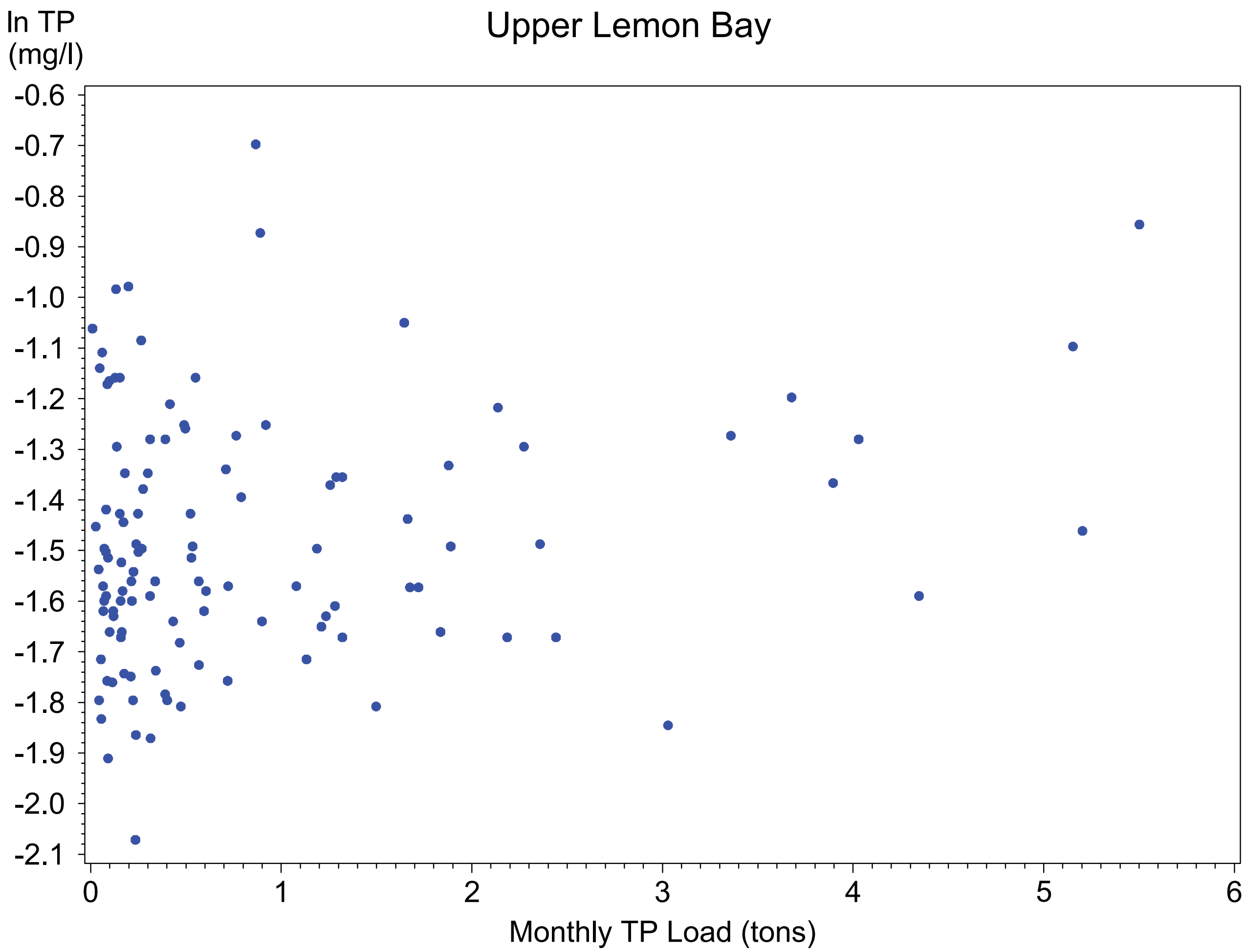

Upper Lemon Bay
TP (mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-5 -4 -3 -2 -1 0 1 2
ln Monthly TP Load (tons)

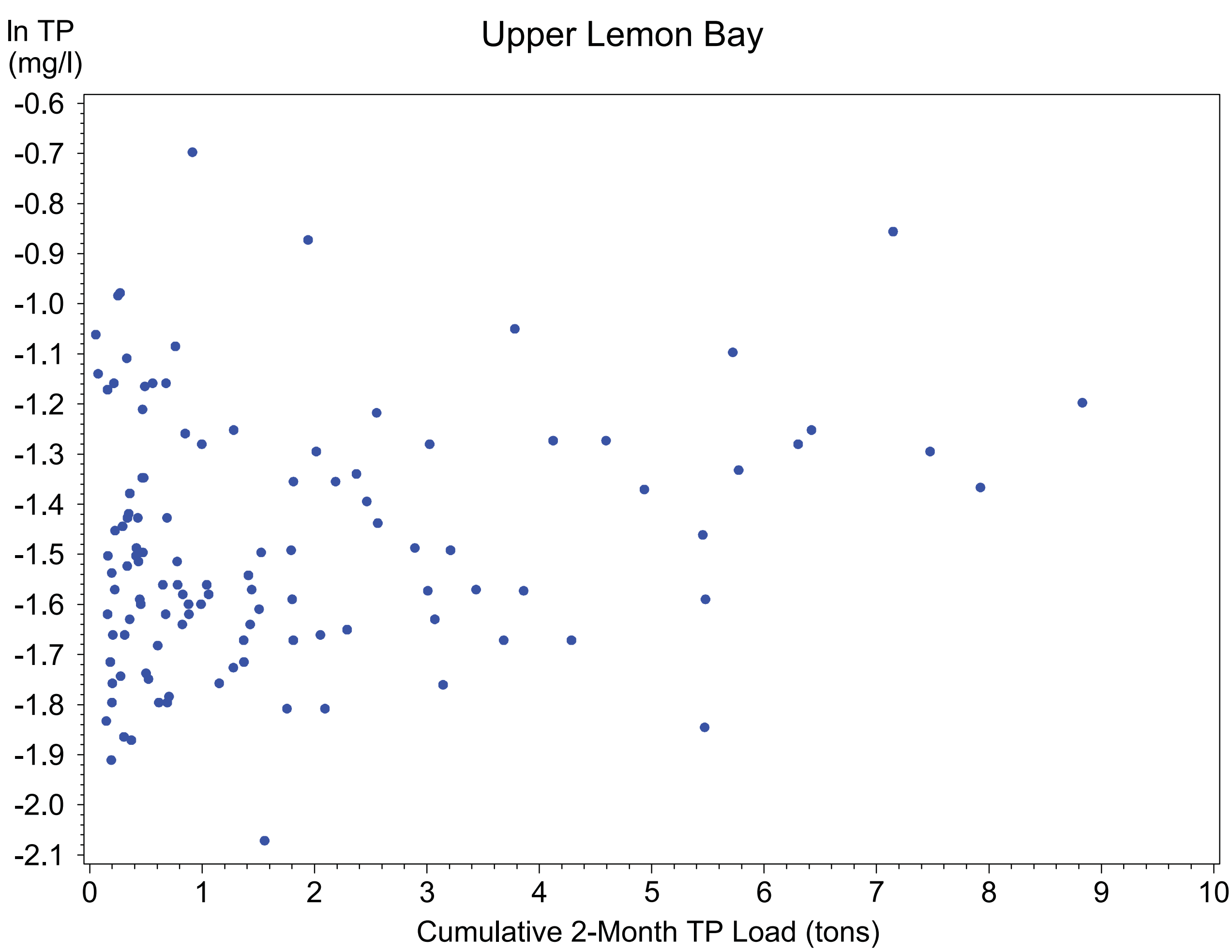


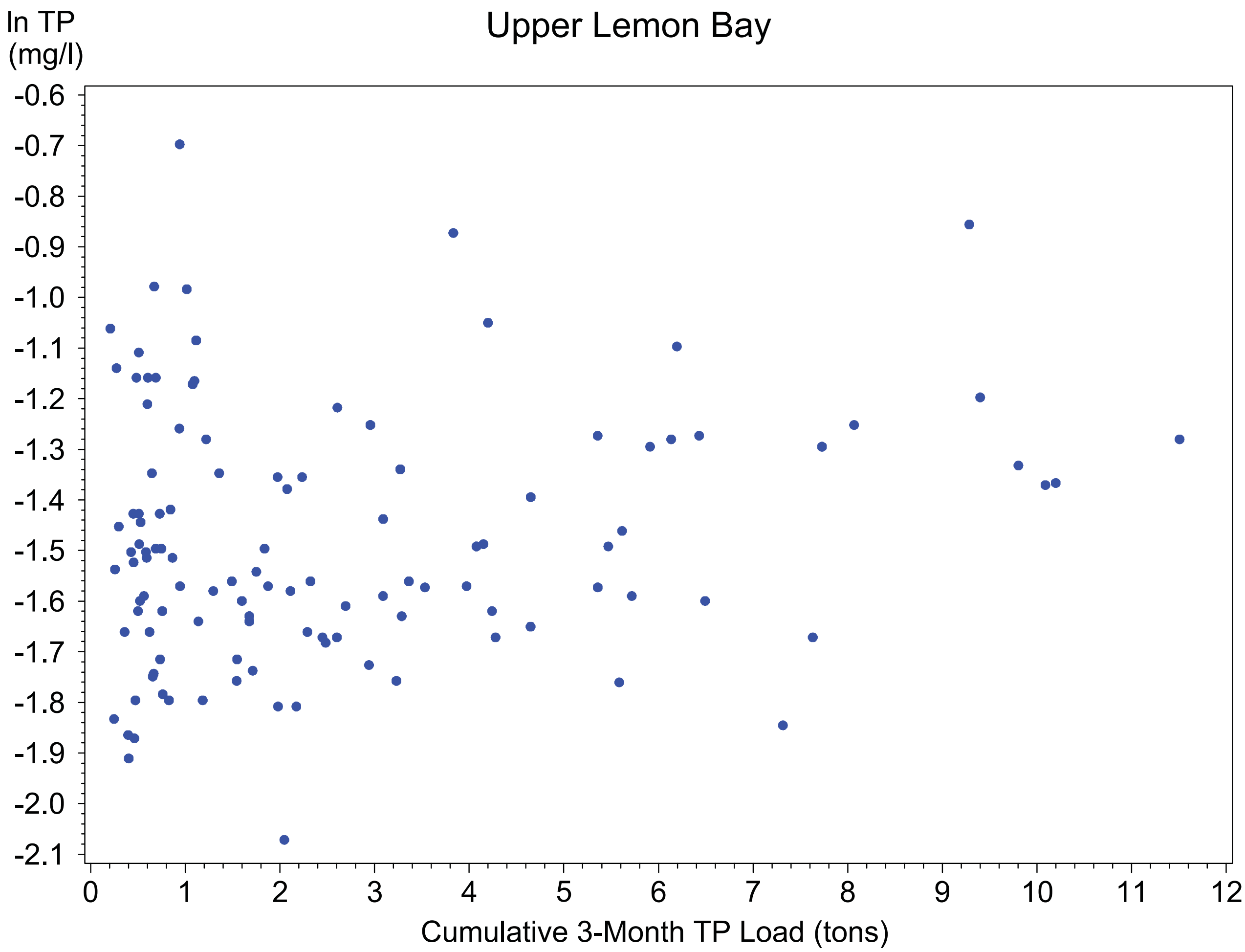
TP
(mg/l)
Upper Lemon Bay
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-3
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

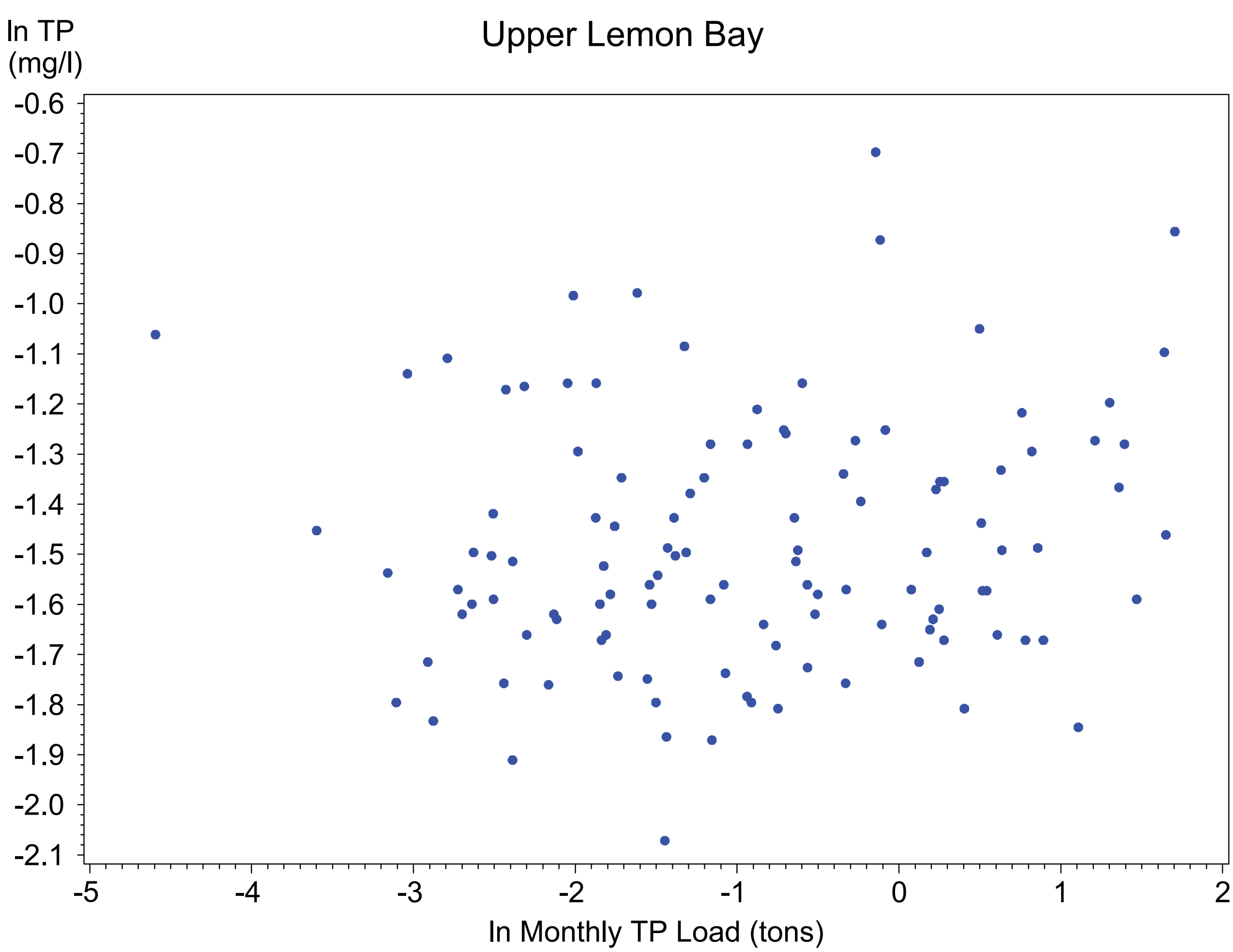


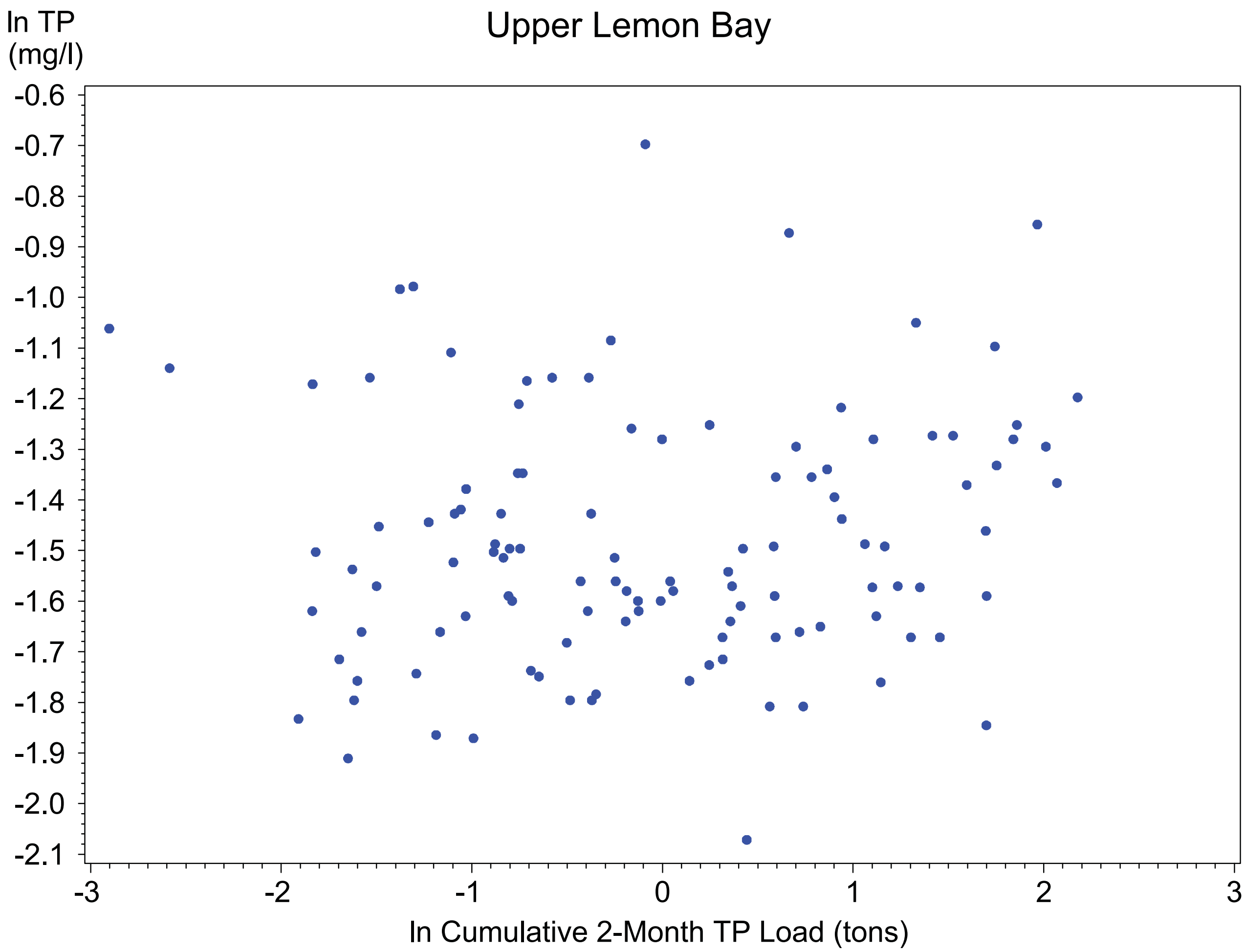
TP
(mg/l)
Upper Lemon Bay
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-2
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)

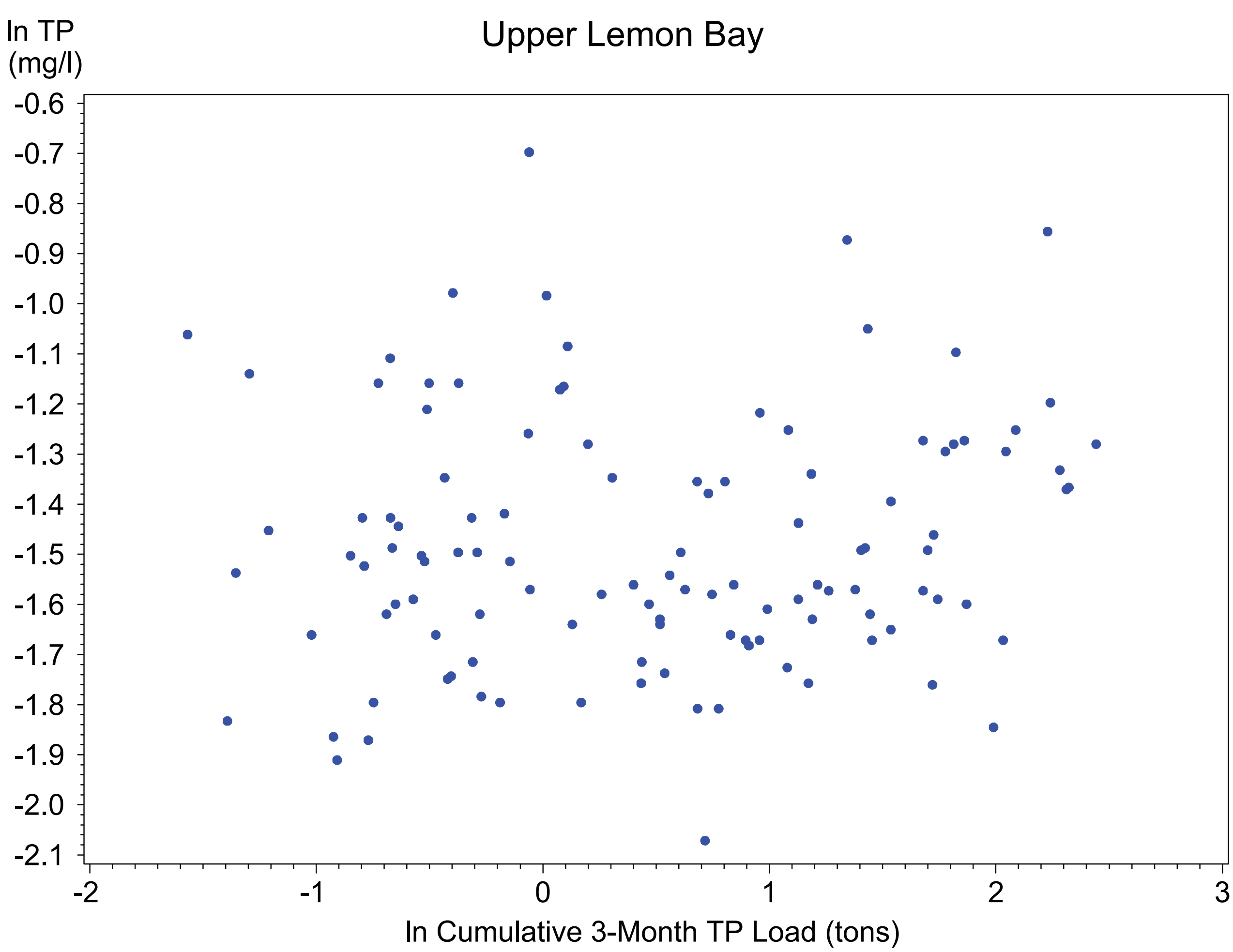

Upper Lemon Bay
ln TP (mg/l)
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
0
1
2
3
4
5
6
Monthly TP Load (tons)

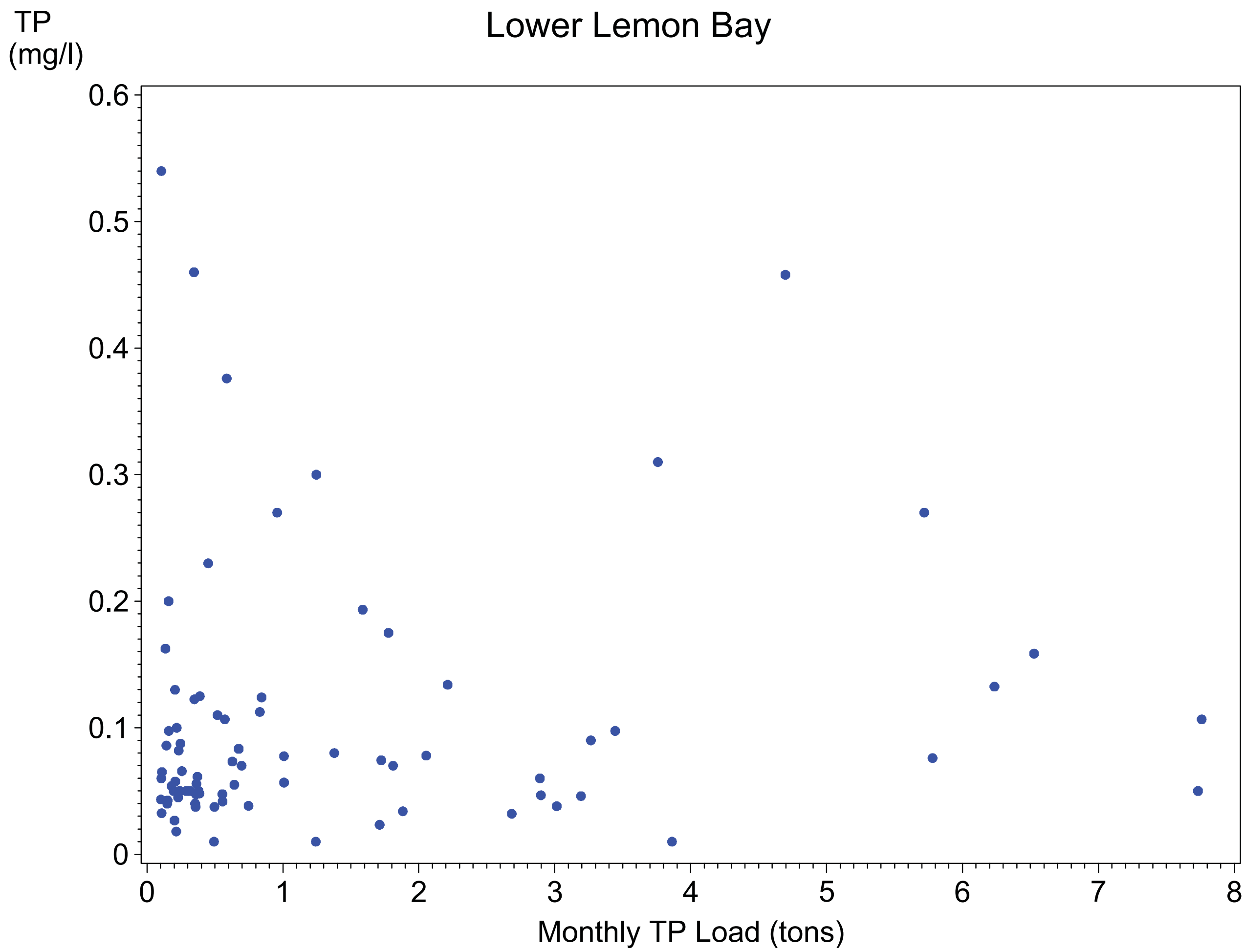

Upper Lemon Bay
ln TP (mg/l)
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
0
1
2
3
4
5
6
7
8
9
10
Cumulative 2-Month TP Load (tons)


ln TP (mg/l)
Upper Lemon Bay
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
0 1 2 3 4 5 6 7 8 9 10 11 12
Cumulative 3-Month TP Load (tons)

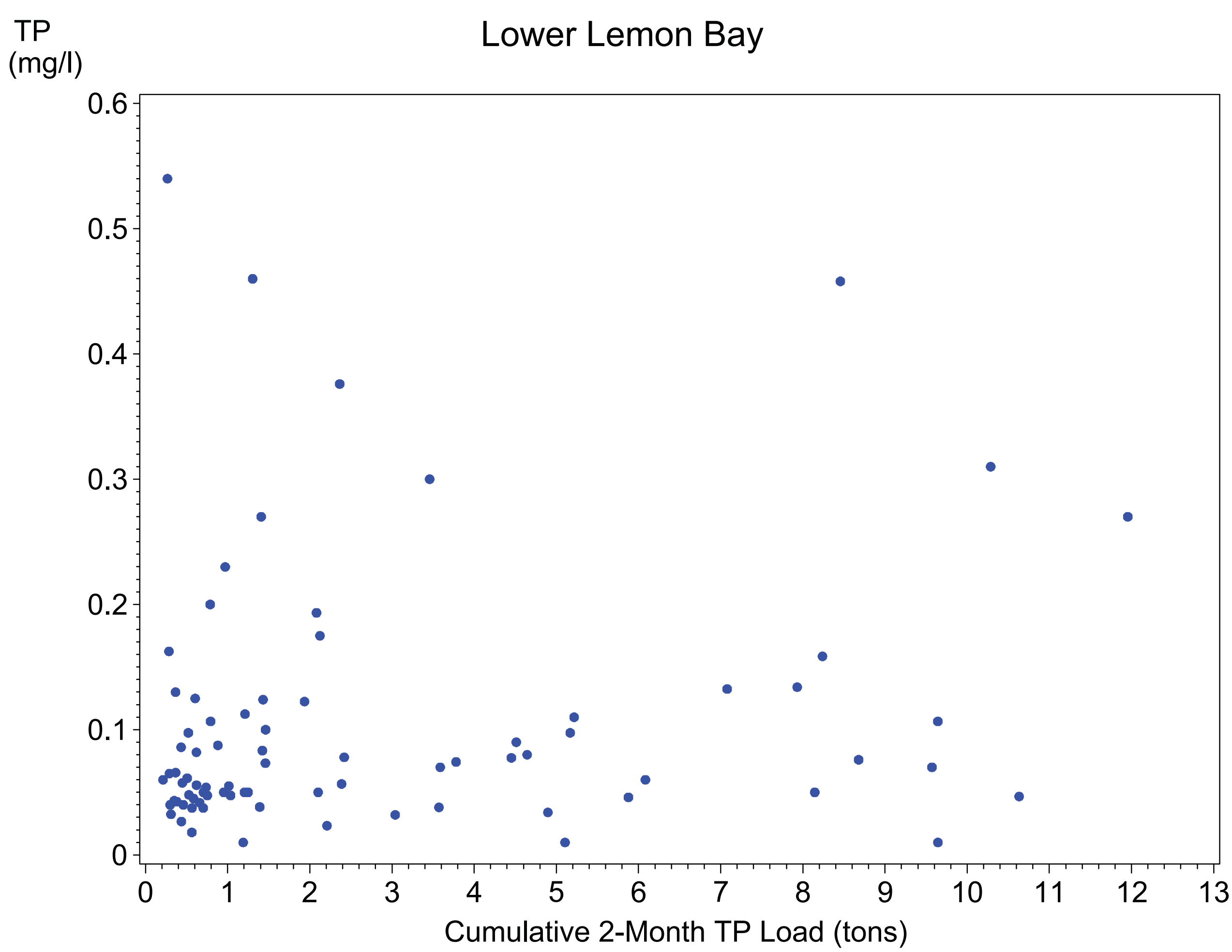

ln TP (mg/l)
Upper Lemon Bay
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-5 -4 -3 -2 -1 0 1 2
ln Monthly TP Load (tons)


Upper Lemon Bay
ln TP
(mg/l)
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-3
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

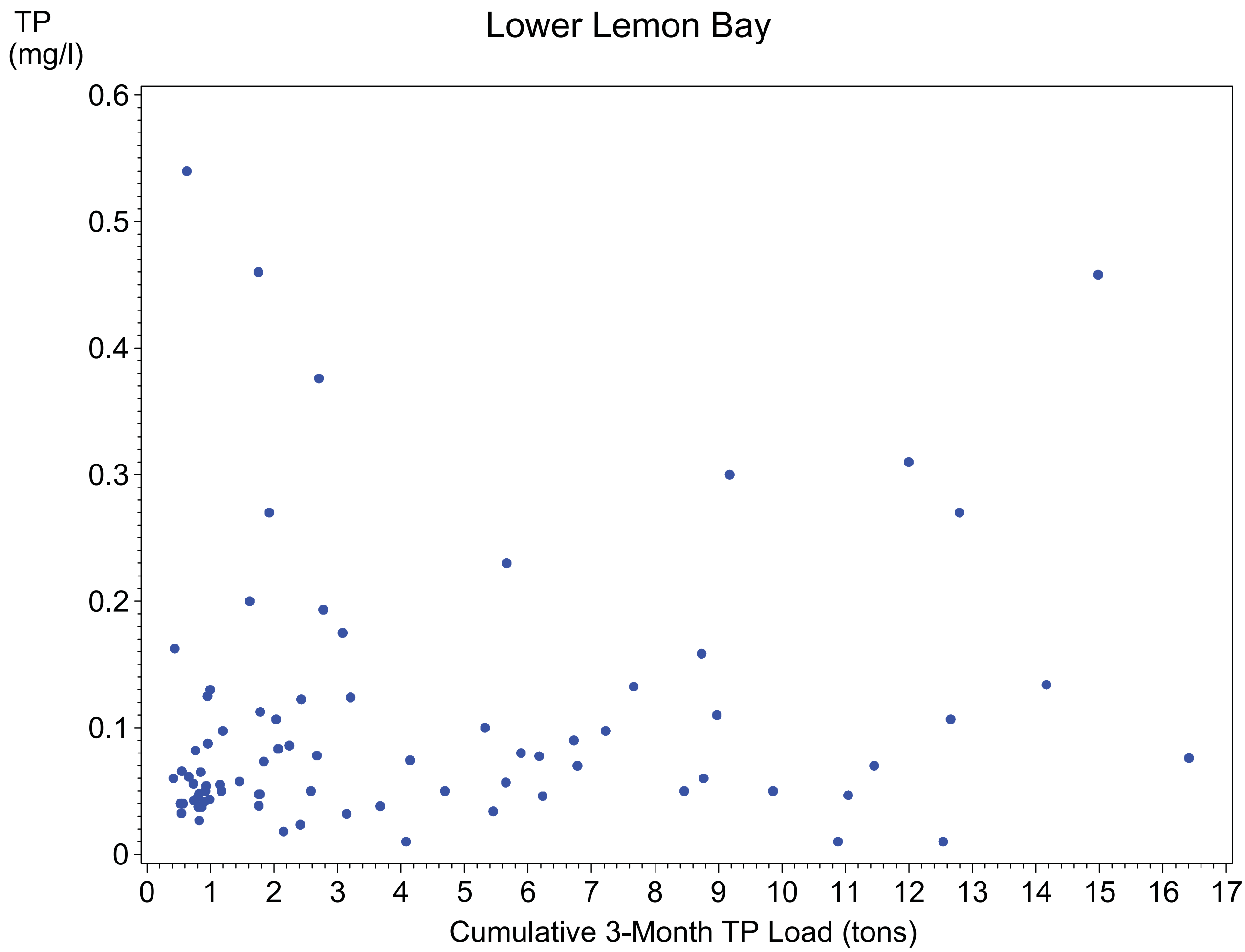

Upper Lemon Bay
ln TP
(mg/l)
-0.6
-0.7
-0.8
-0.9
-1.0
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2.0
-2.1
-2
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)



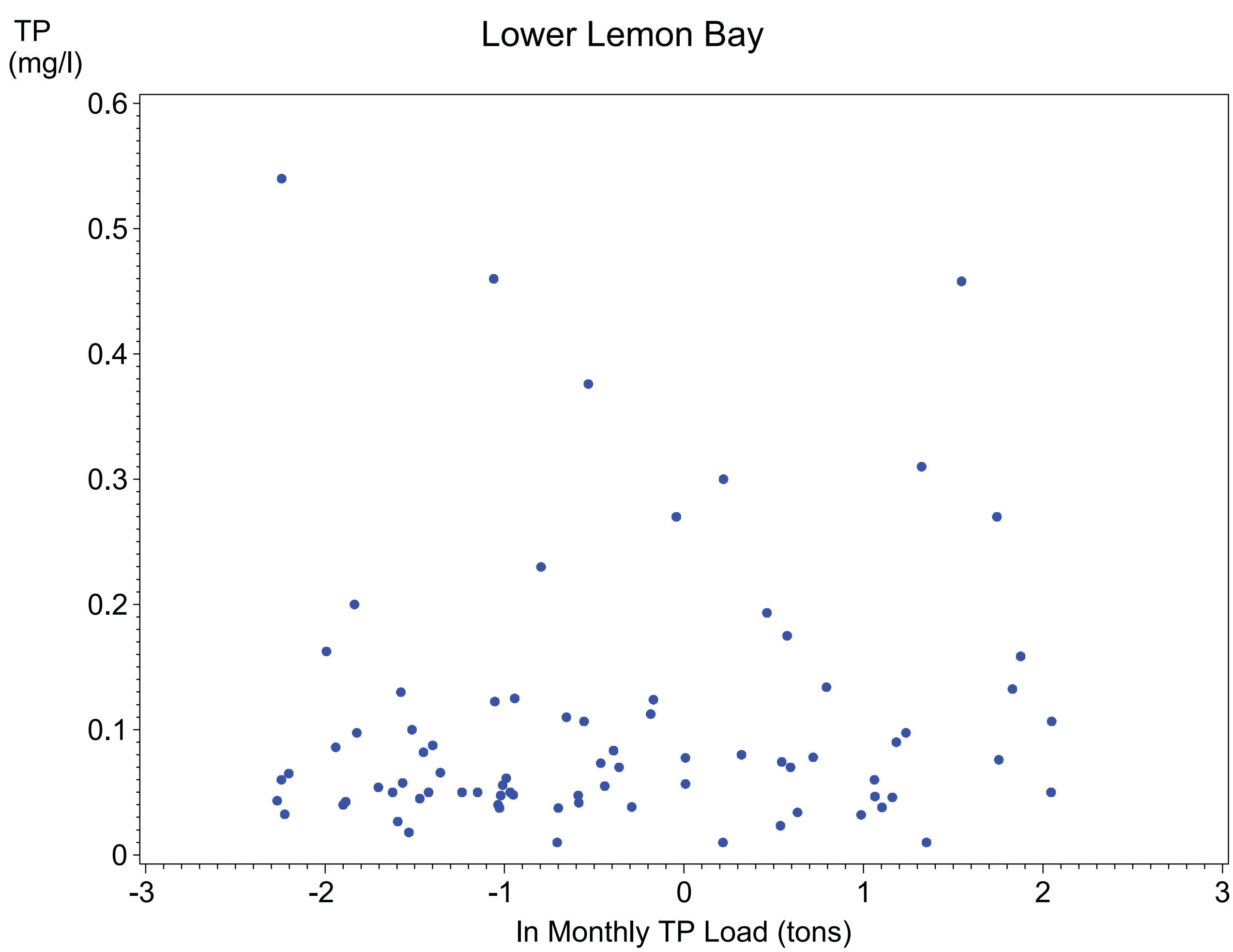
TP
(mg/l)
Lower Lemon Bay
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
Monthly TP Load (tons)



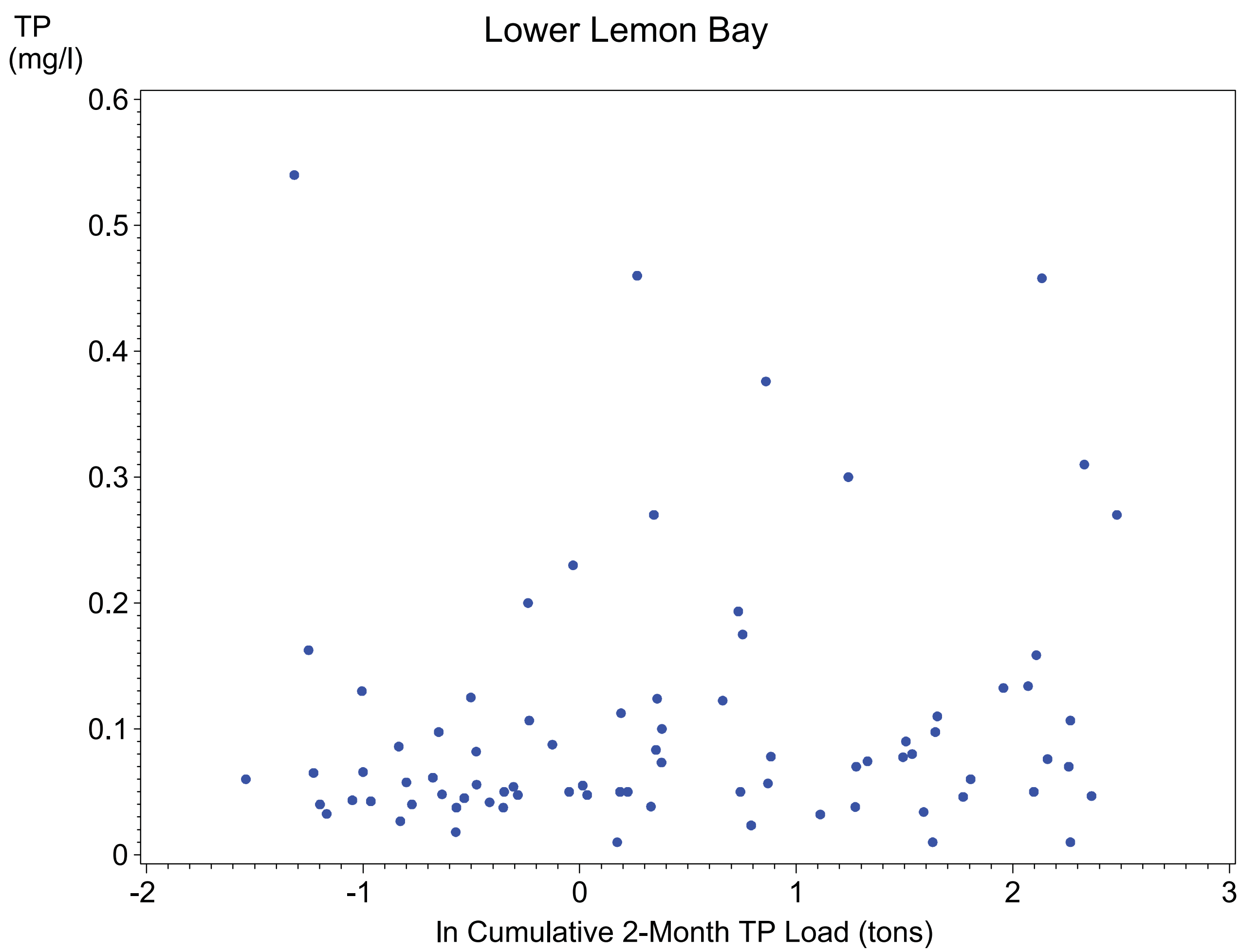
TP
(mg/l)
Lower Lemon Bay
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Cumulative 2-Month TP Load (tons)



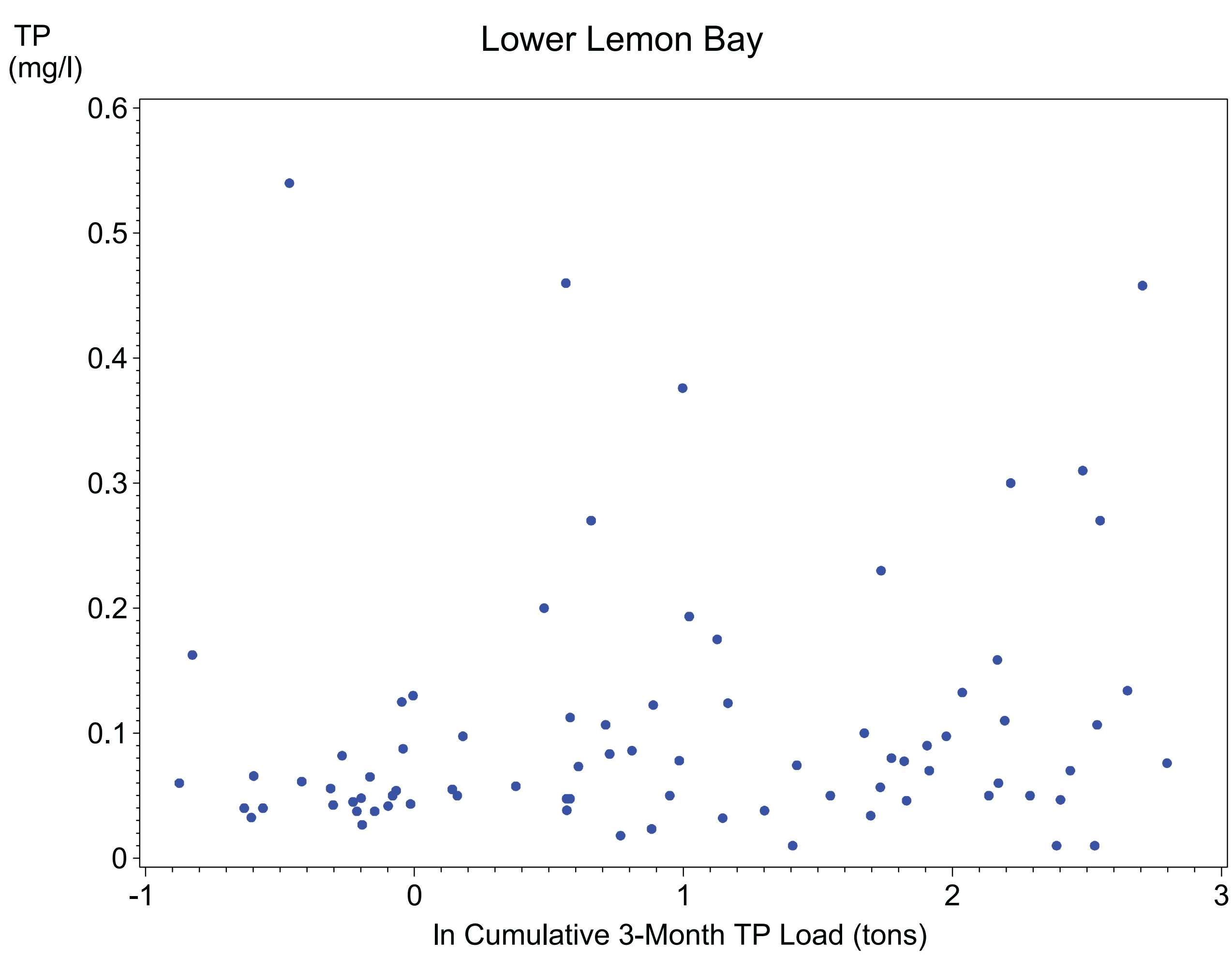
Lower Lemon Bay
TP (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Cumulative 3-Month TP Load (tons)



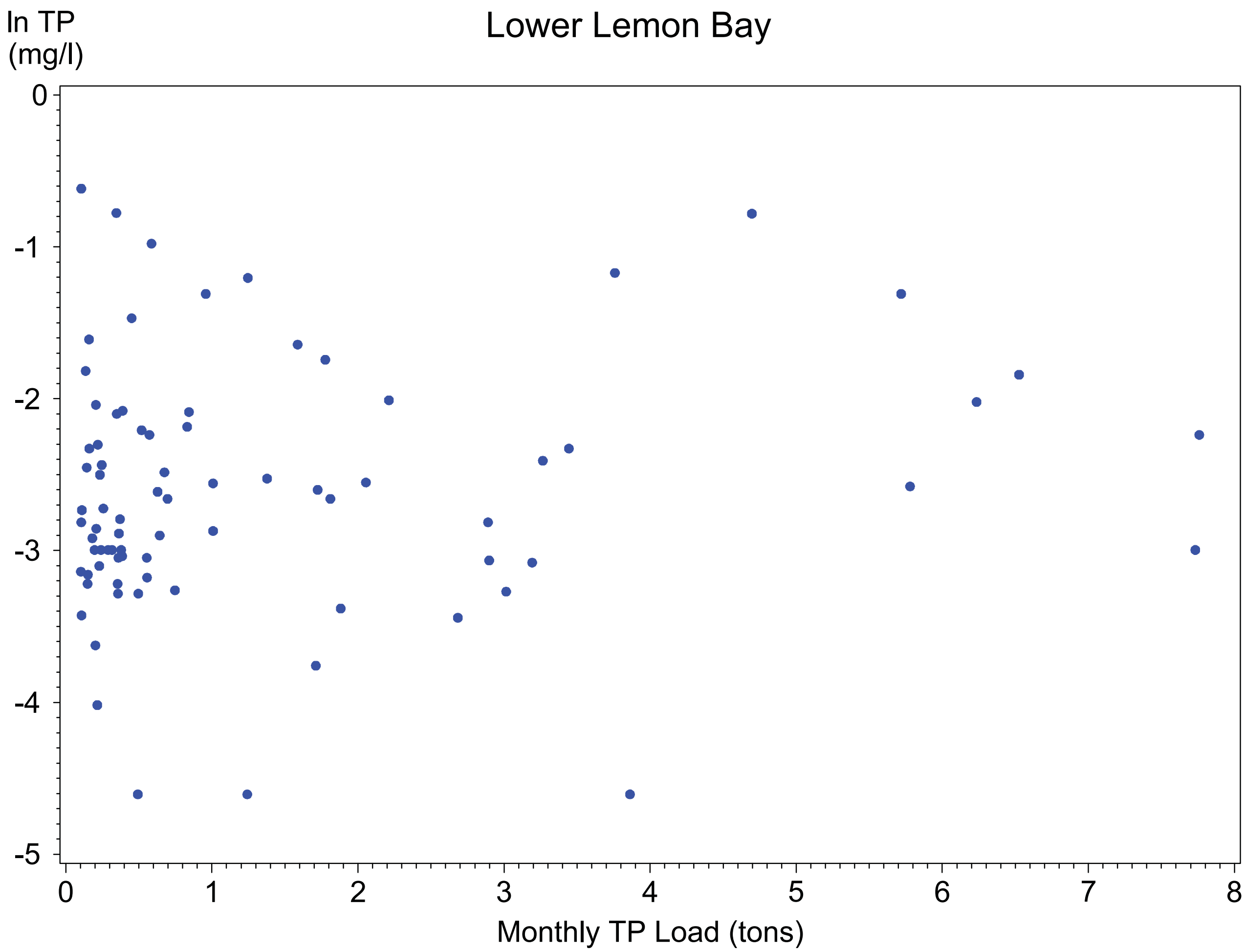
Lower Lemon Bay
TP (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
-3 -2 -1 0 1 2 3
ln Monthly TP Load (tons)

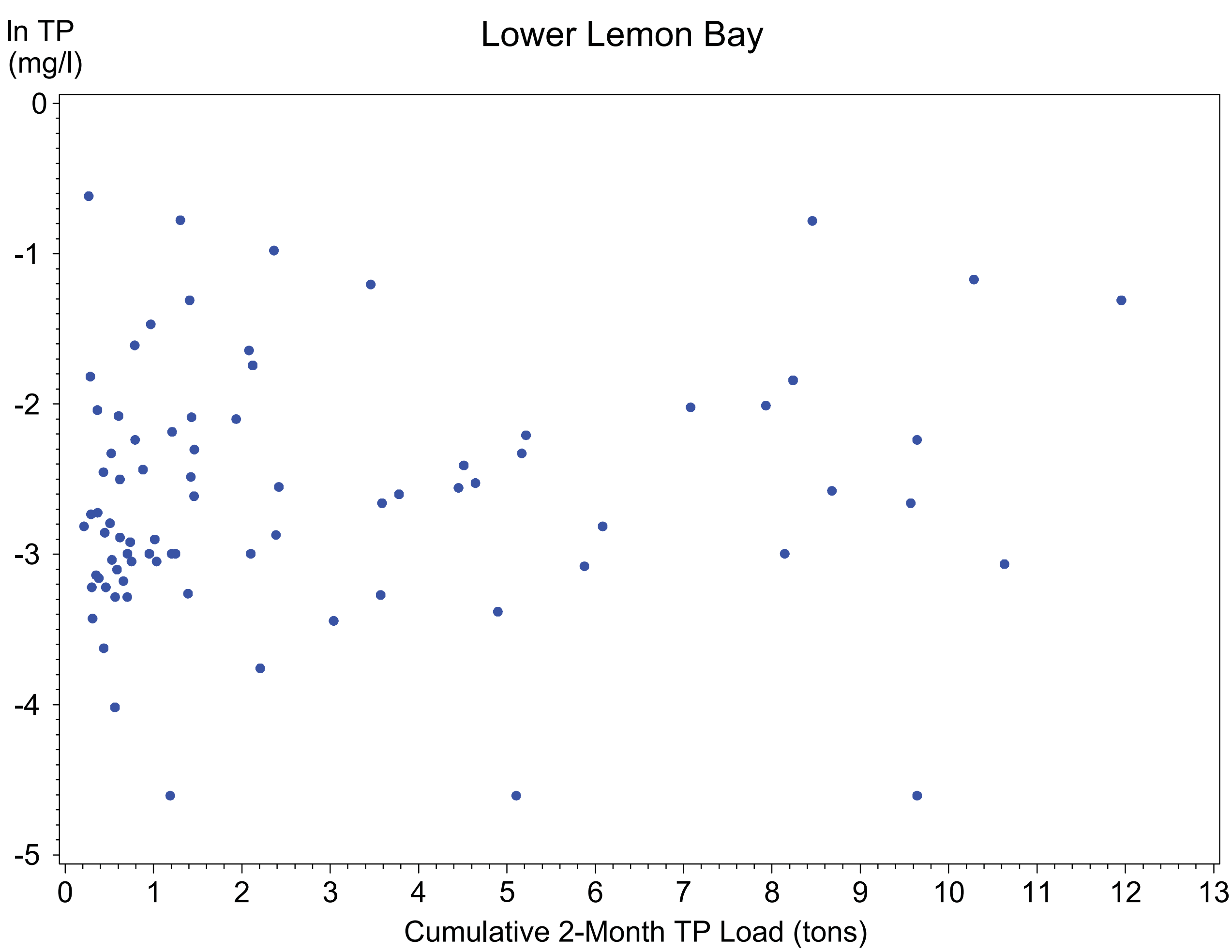


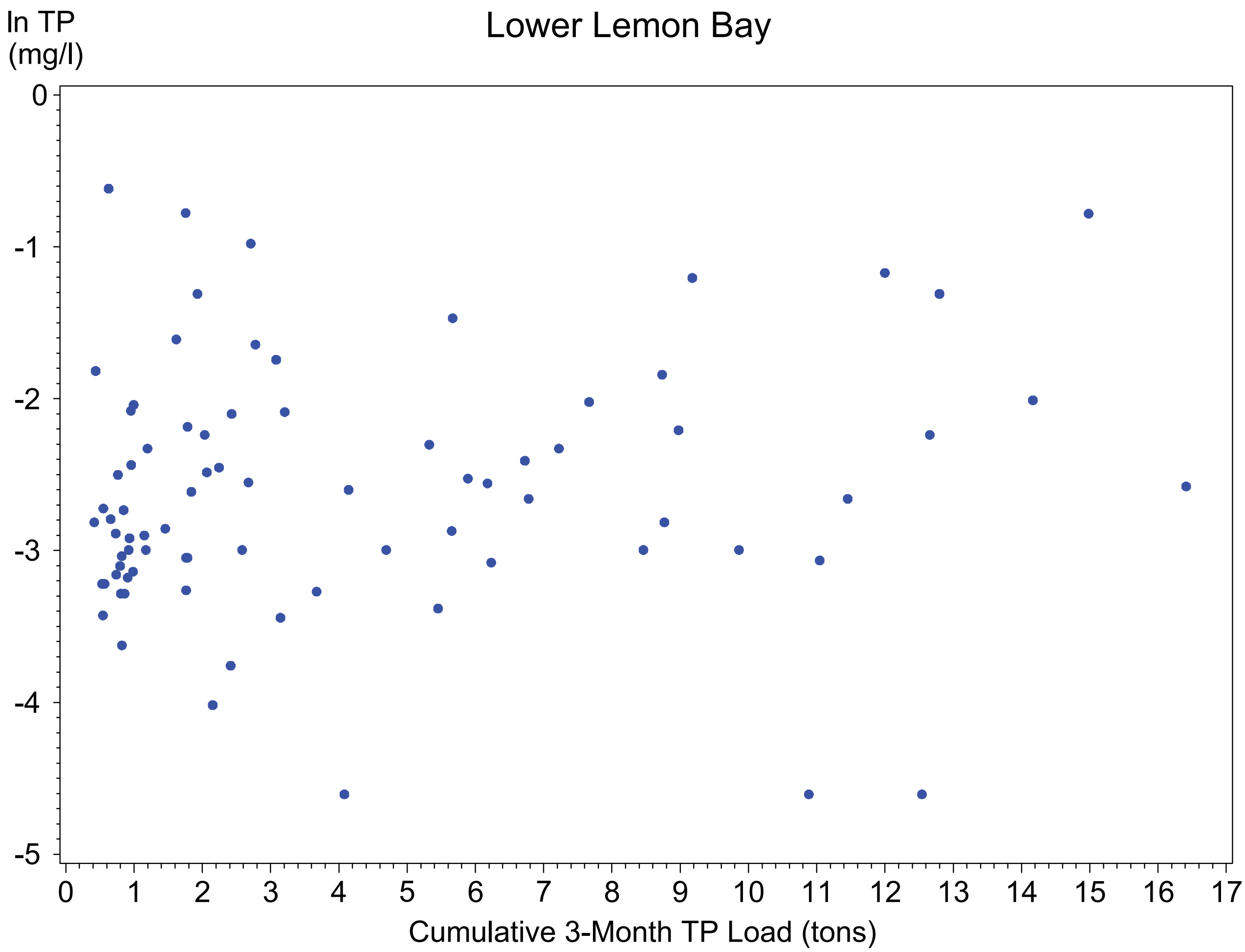
Lower Lemon Bay
TP (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)



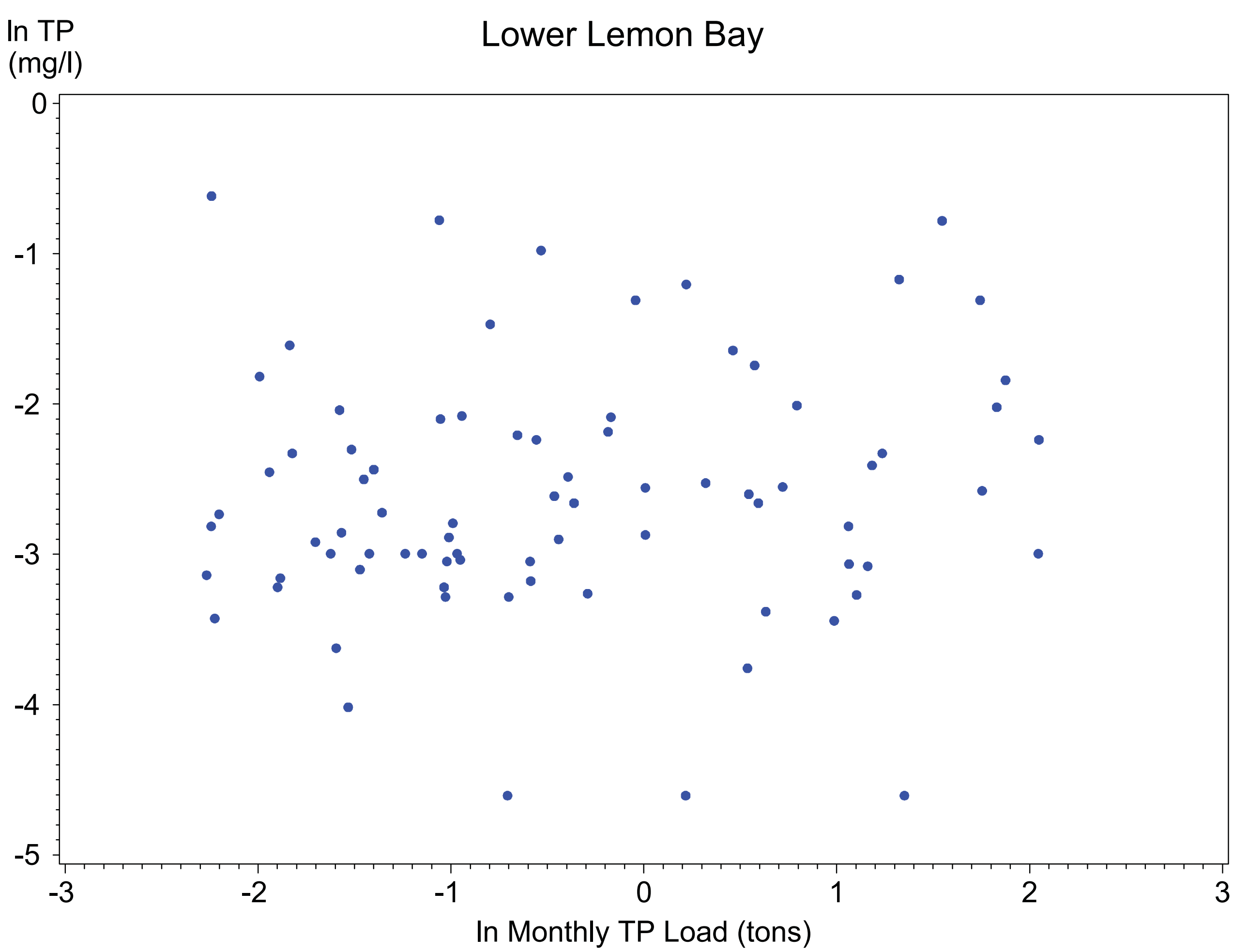
Lower Lemon Bay
TP (mg/l)
0.6
0.5
0.4
0.3
0.2
0.1
0
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)


Lower Lemon Bay
ln TP
(mg/l)
0
-1
-2
-3
-4
-5
0
1
2
3
4
5
6
7
8
Monthly TP Load (tons)

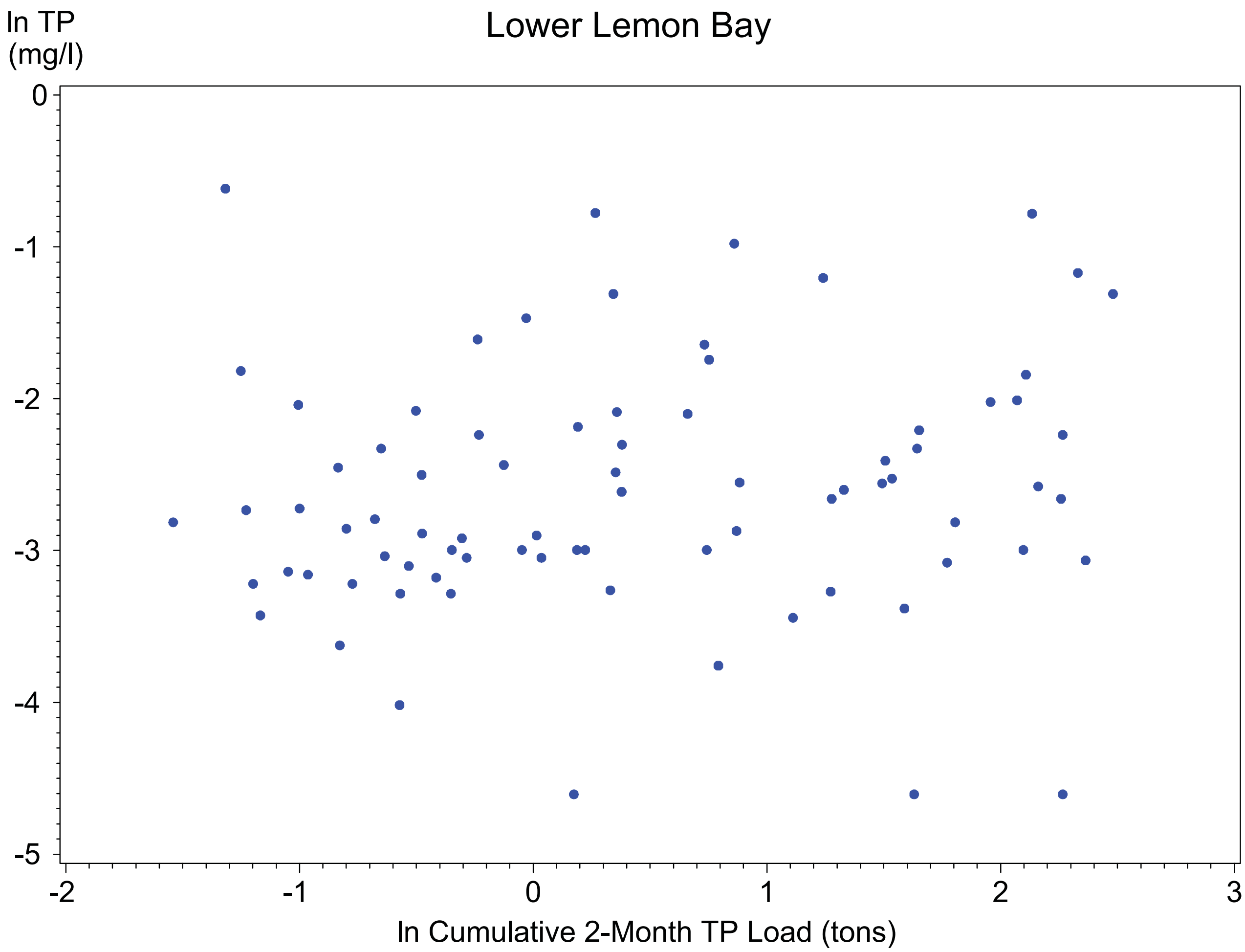

Lower Lemon Bay
ln TP
(mg/l)
0
-1
-2
-3
-4
-5
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Cumulative 2-Month TP Load (tons)

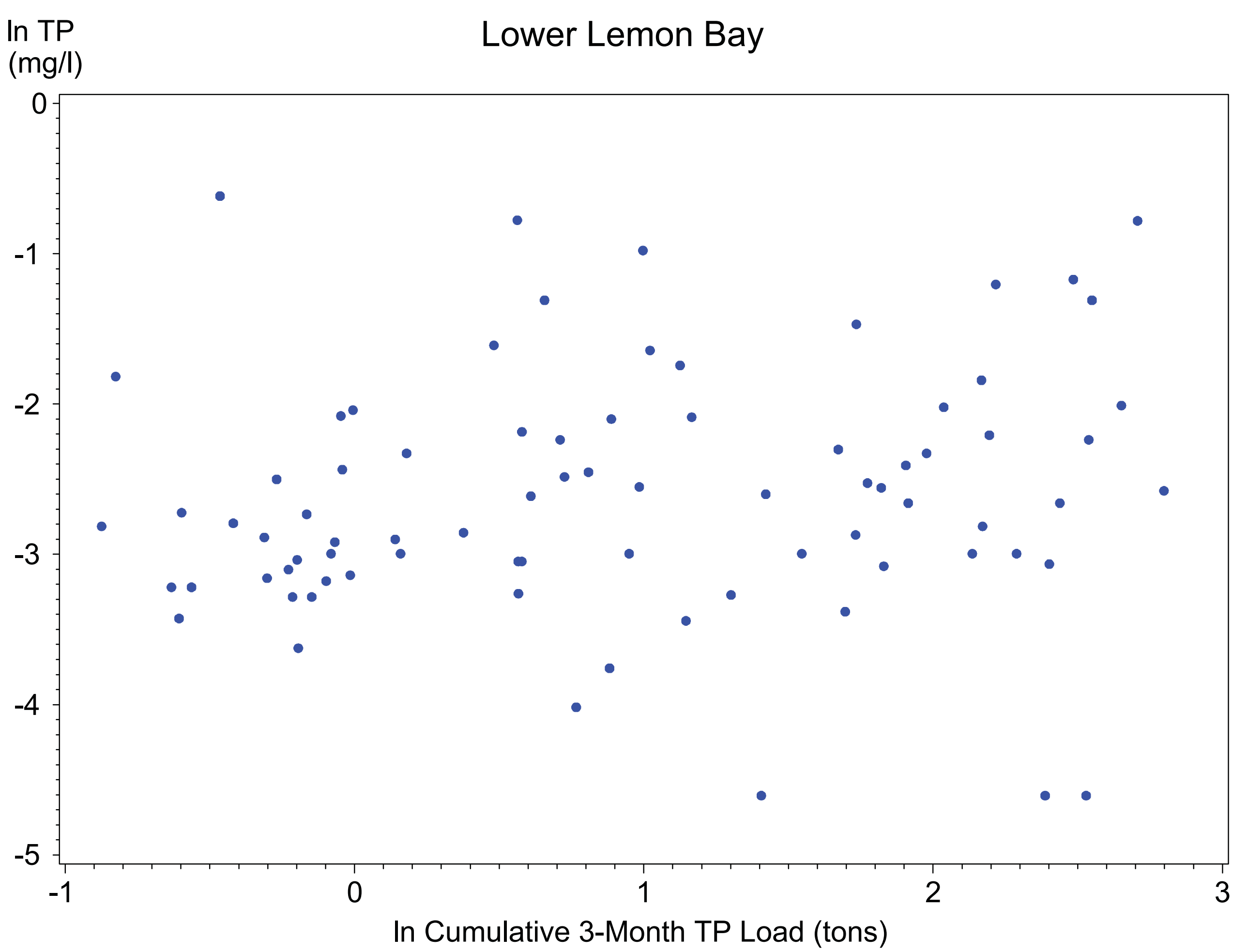


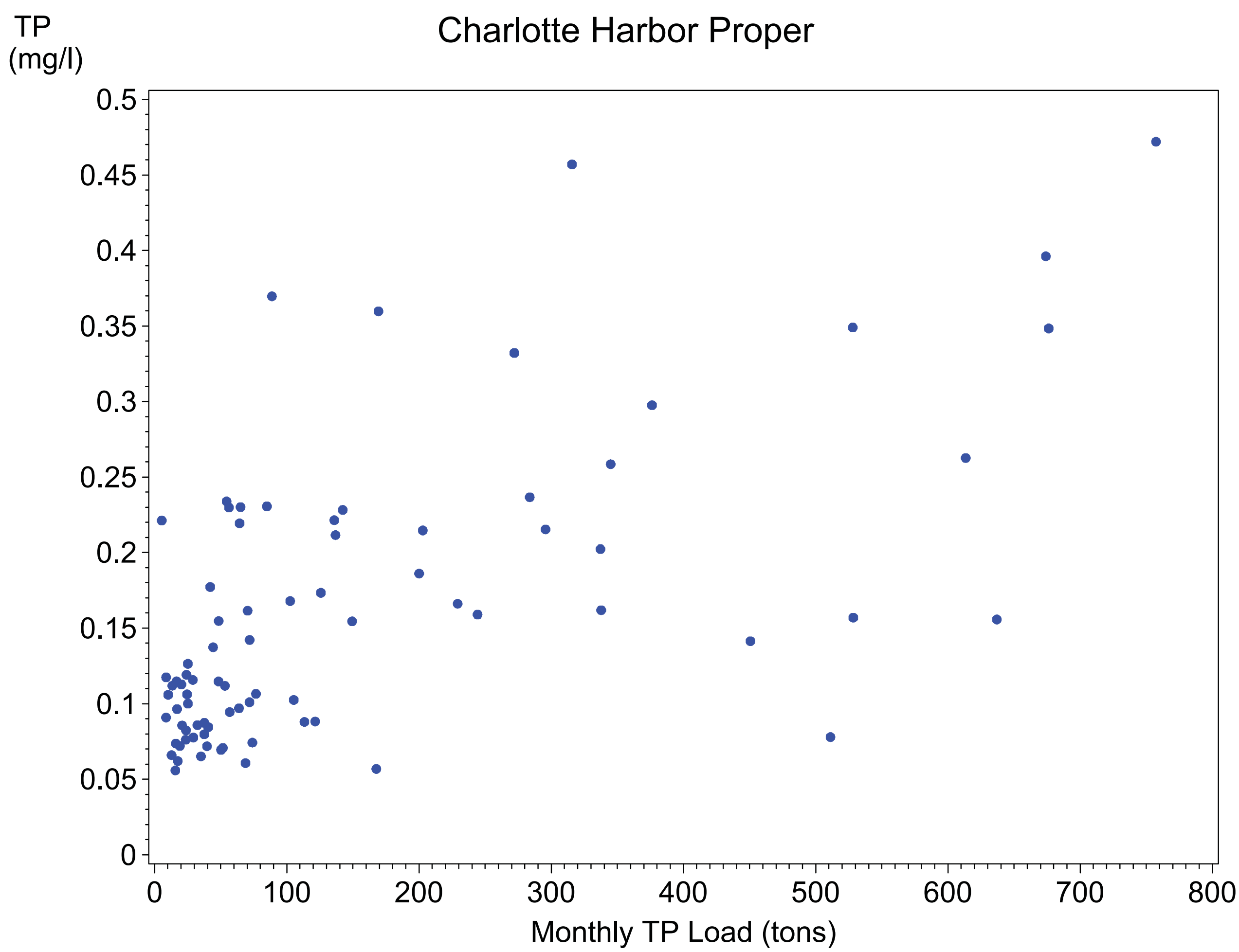
Lower Lemon Bay
ln TP
(mg/l)
0
-1
-2
-3
-4
-5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Cumulative 3-Month TP Load (tons)



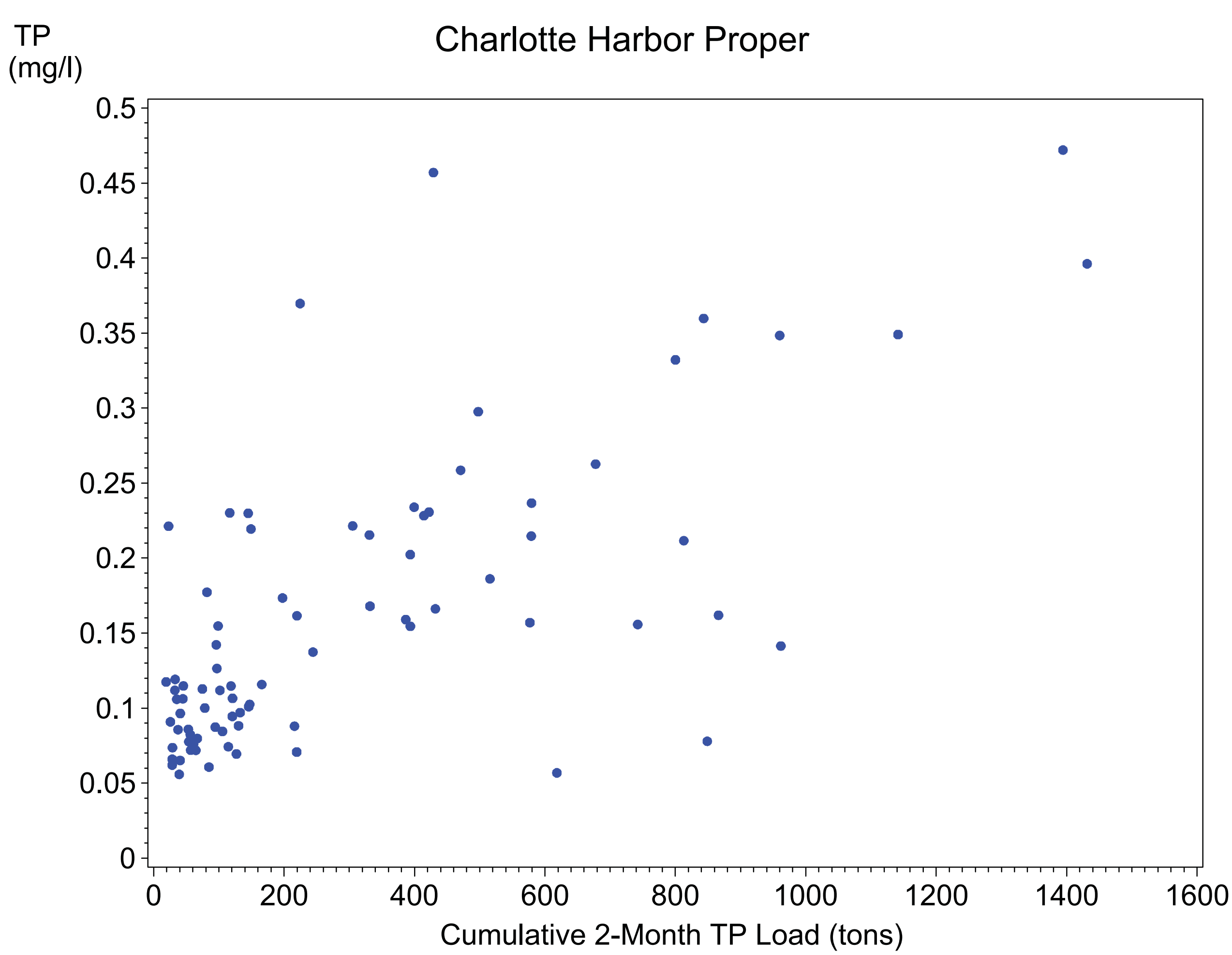
Lower Lemon Bay
ln TP
(mg/l)
0
-1
-2
-3
-4
-5
-3 -2 -1 0 1 2 3
ln Monthly TP Load (tons)


Lower Lemon Bay
ln TP (mg/l)
0
-1
-2
-3
-4
-5
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

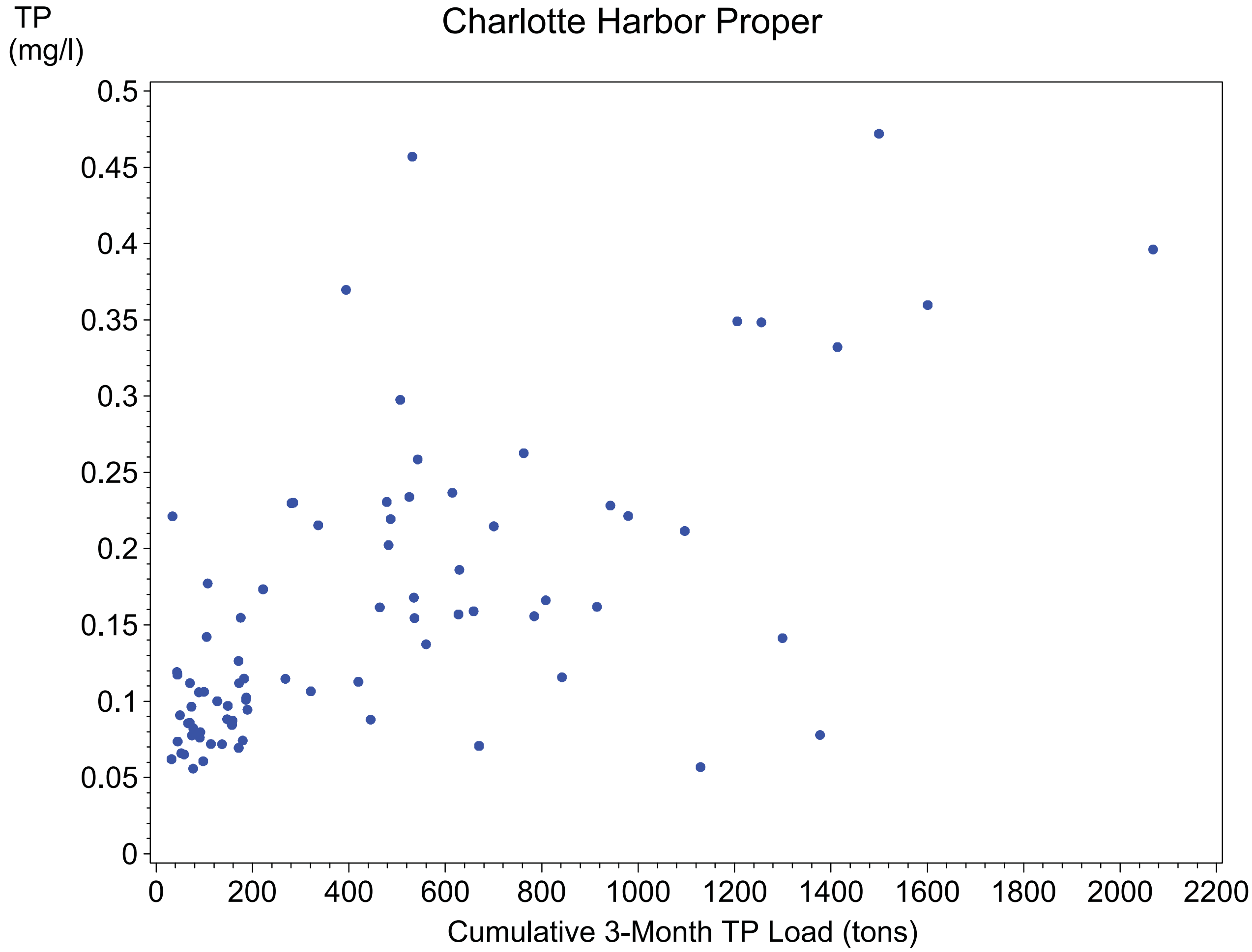

Lower Lemon Bay
ln TP (mg/l)
0
-1
-2
-3
-4
-5
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)

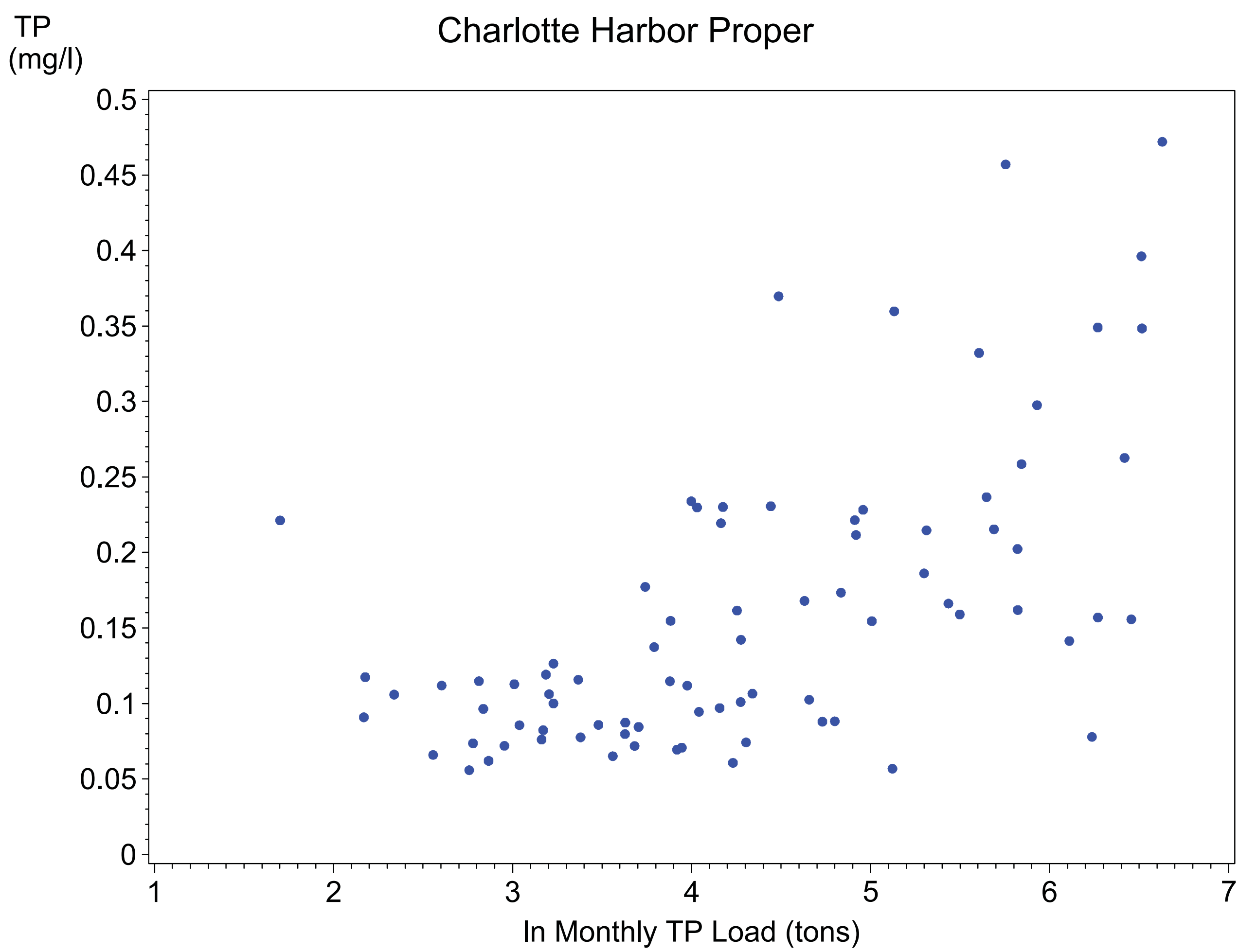


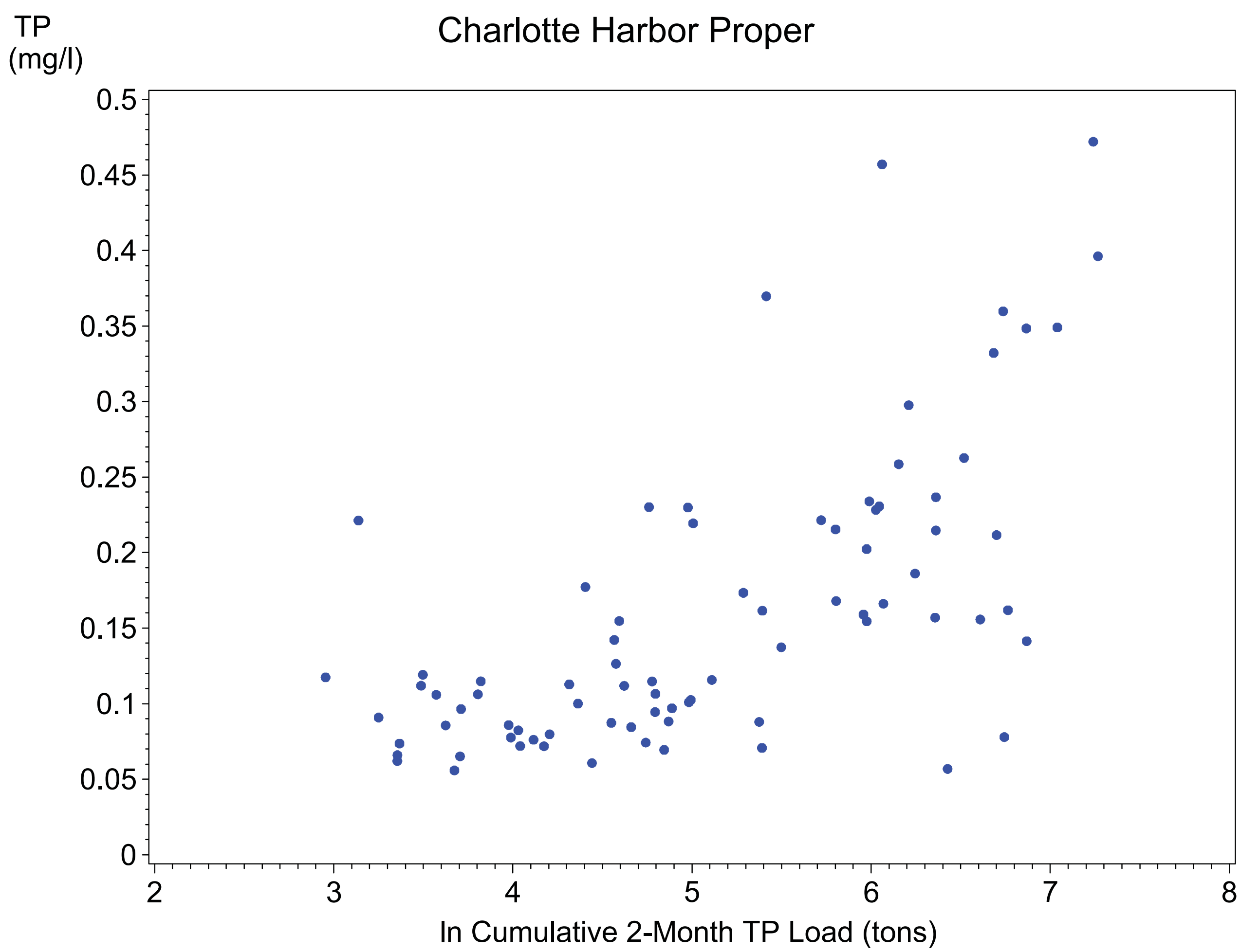
TP
(mg/l)
Charlotte Harbor Proper
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
100
200
300
400
500
600
700
800
Monthly TP Load (tons)

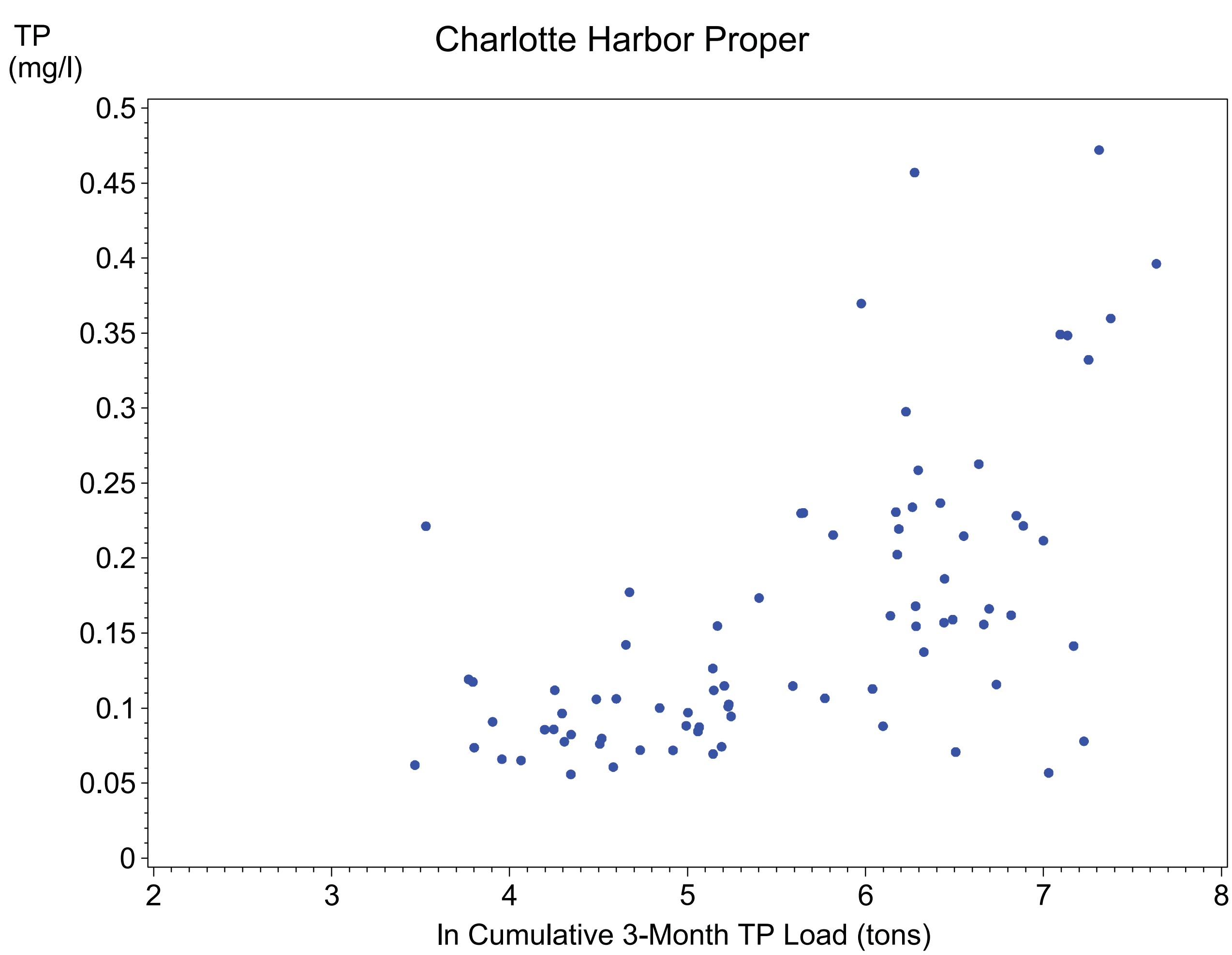


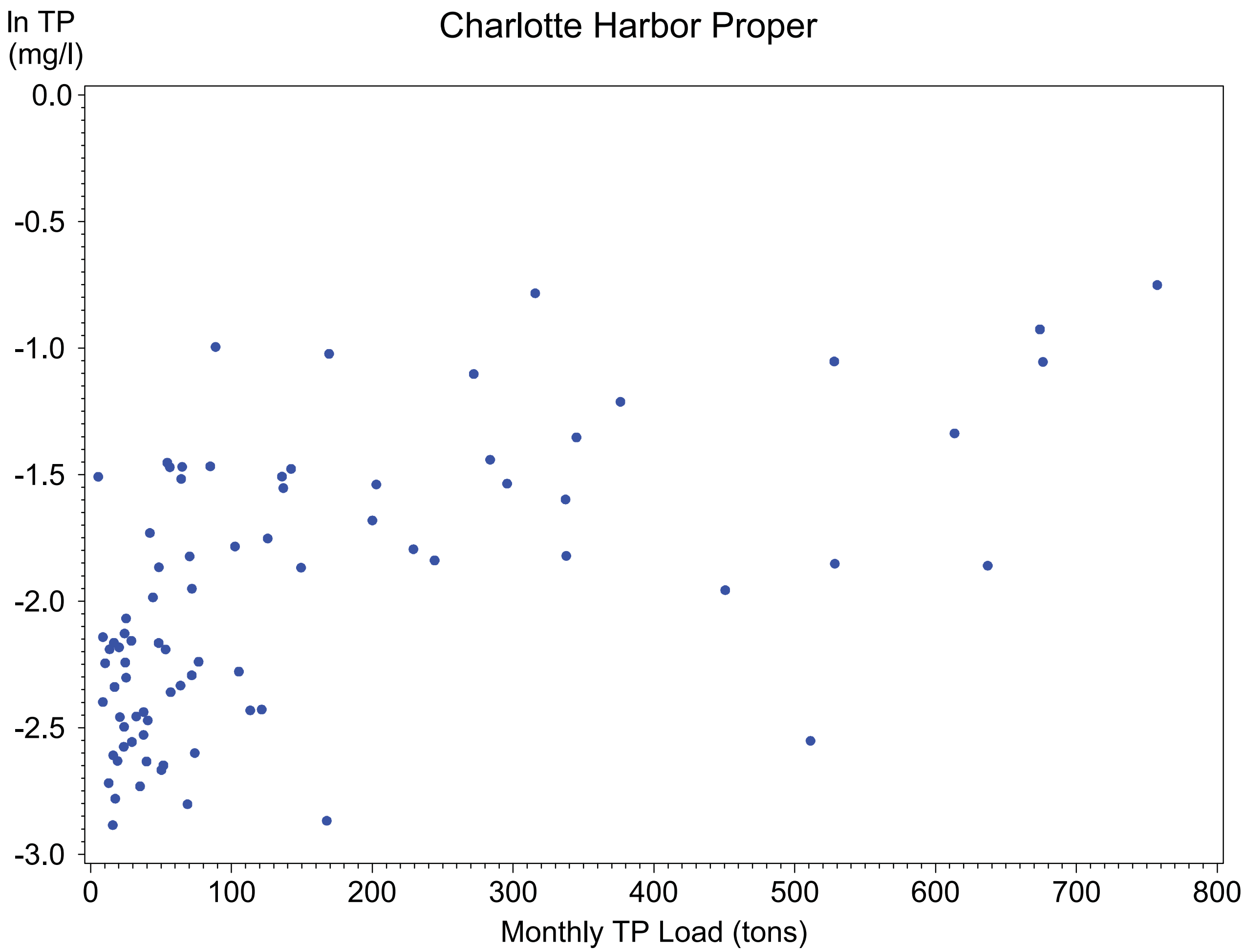
TP
(mg/l)
Charlotte Harbor Proper
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
200
400
600
800
1000
1200
1400
1600
Cumulative 2-Month TP Load (tons)

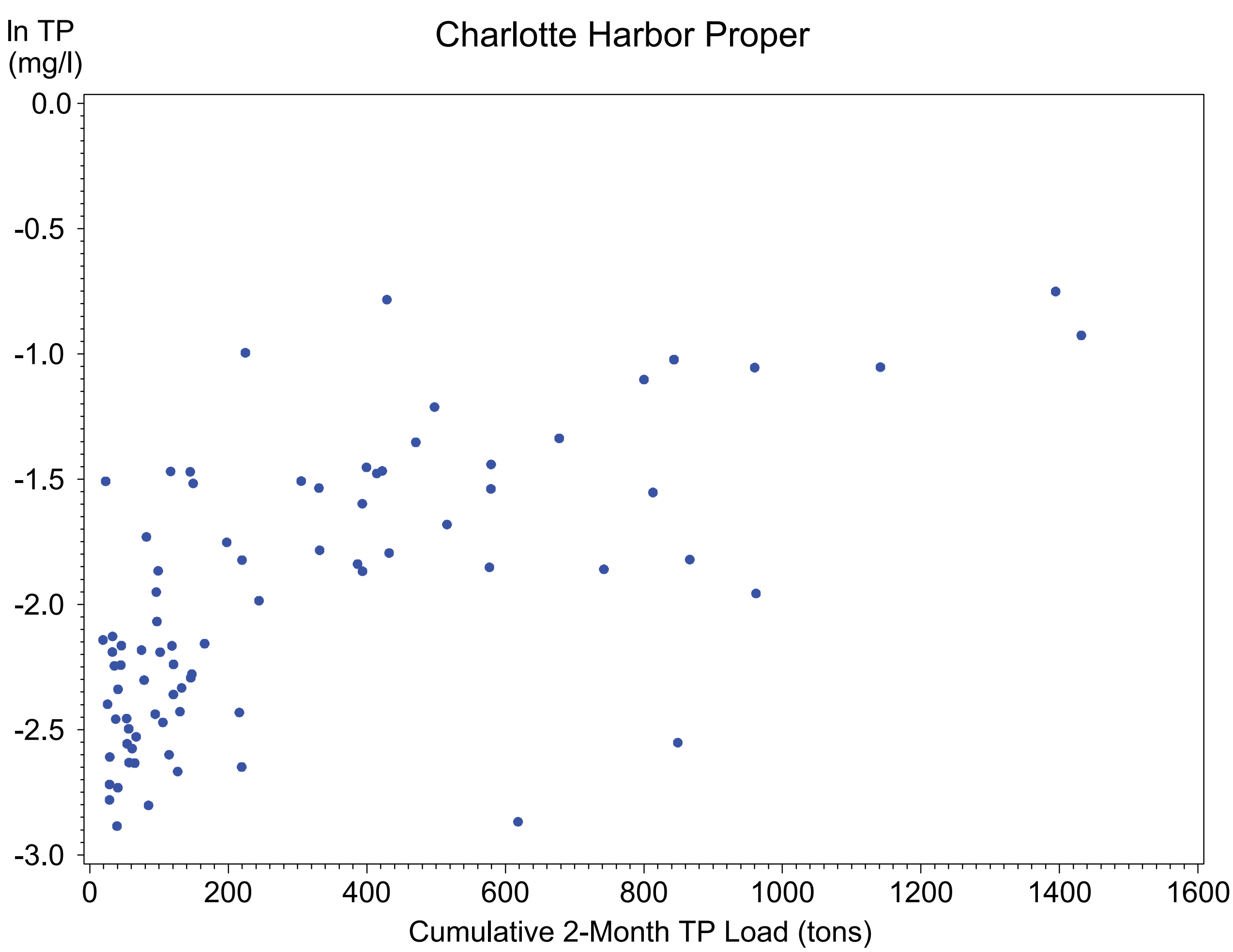

Charlotte Harbor Proper
TP
(mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200
Cumulative 3-Month TP Load (tons)

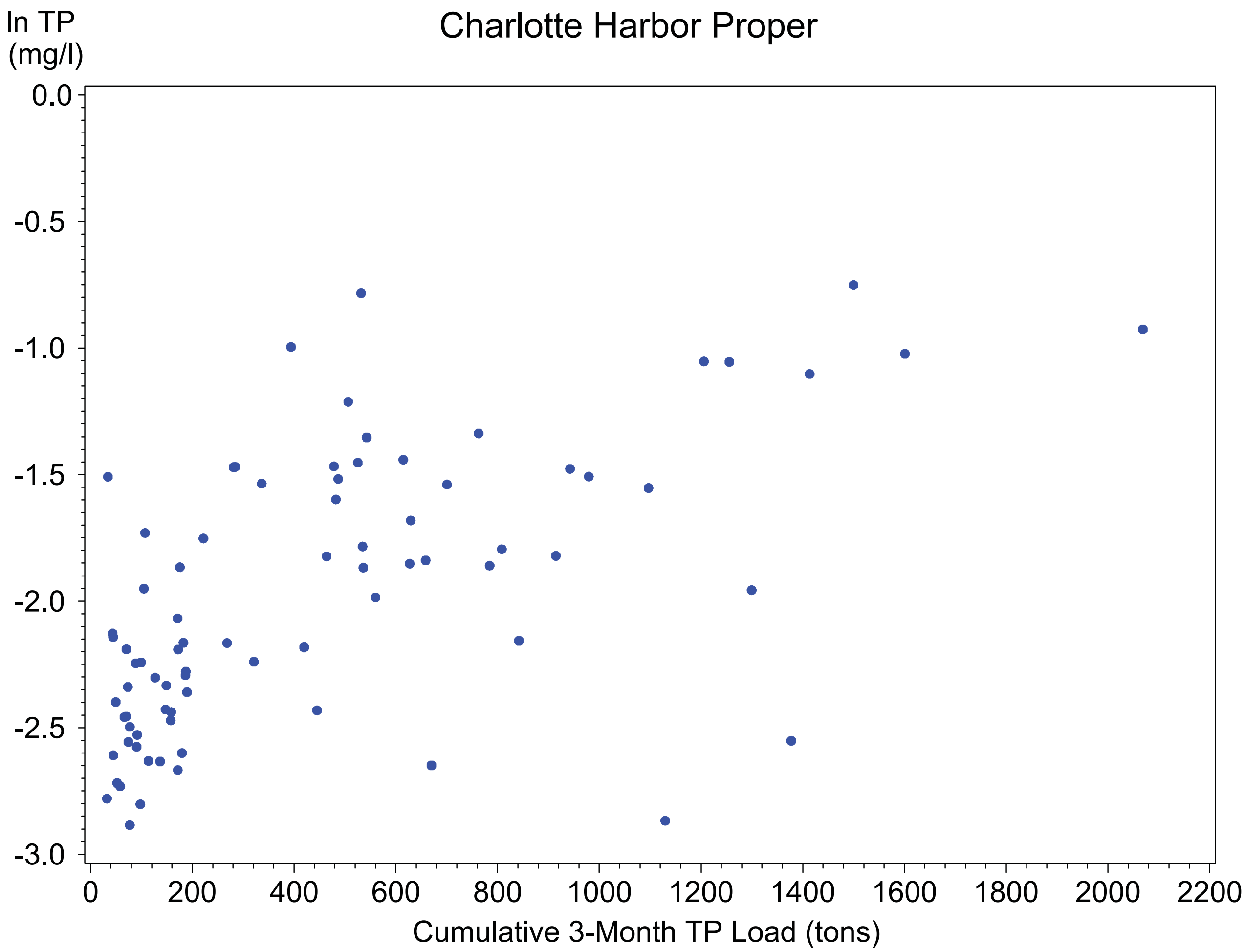

Charlotte Harbor Proper
TP
(mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1 2 3 4 5 6 7
ln Monthly TP Load (tons)

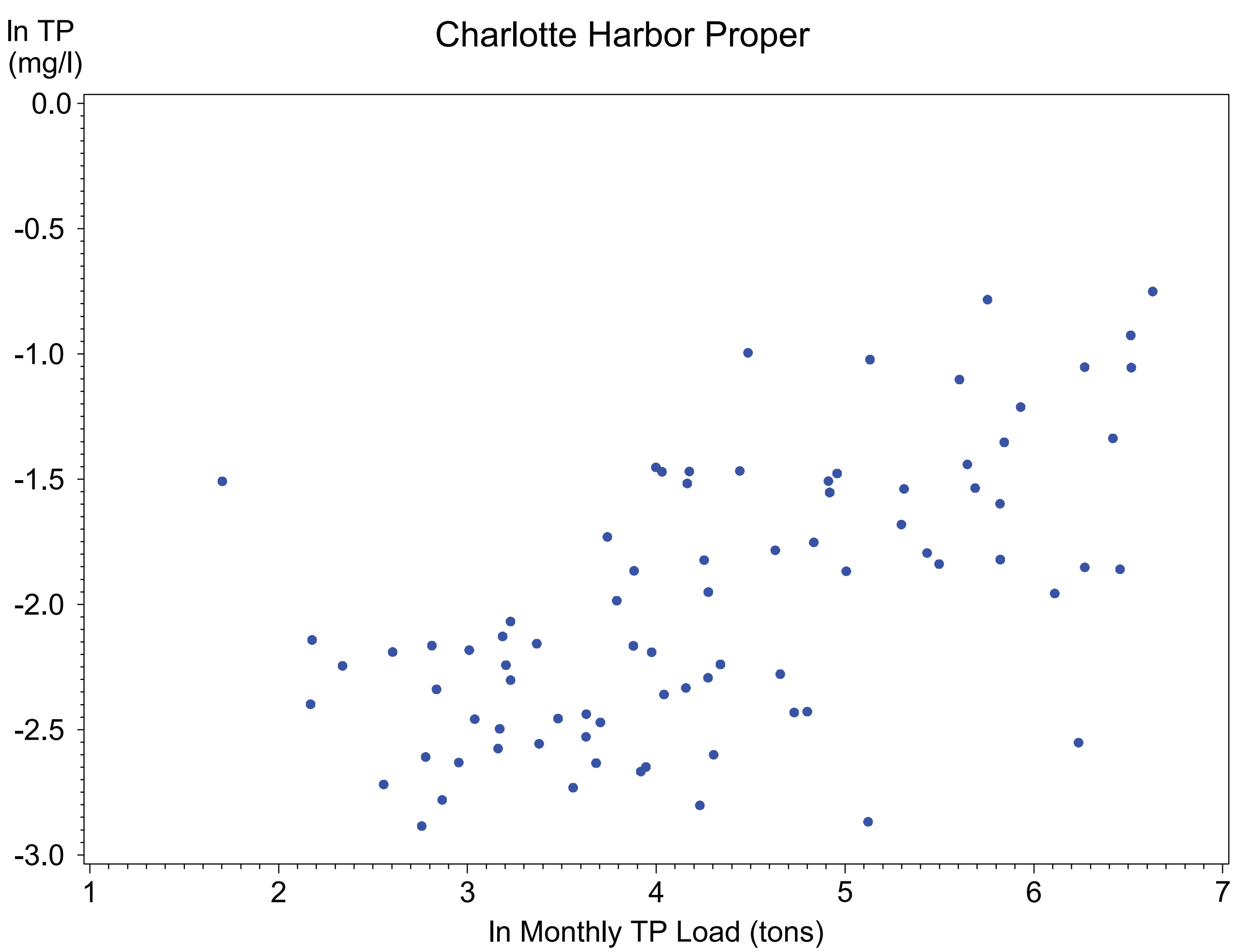

Charlotte Harbor Proper
TP (mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)

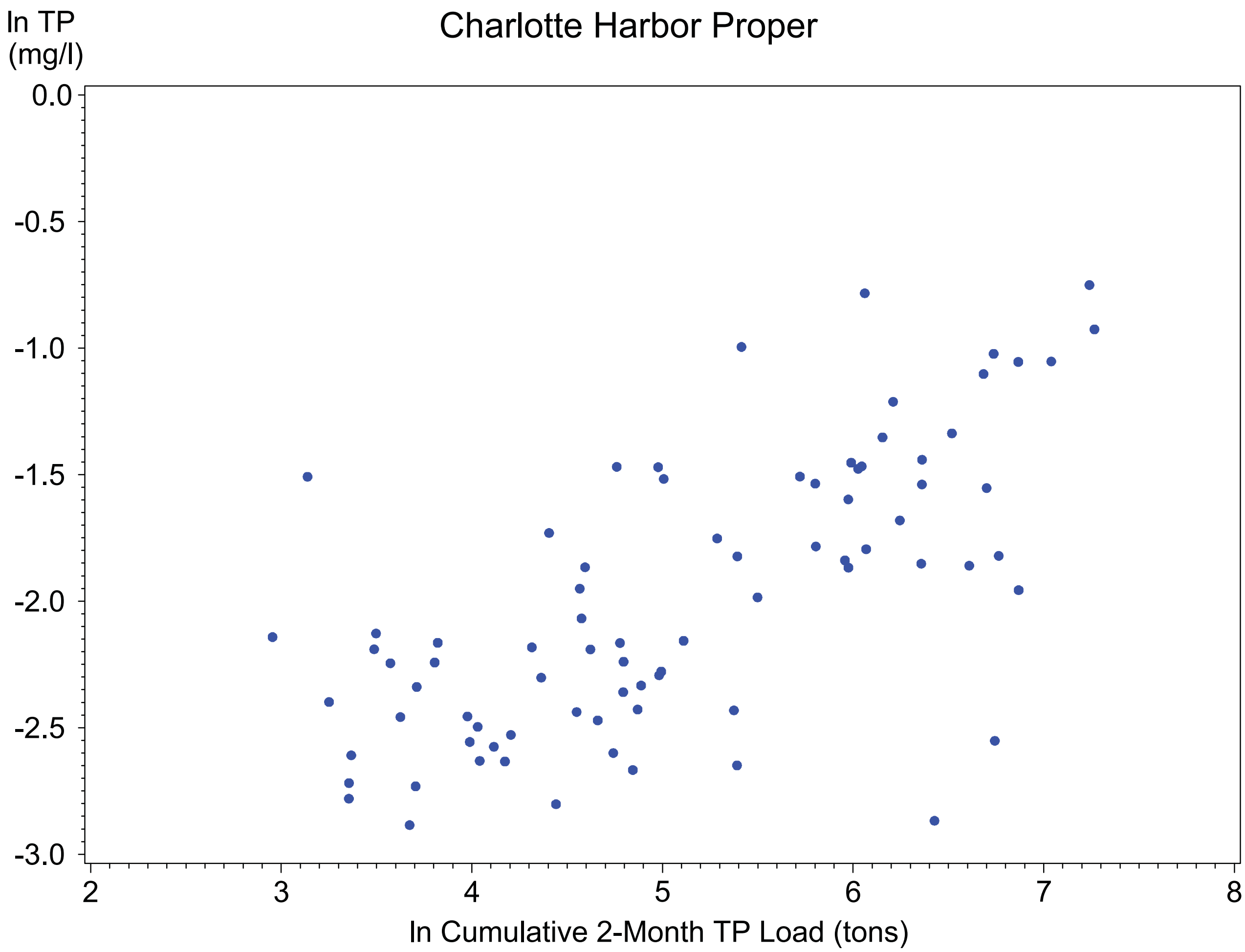

Charlotte Harbor Proper
TP (mg/l)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
2
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)

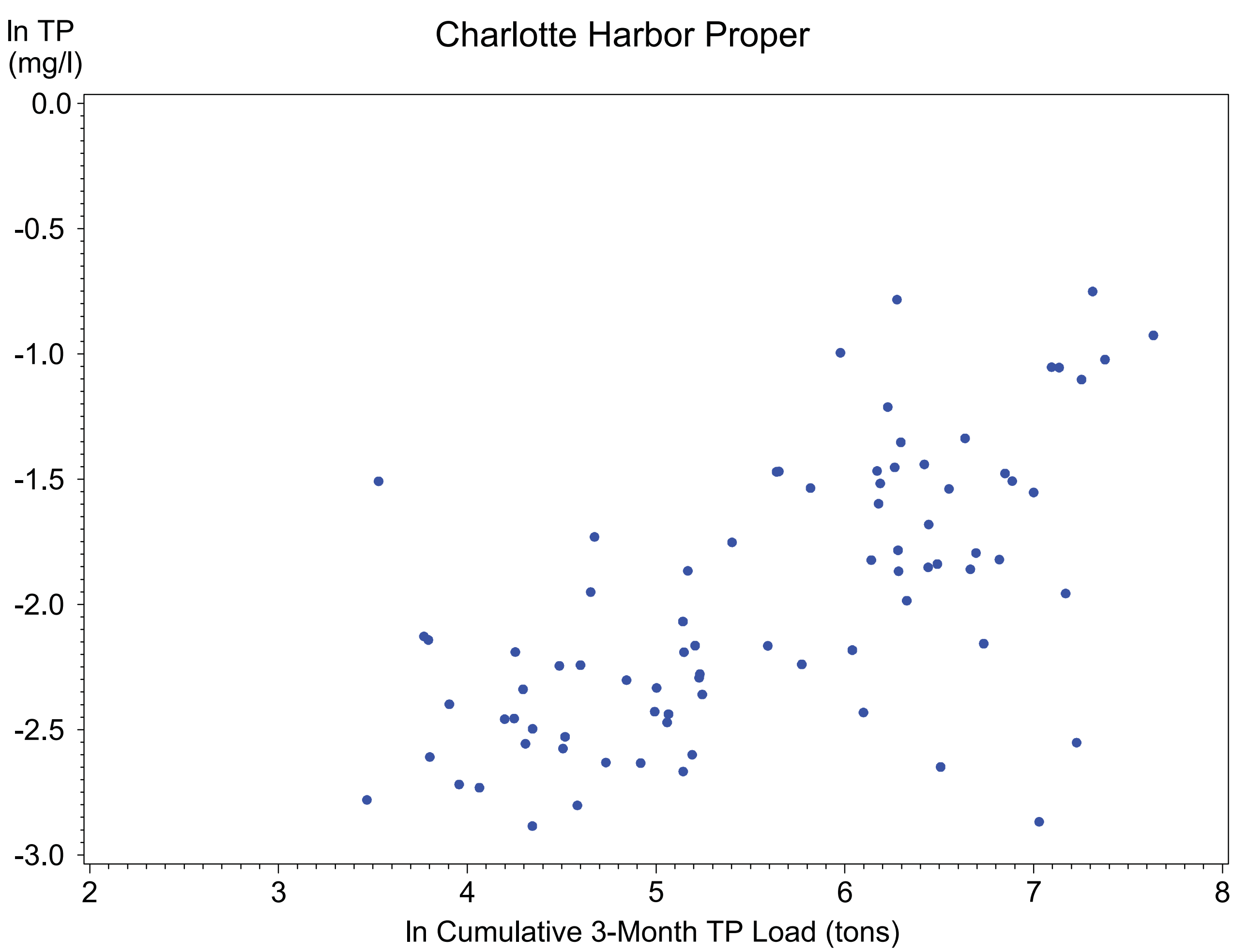

Charlotte Harbor Proper
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
100
200
300
400
500
600
700
800
Monthly TP Load (tons)

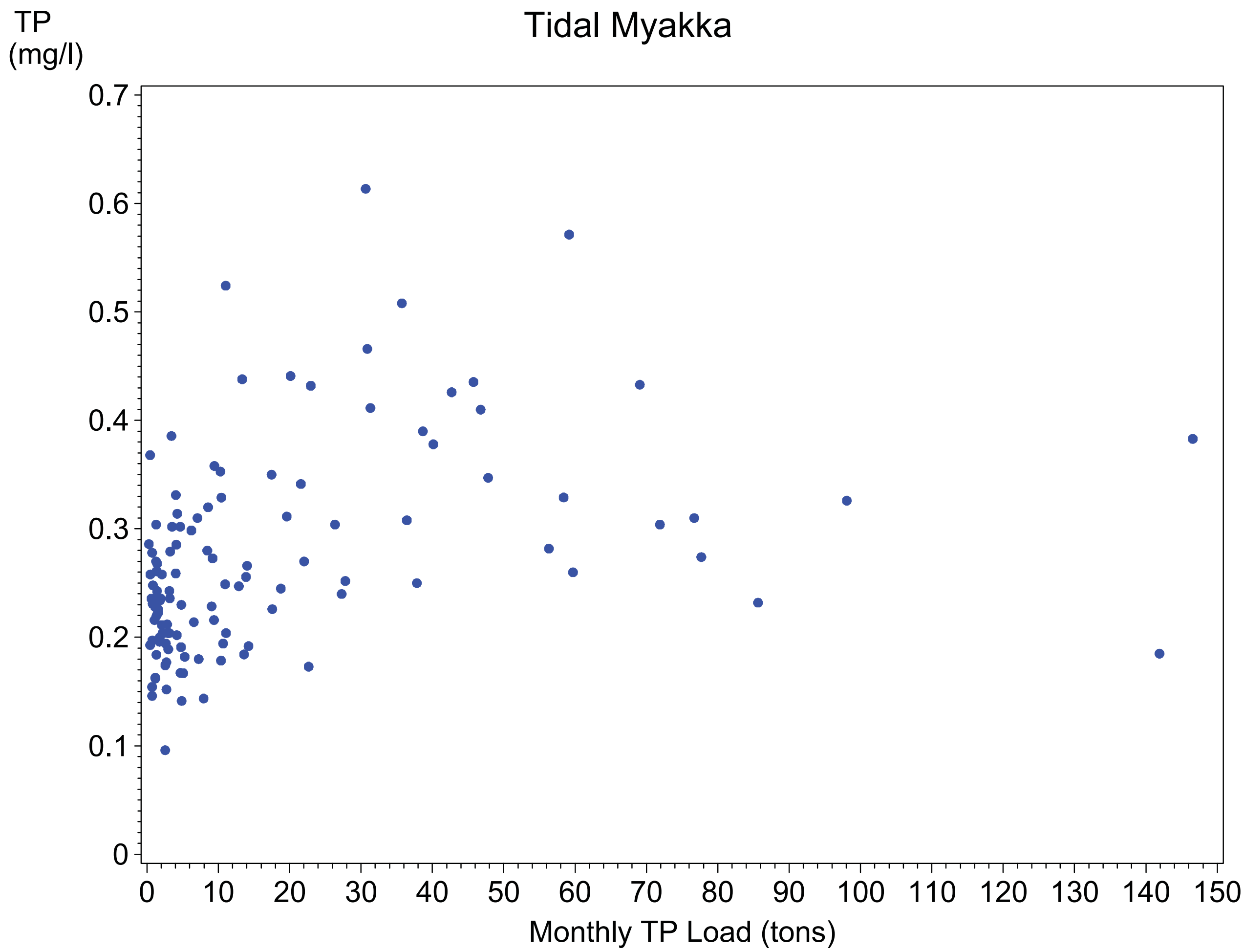

Charlotte Harbor Proper
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
200
400
600
800
1000
1200
1400
1600
Cumulative 2-Month TP Load (tons)

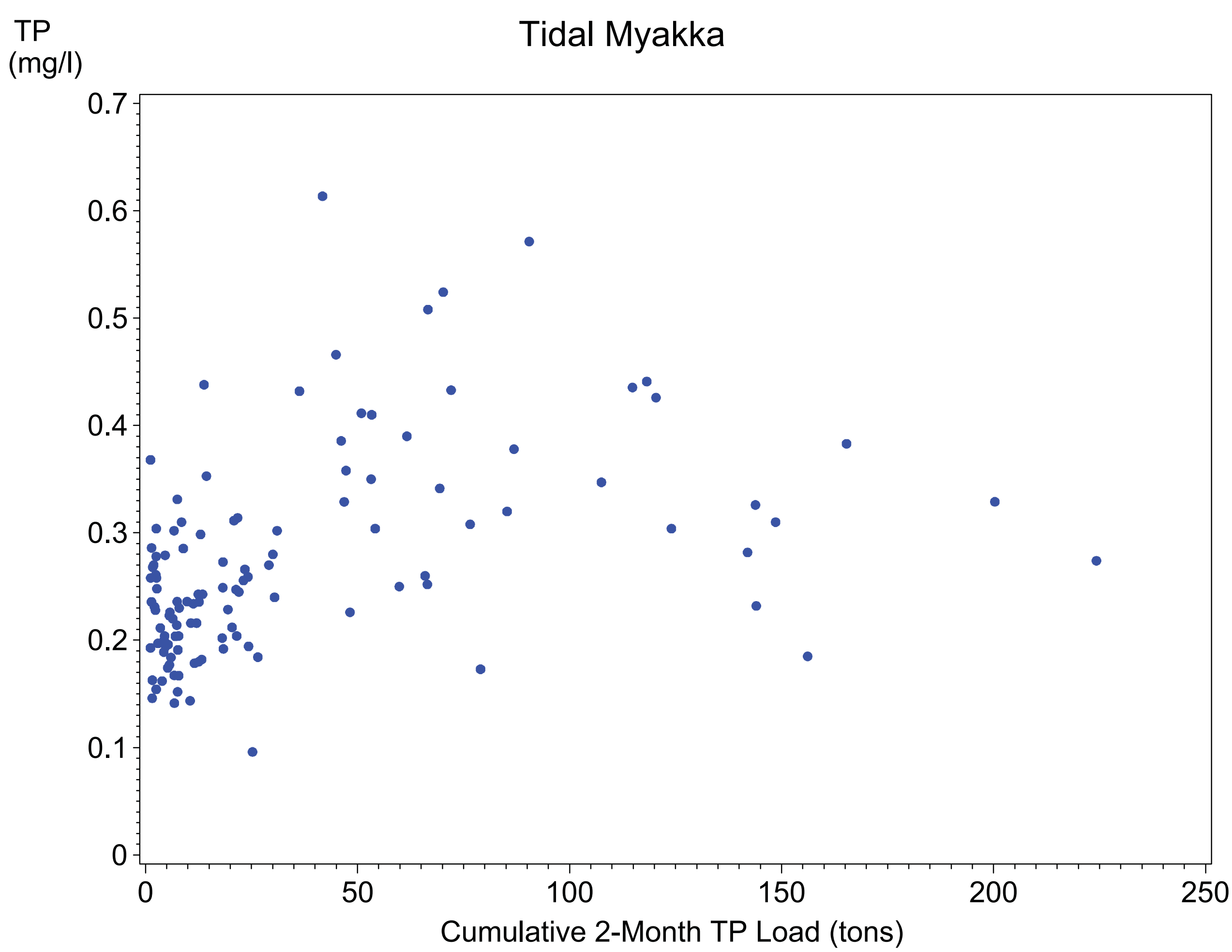

Charlotte Harbor Proper
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
Cumulative 3-Month TP Load (tons)

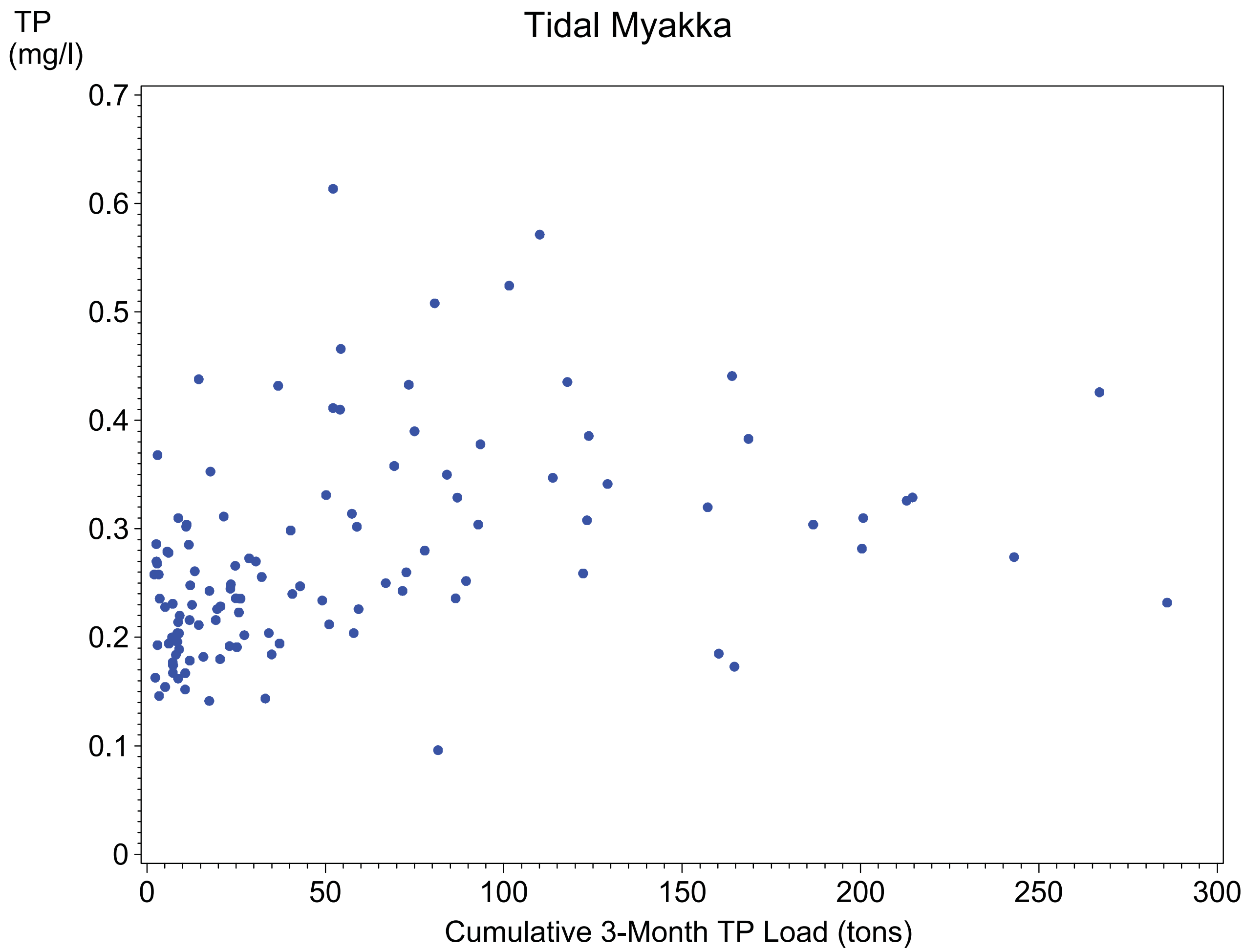

Charlotte Harbor Proper
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
1
2
3
4
5
6
7
ln Monthly TP Load (tons)


ln TP
(mg/l)
Charlotte Harbor Proper
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)

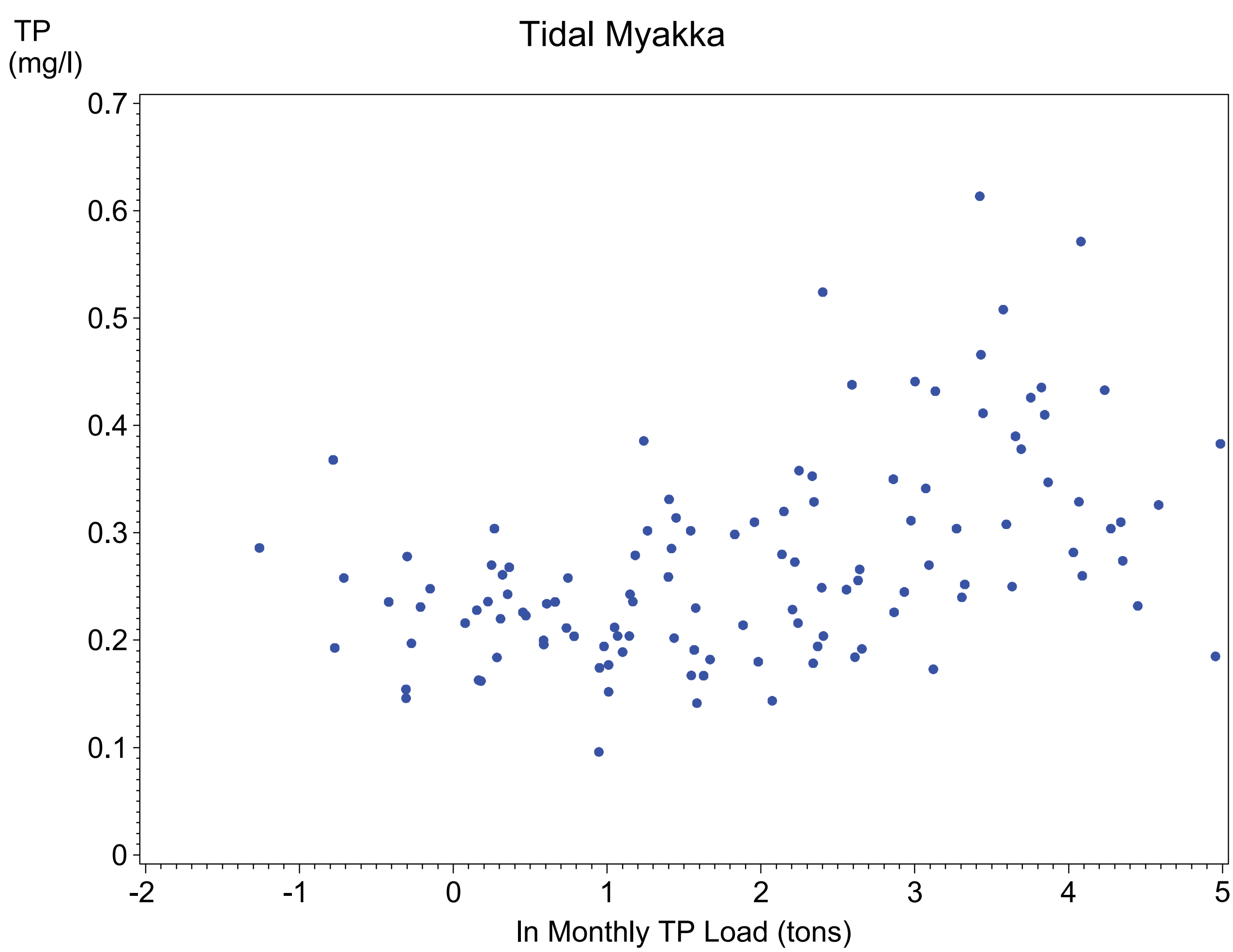

ln TP
(mg/l)
Charlotte Harbor Proper
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
2
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)


Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Monthly TP Load (tons)

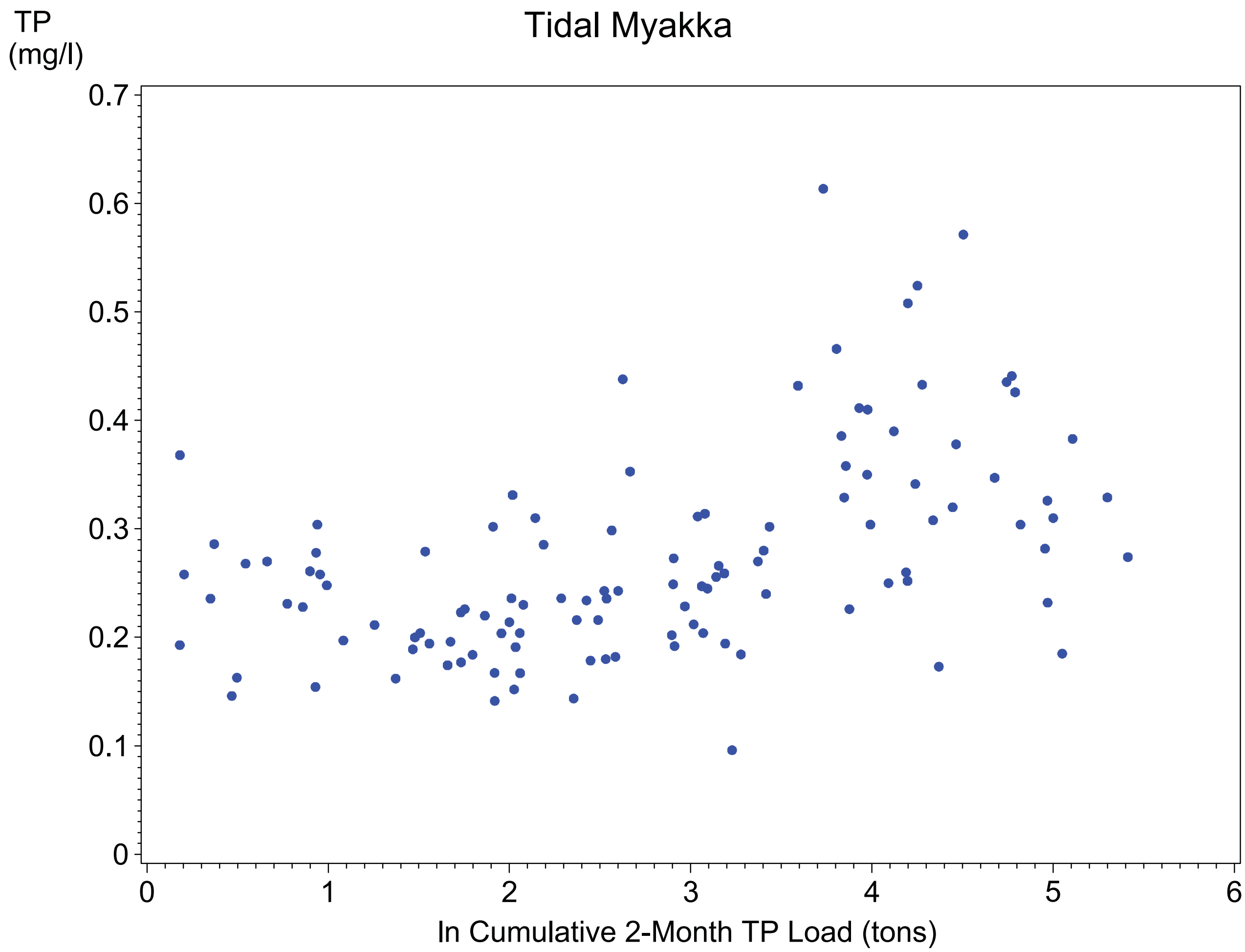

Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 50 100 150 200 250
Cumulative 2-Month TP Load (tons)



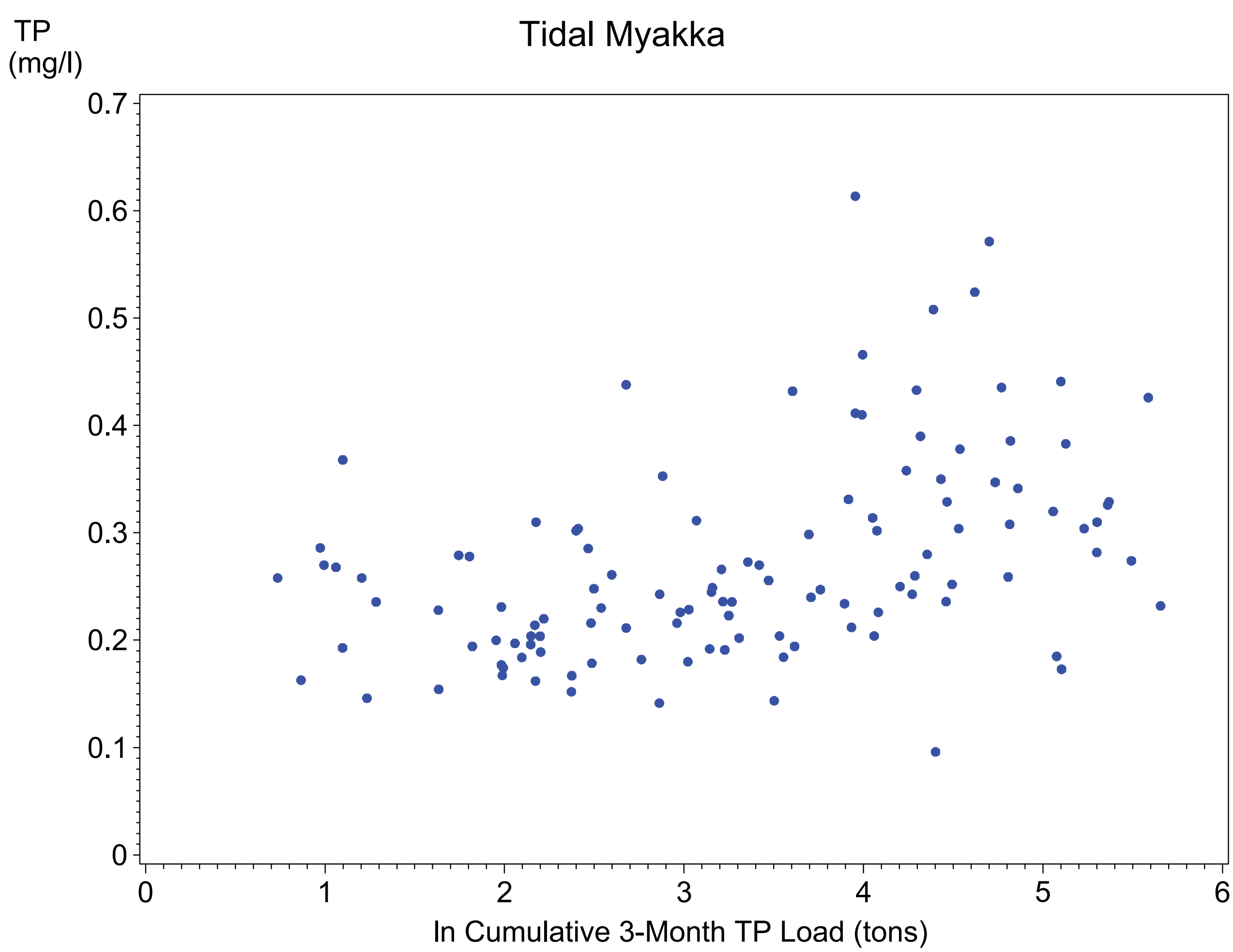
Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
50
100
150
200
250
300
Cumulative 3-Month TP Load (tons)



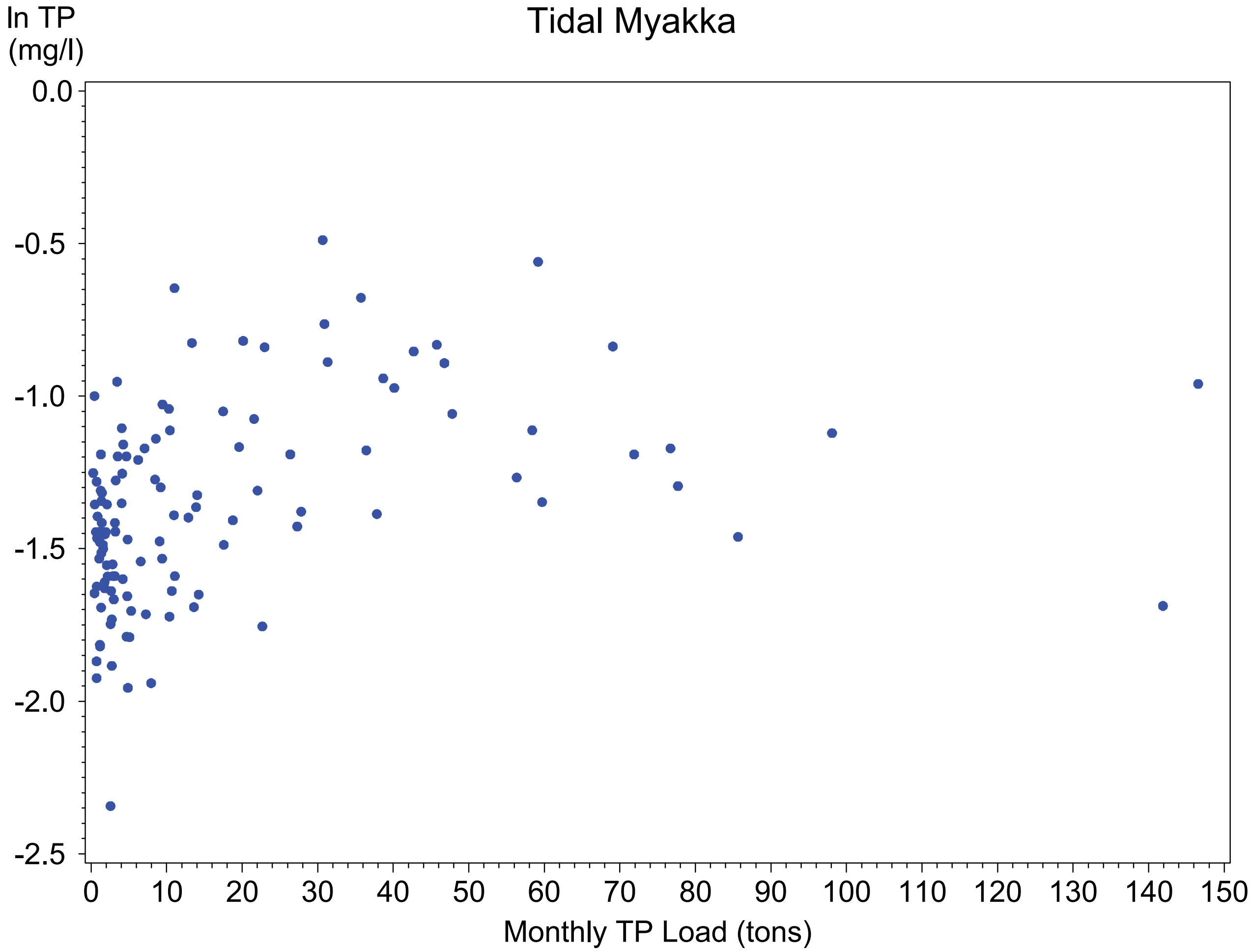
Tidal Myakka
TP
(mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-2
-1
0
1
2
3
4
5
ln Monthly TP Load (tons)

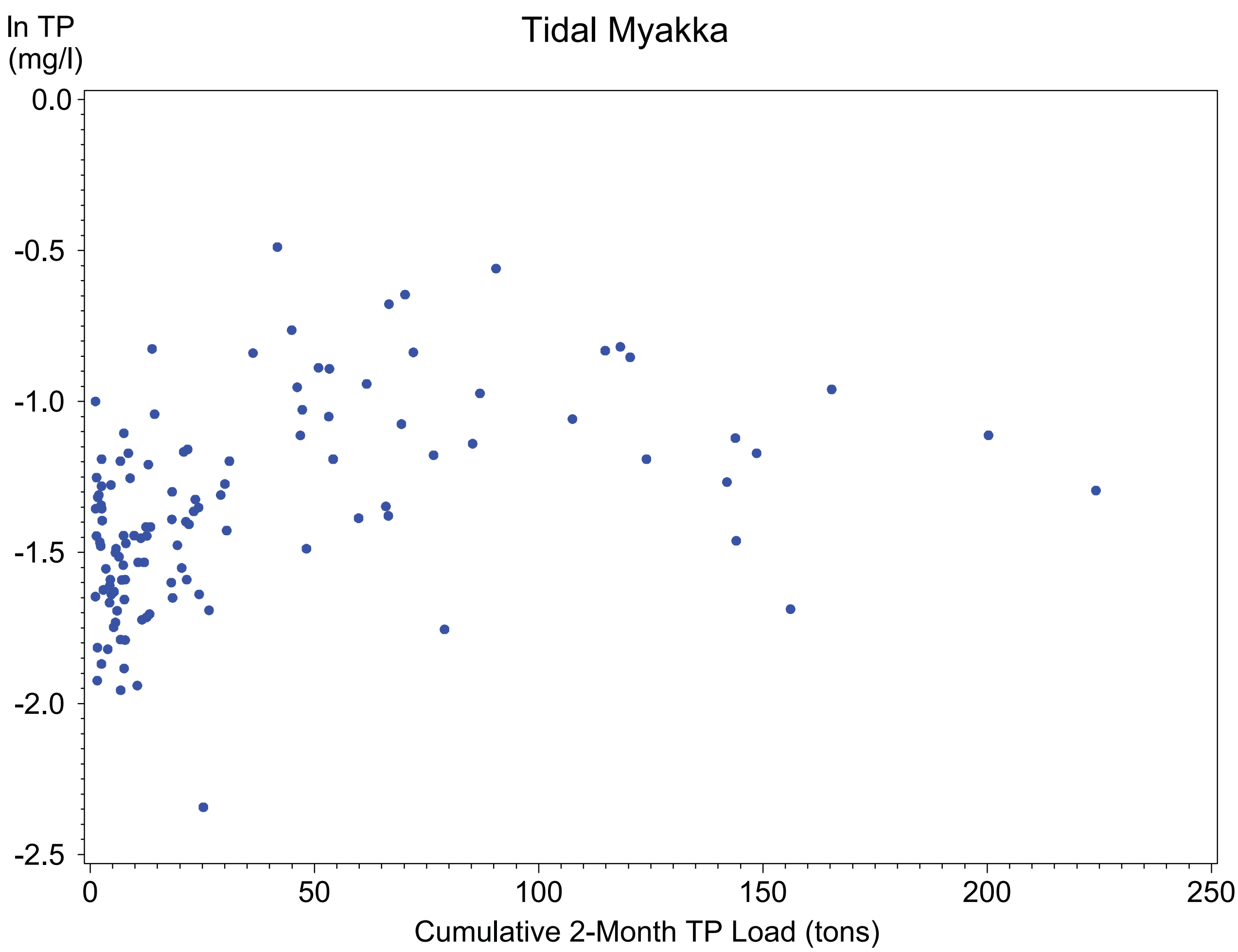


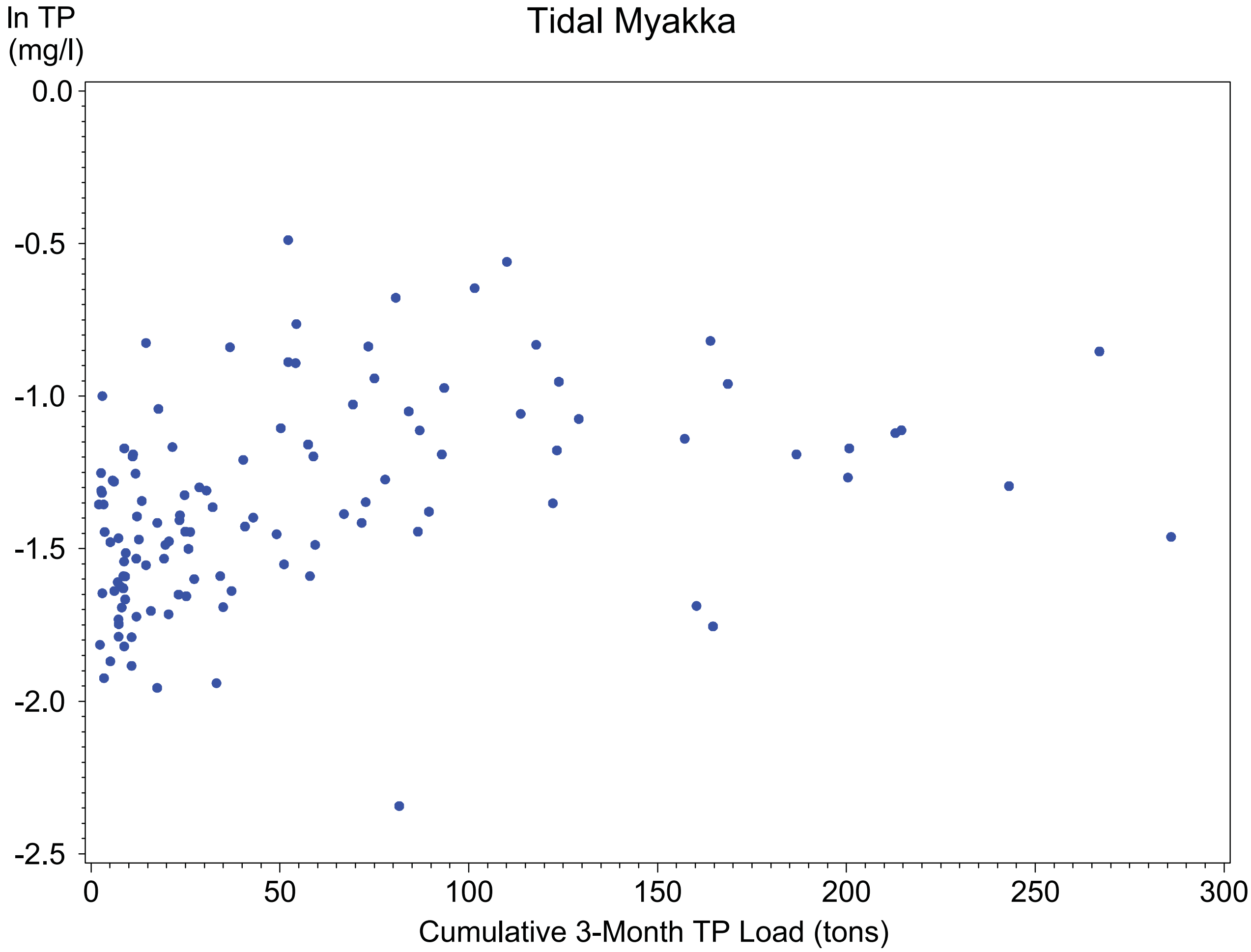
Tidal Myakka
TP (mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

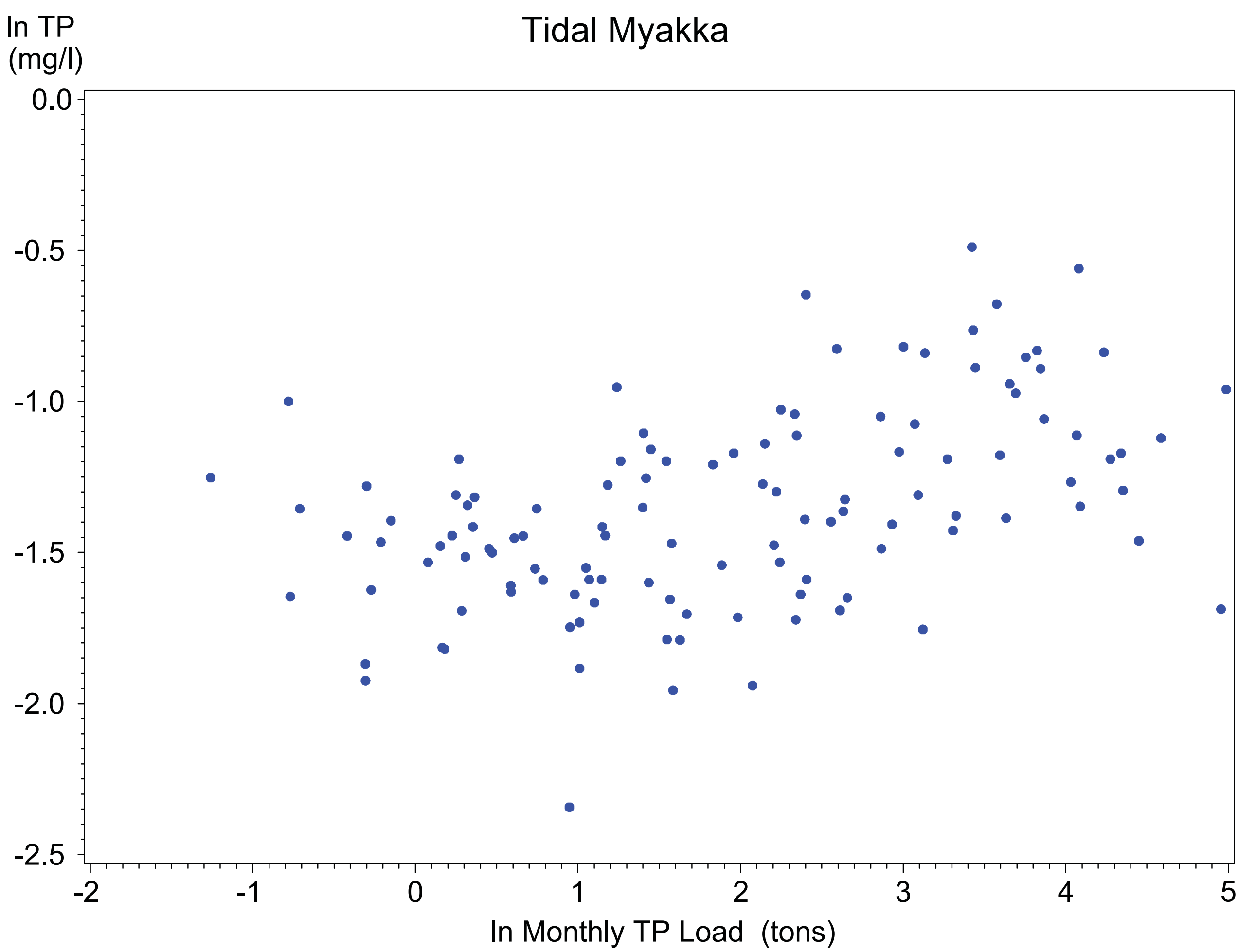


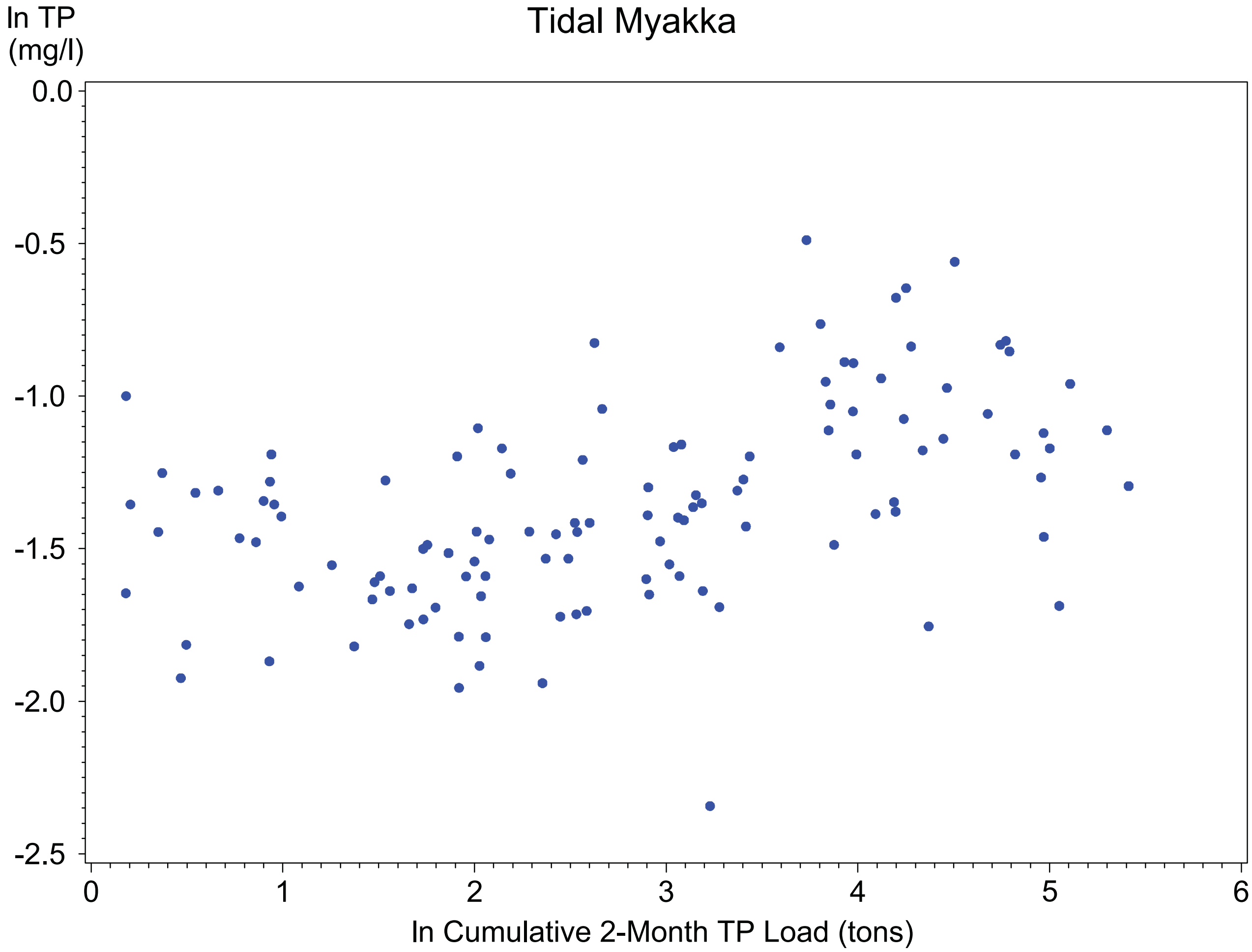
Tidal Myakka
TP (mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
ln Cumulative 3-Month TP Load (tons)

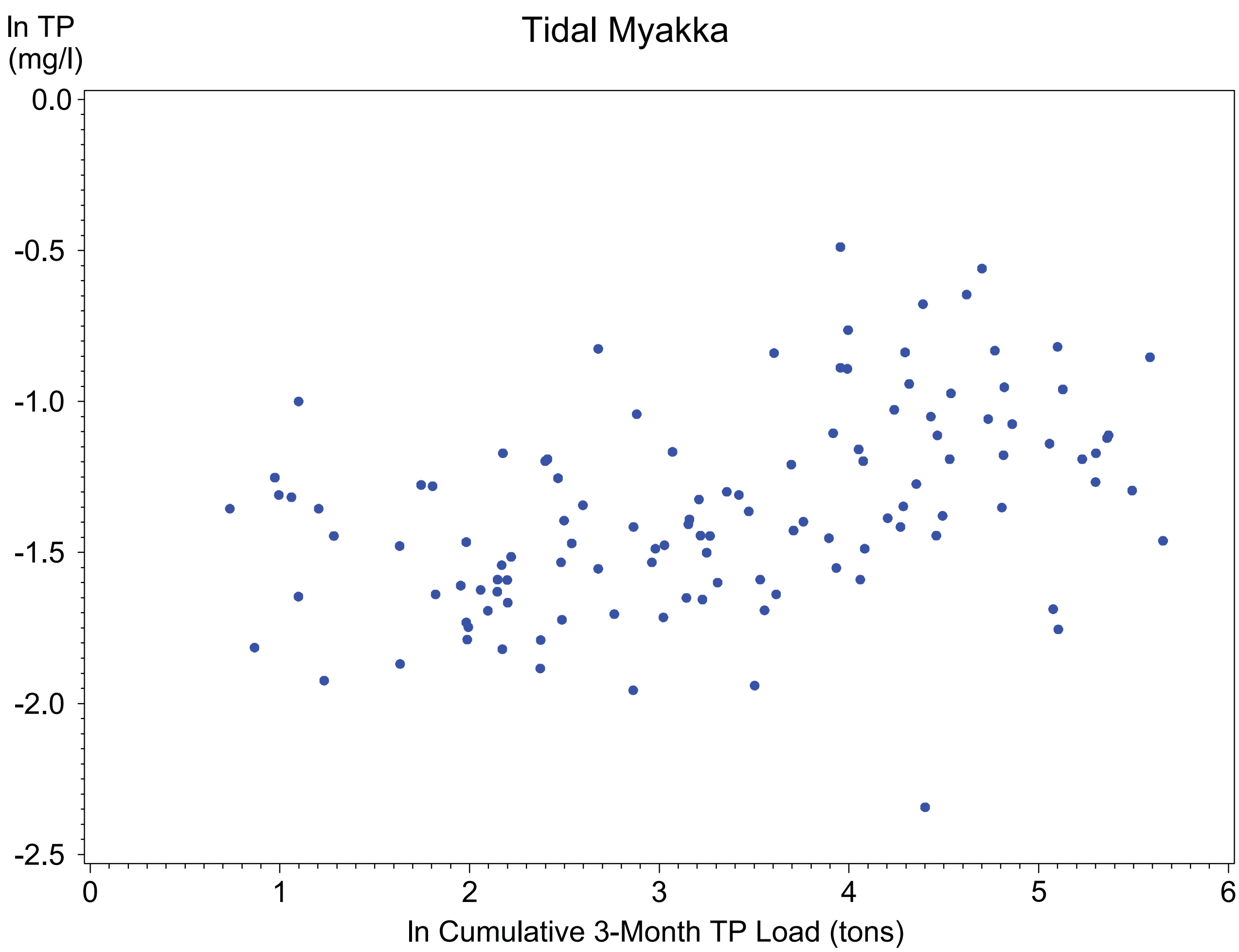

Tidal Myakka
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Monthly TP Load (tons)

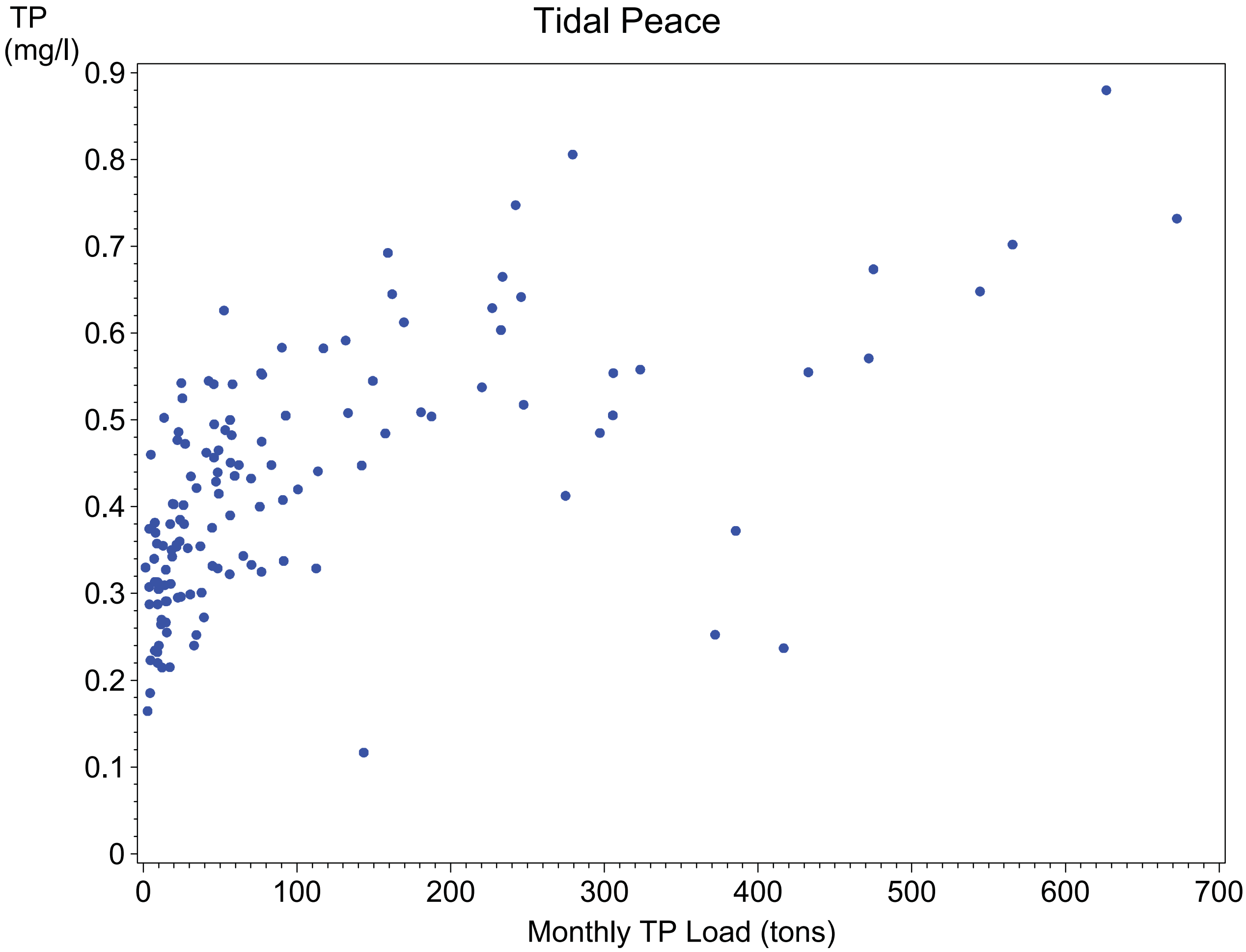

Tidal Myakka
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0 50 100 150 200 250
Cumulative 2-Month TP Load (tons)

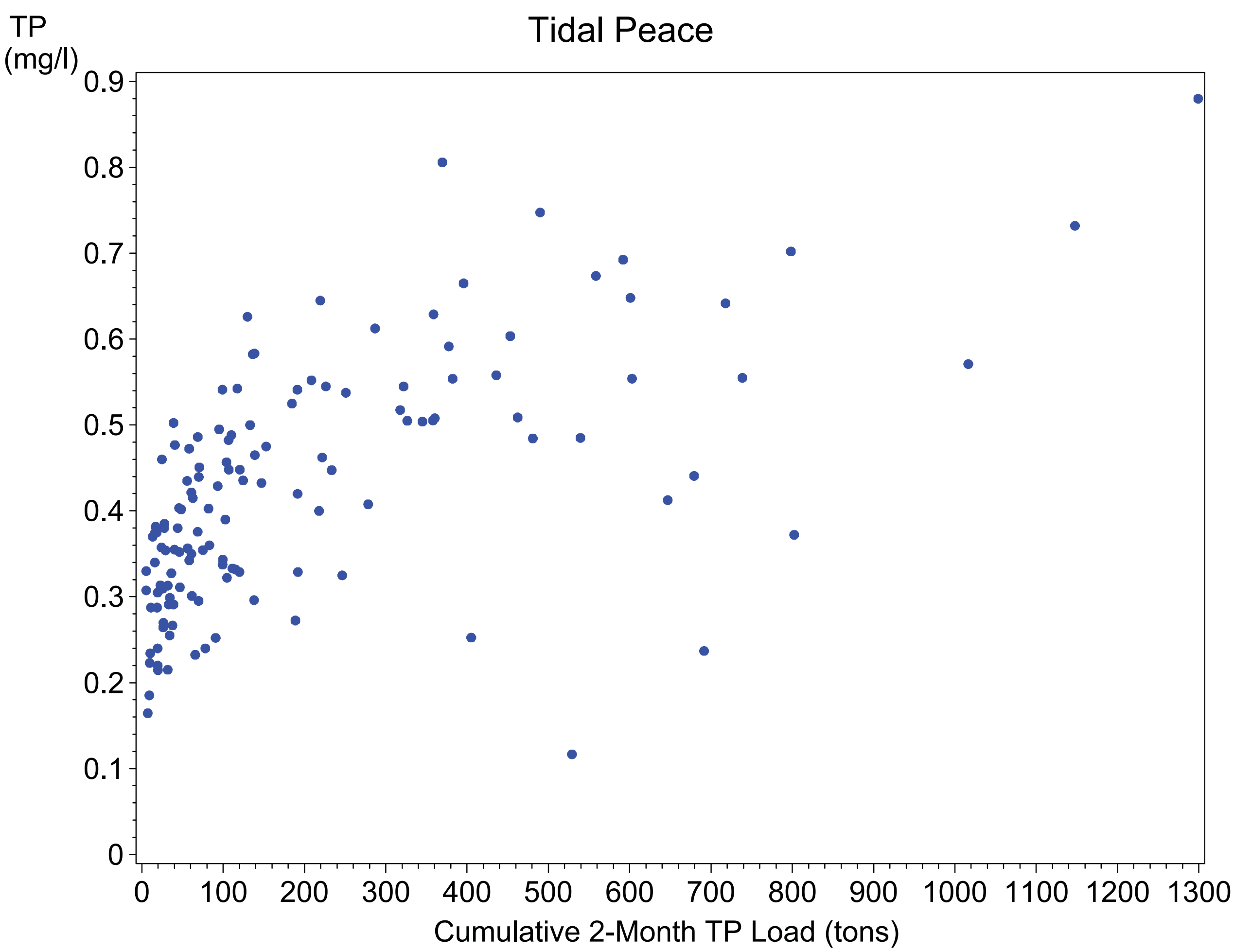

ln TP
(mg/l)
Tidal Myakka
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
50
100
150
200
250
300
Cumulative 3-Month TP Load (tons)

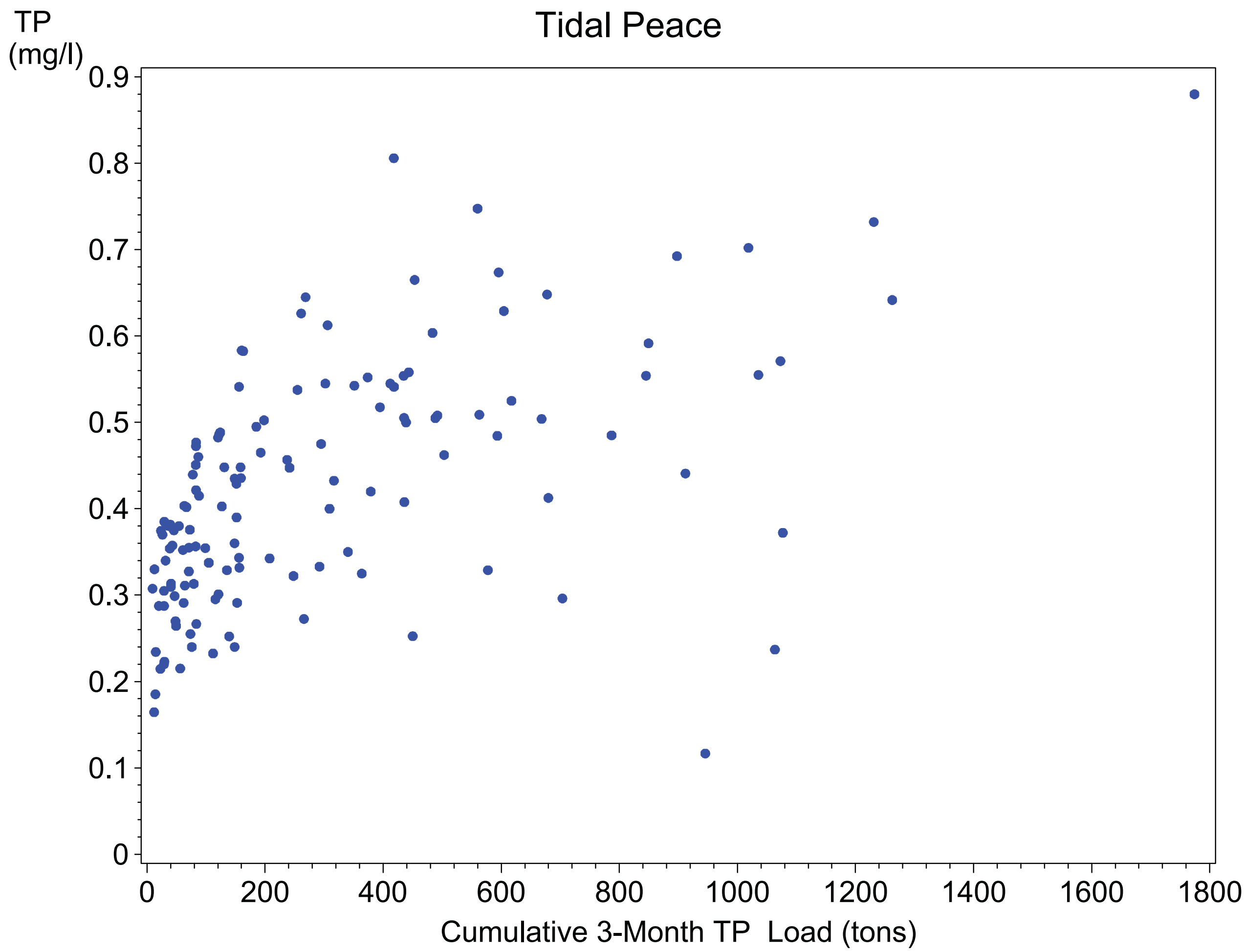

ln TP
(mg/l)
Tidal Myakka
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-2
-1
0
1
2
3
4
5
ln Monthly TP Load (tons)

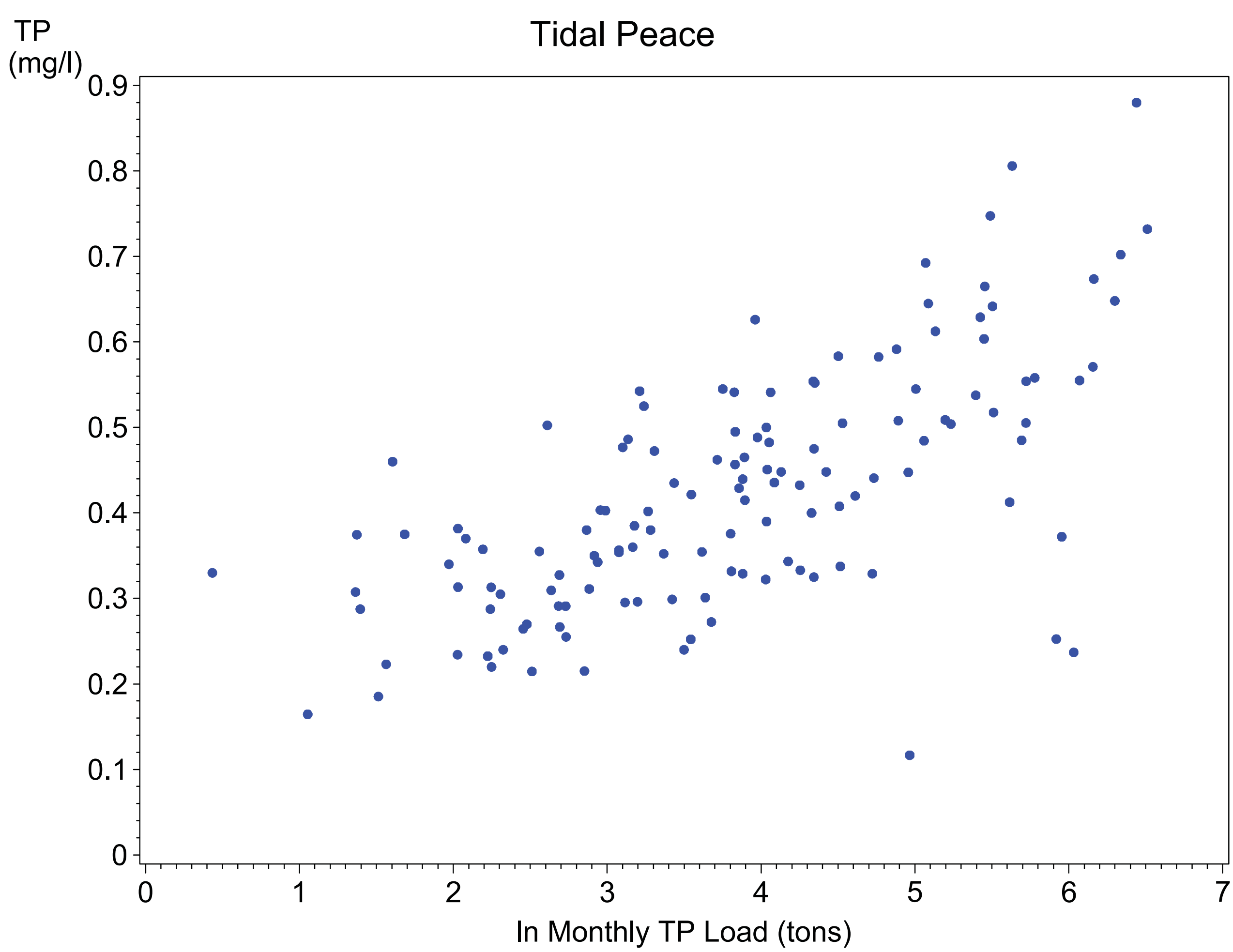

Tidal Myakka
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

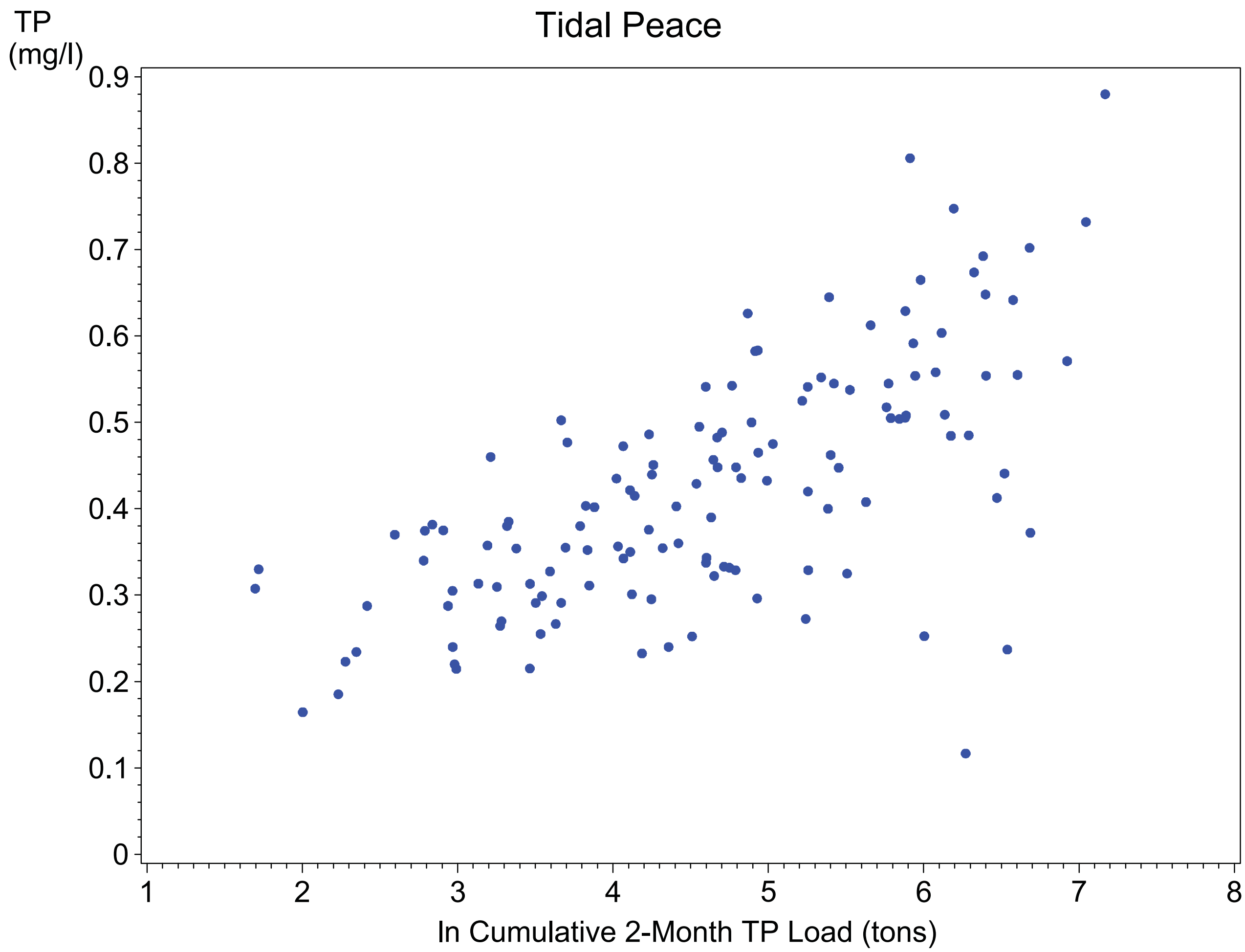

Tidal Myakka
ln TP
(mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
1
2
3
4
5
6
ln Cumulative 3-Month TP Load (tons)

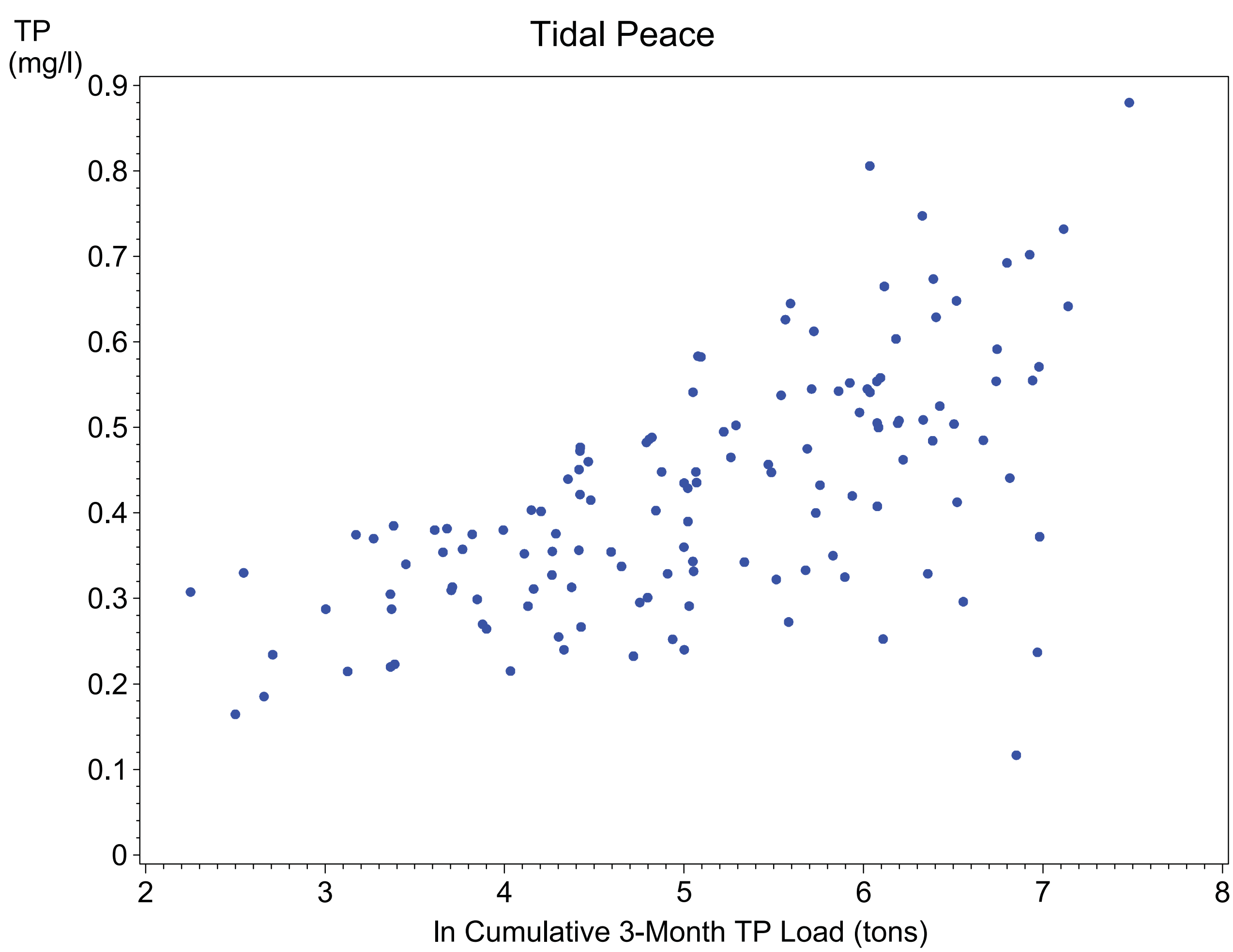

Tidal Peace
TP
(mg/l)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
100
200
300
400
500
600
700
Monthly TP Load (tons)

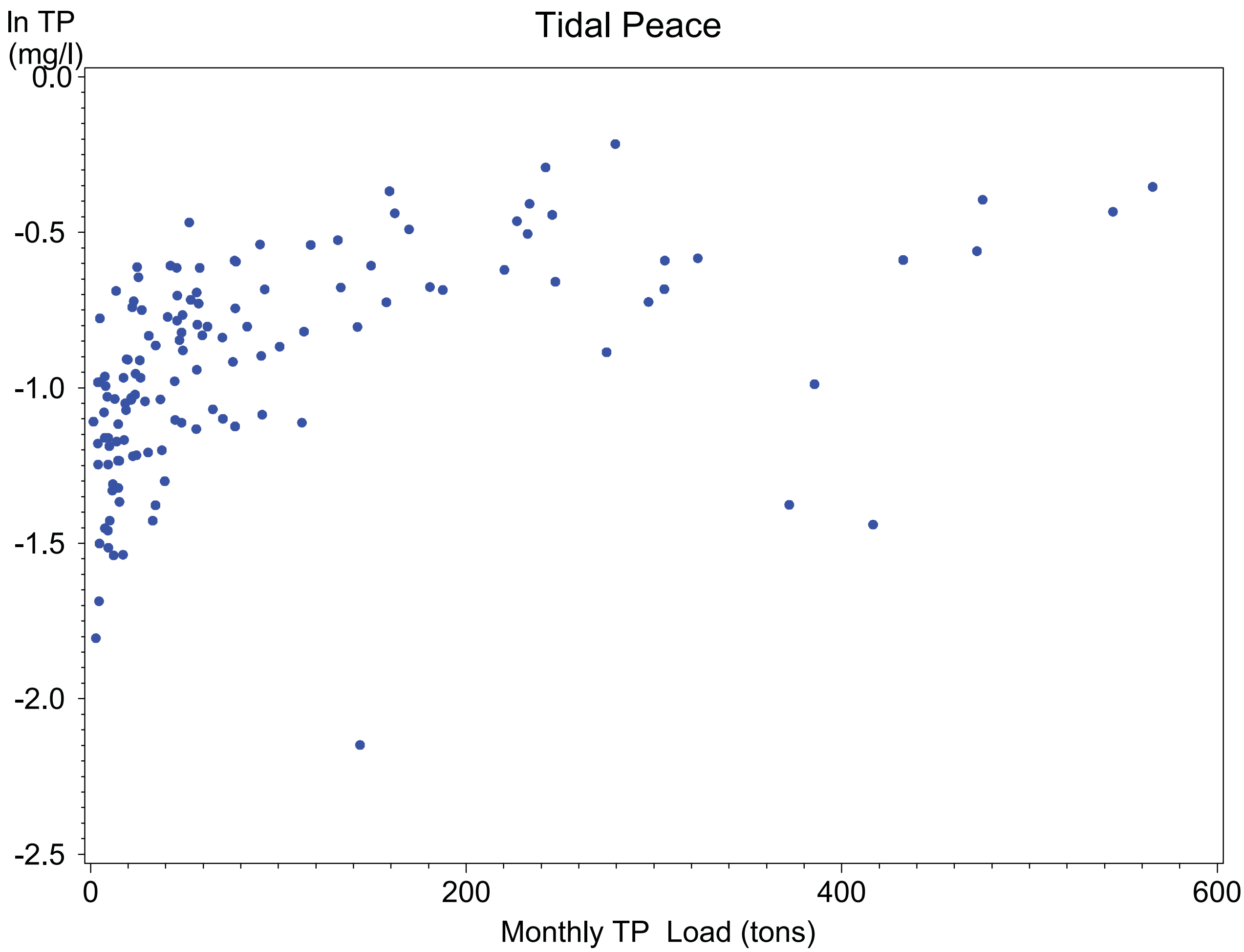

Tidal Peace
TP
(mg/l)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
Cumulative 2-Month TP Load (tons)

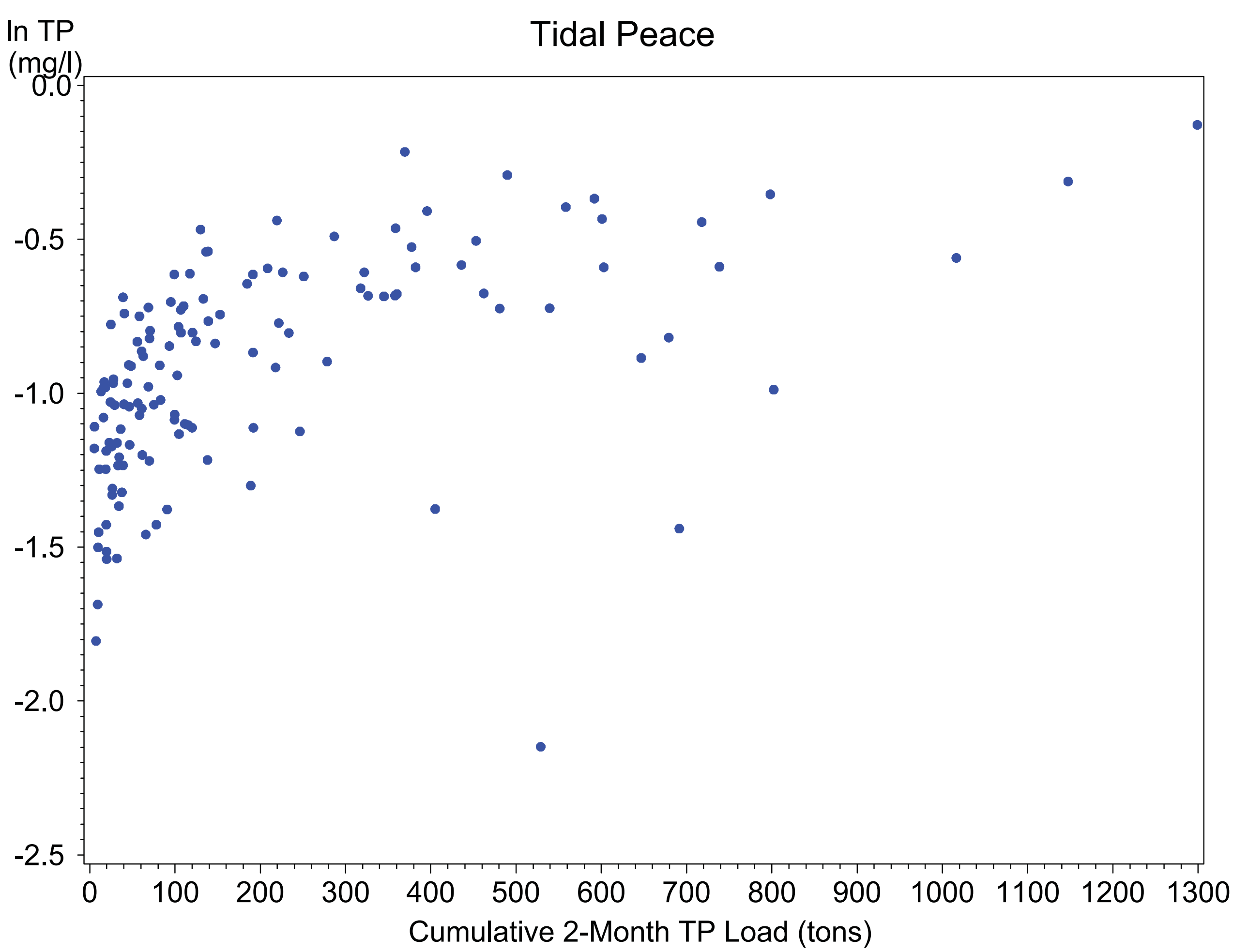

TP
(mg/l)
Tidal Peace
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
200
400
600
800
1000
1200
1400
1600
1800
Cumulative 3-Month TP Load (tons)

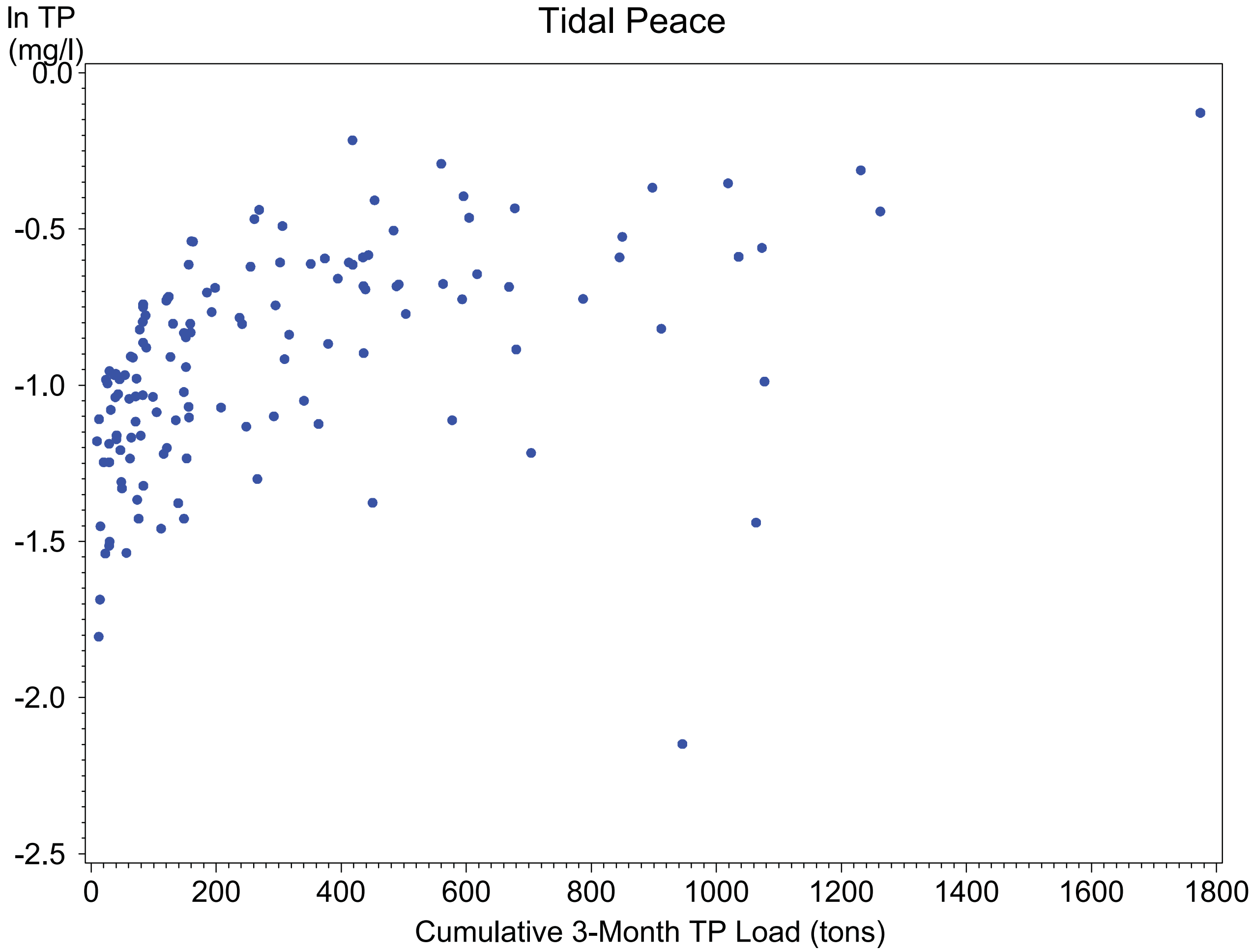

TP
(mg/l)
Tidal Peace
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
ln Monthly TP Load (tons)


Tidal Peace
TP (mg/l)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)

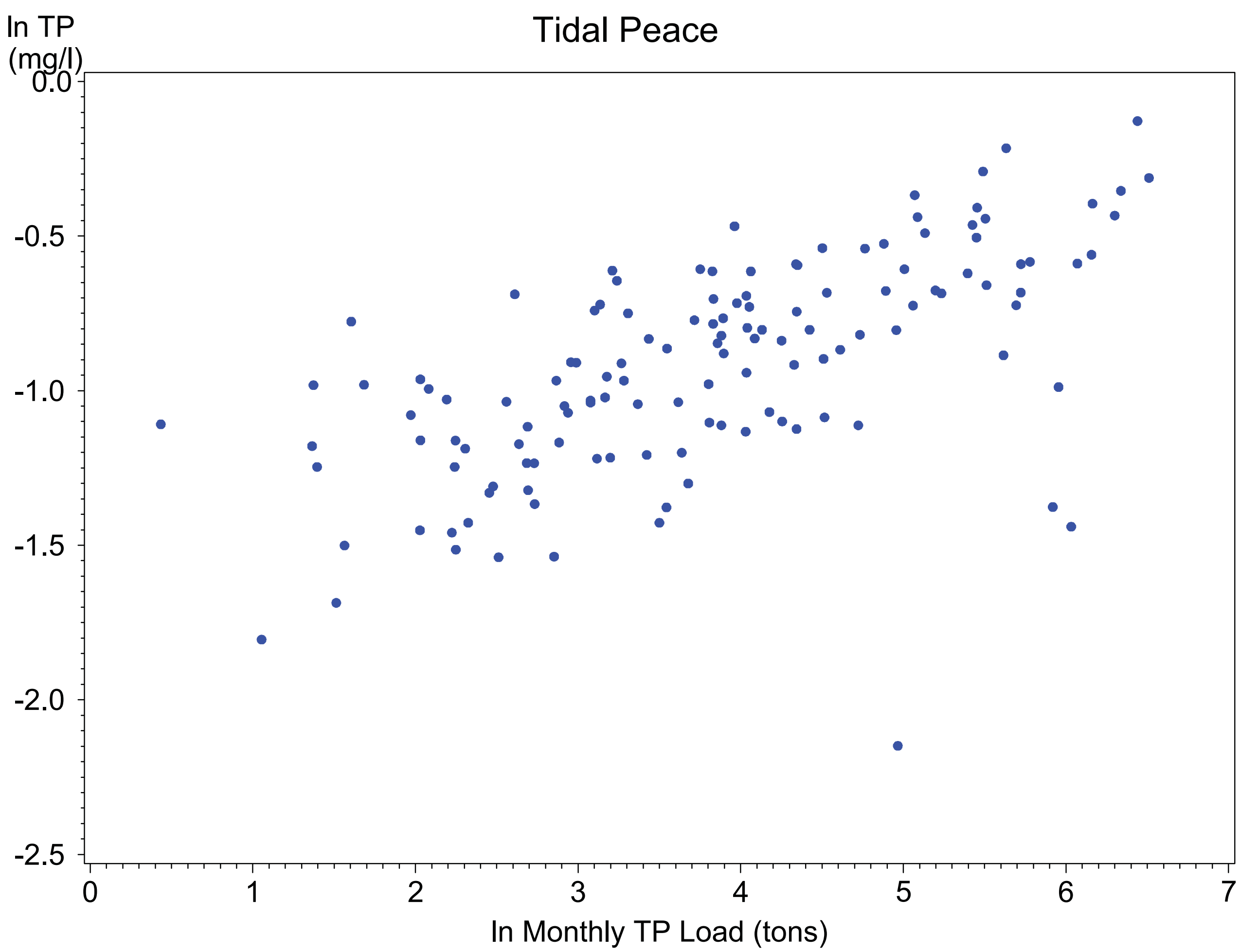

Tidal Peace
TP (mg/l)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)


ln TP
(mg/l)
Tidal Peace
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
200
400
600
Monthly TP Load (tons)

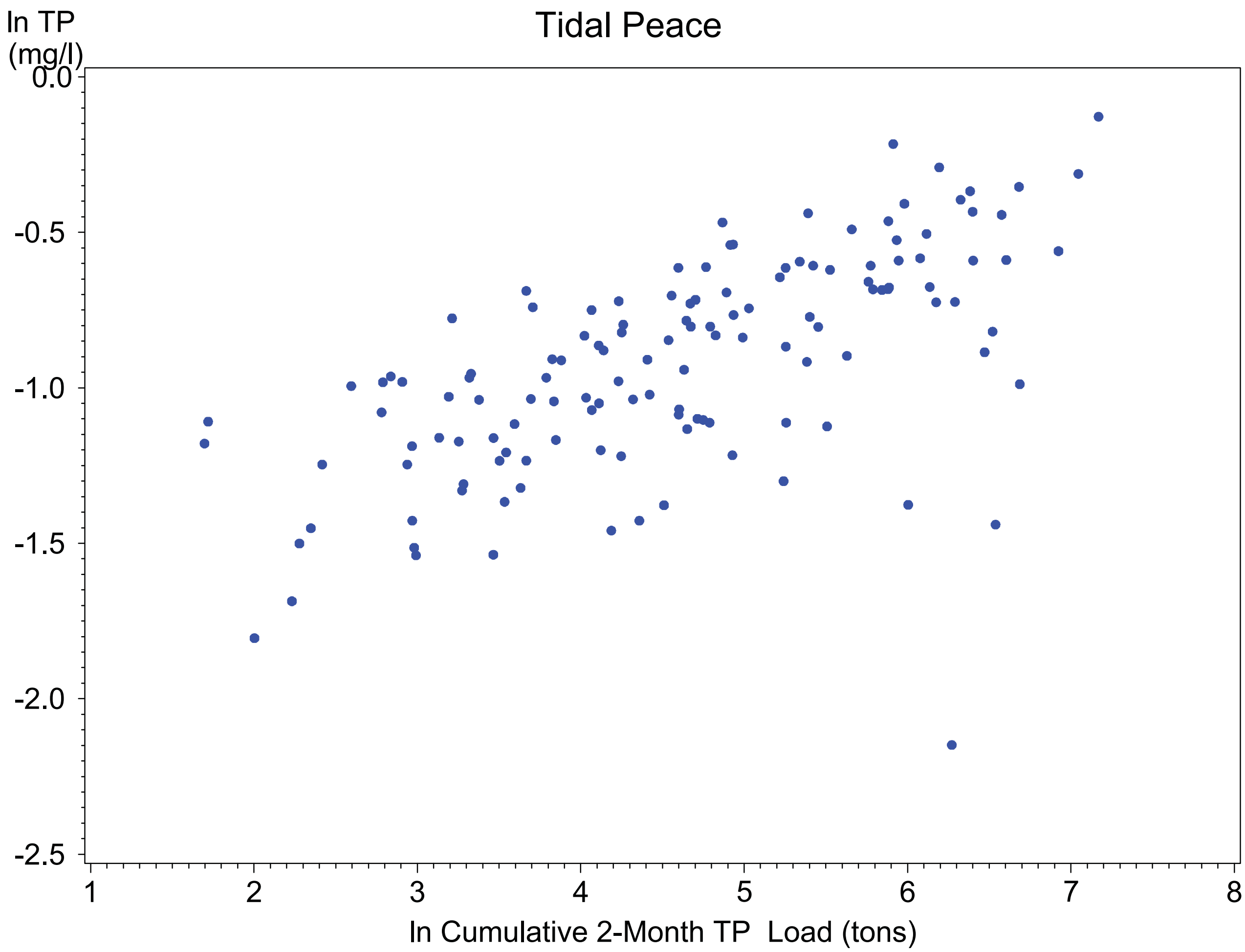

ln TP
(mg/l)
Tidal Peace
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
Cumulative 2-Month TP Load (tons)



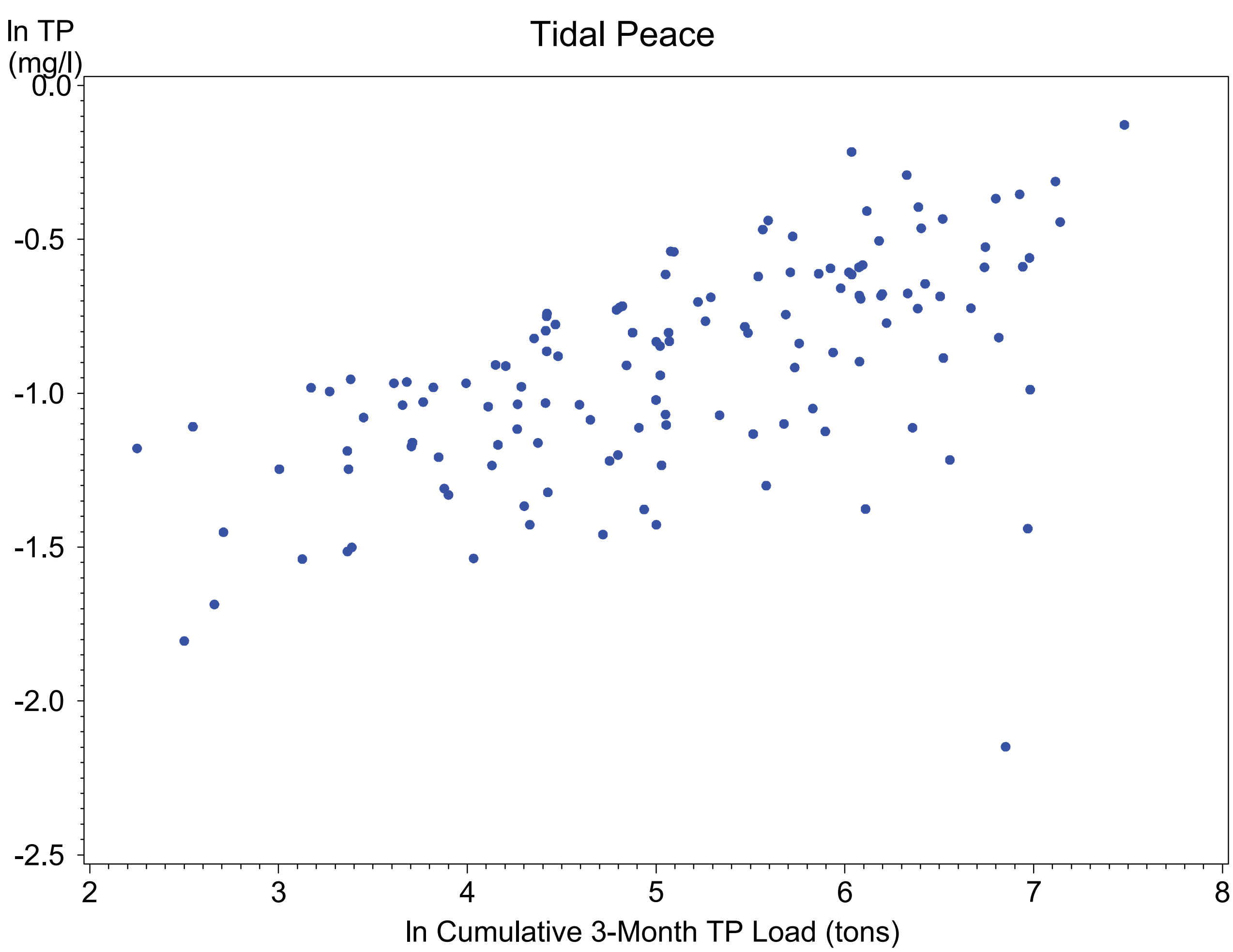
Tidal Peace
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
200
400
600
800
1000
1200
1400
1600
1800
Cumulative 3-Month TP Load (tons)



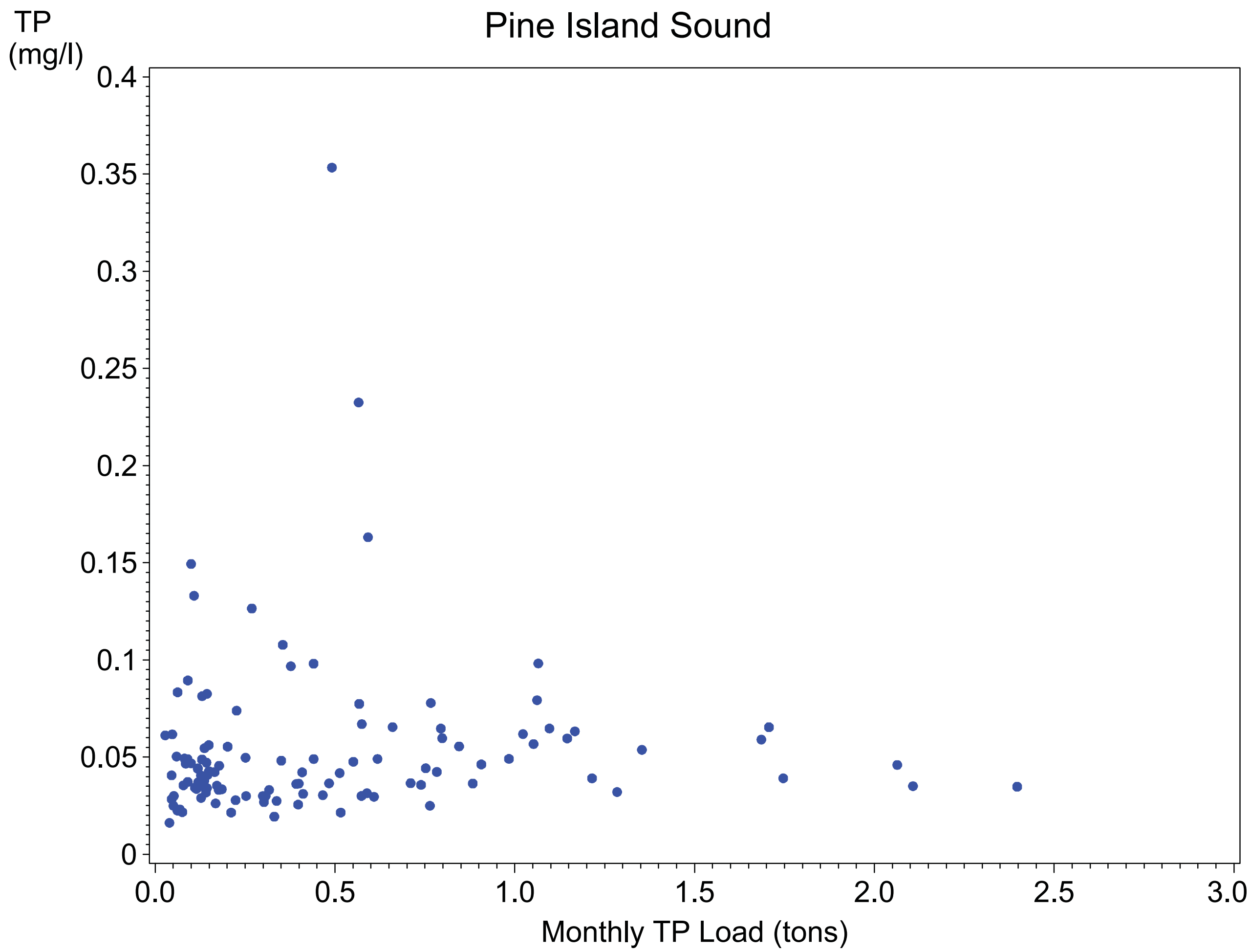
Tidal Peace
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
0
1
2
3
4
5
6
7
ln Monthly TP Load (tons)



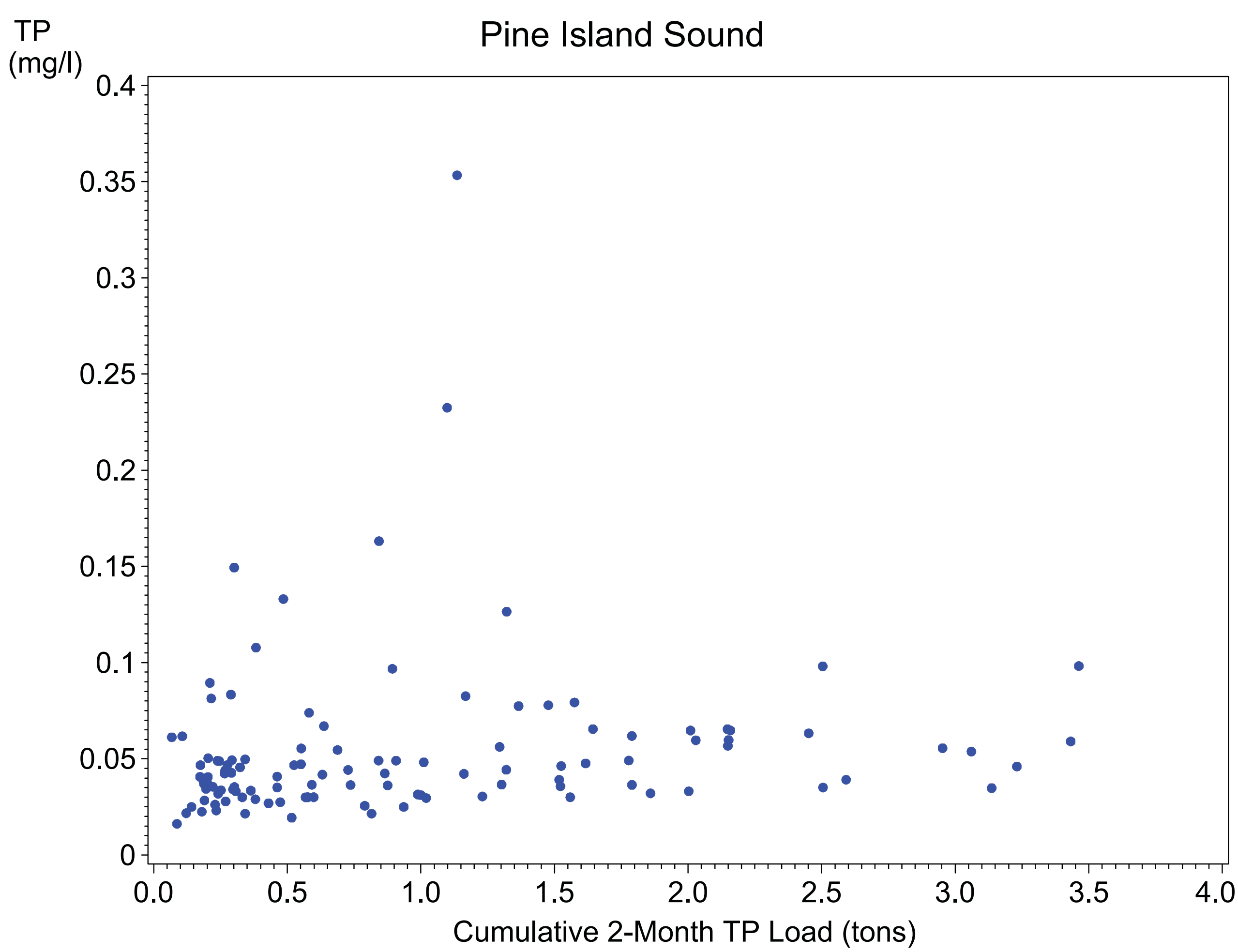
Tidal Peace
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
1
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)



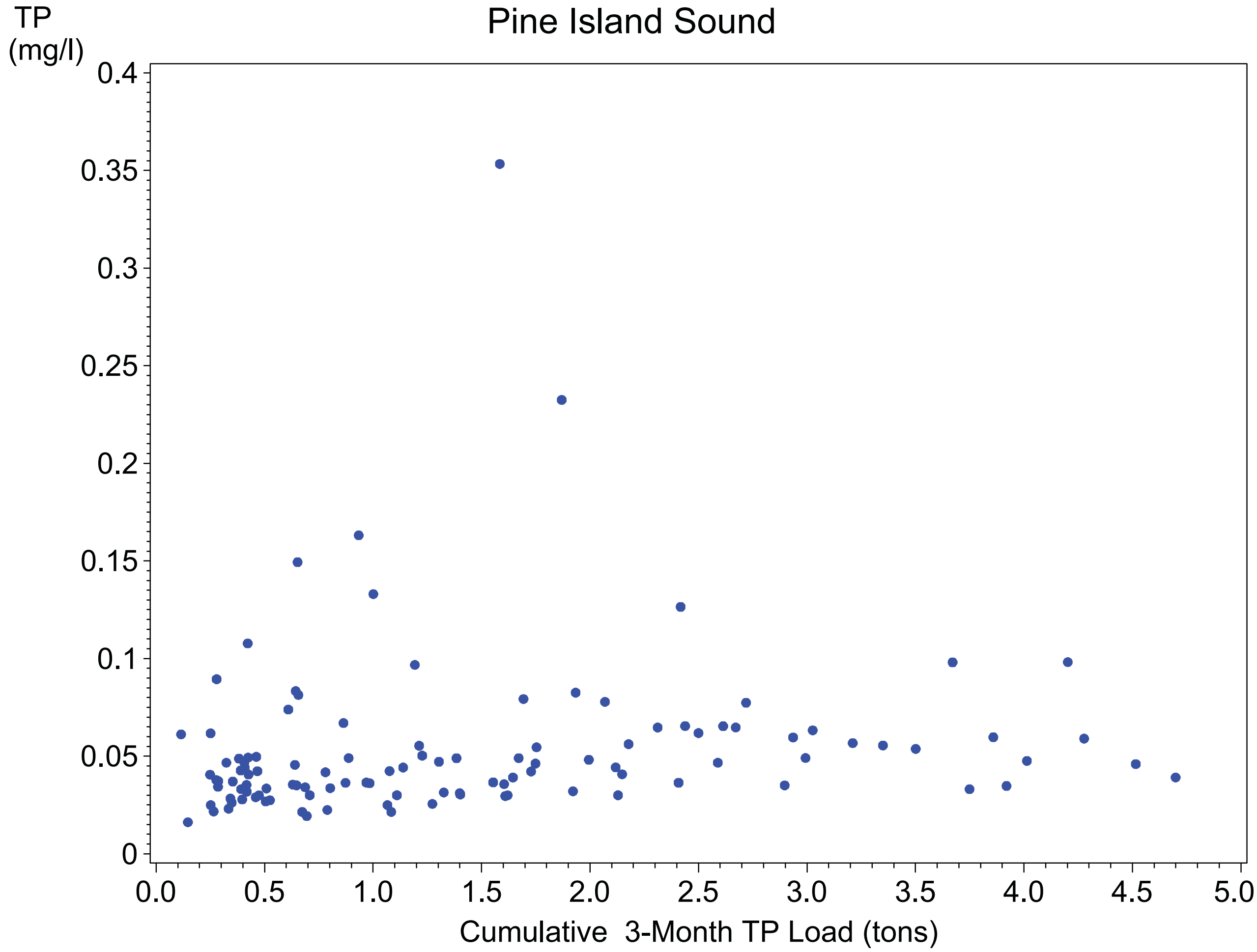
Tidal Peace
ln TP (mg/l)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
2
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)

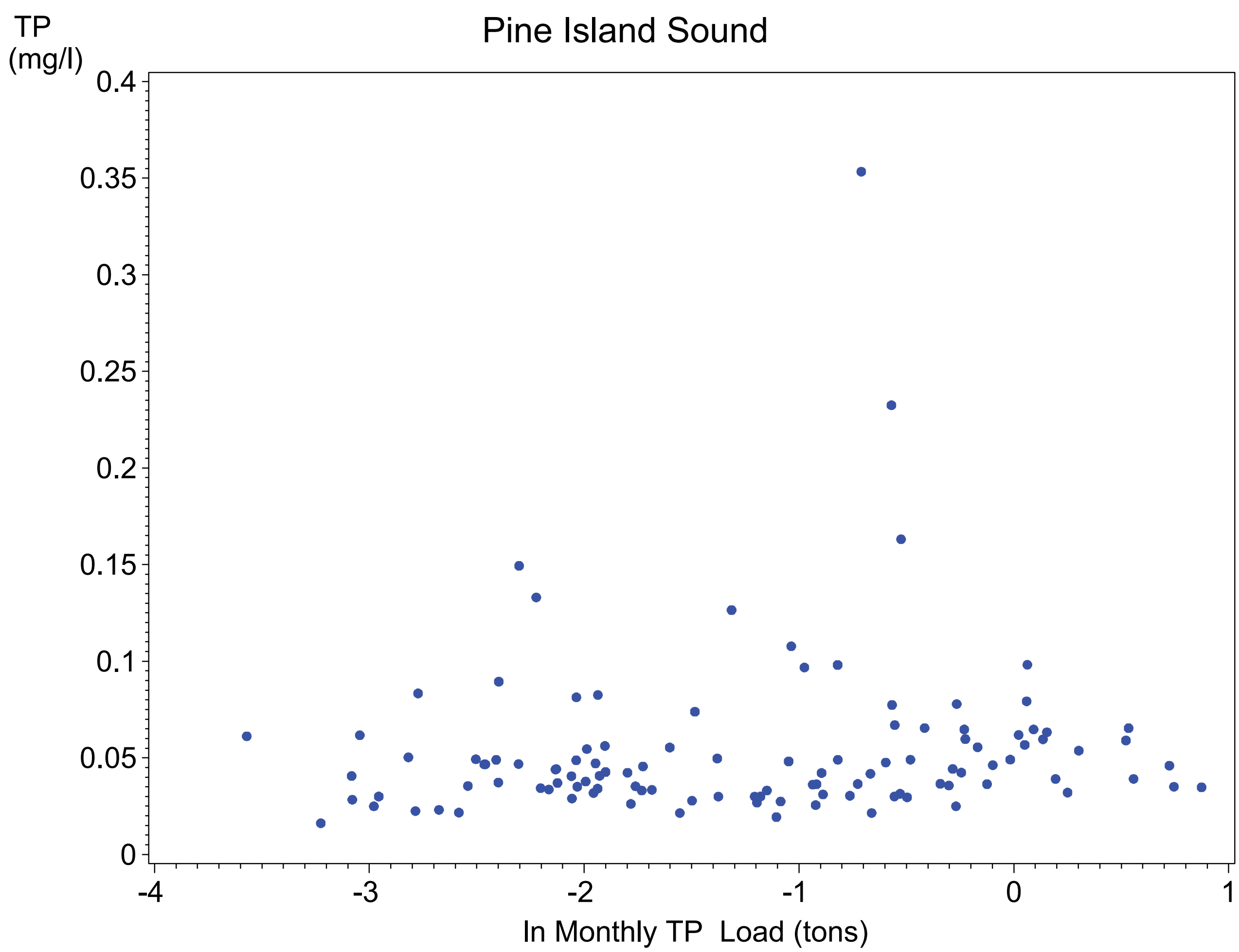


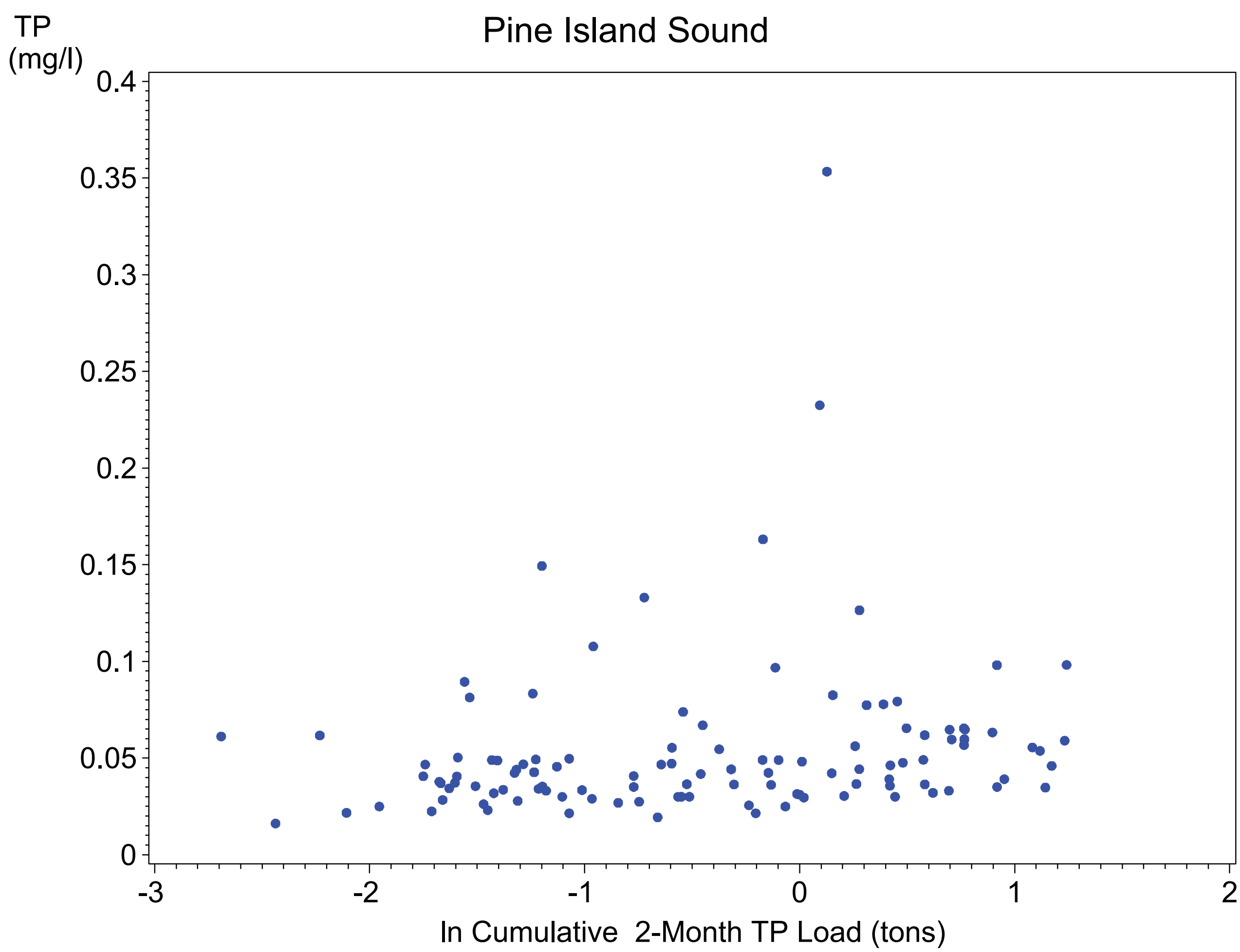
TP
(mg/l)
Pine Island Sound
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Monthly TP Load (tons)

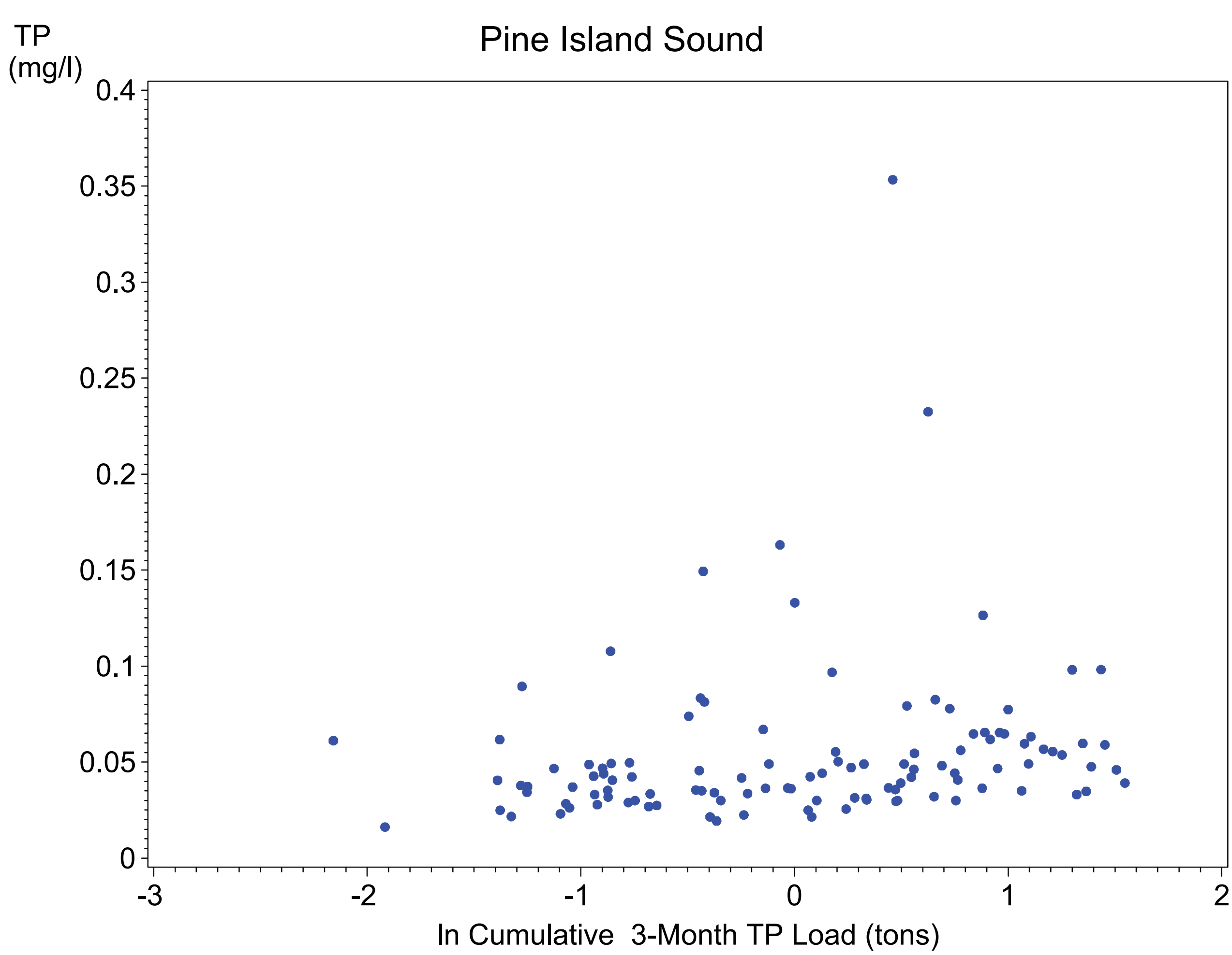


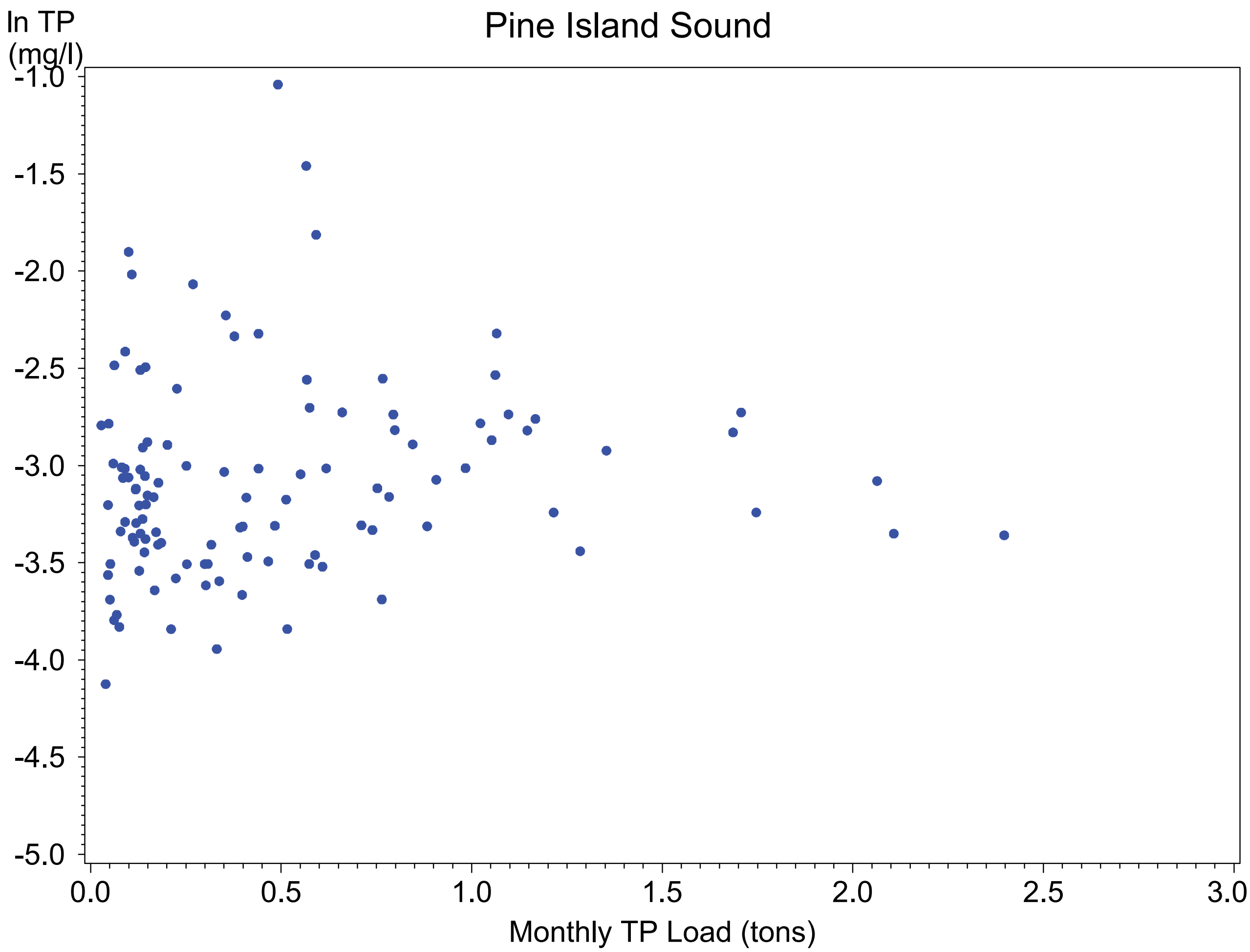
TP
(mg/l)
Pine Island Sound
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Cumulative 2-Month TP Load (tons)

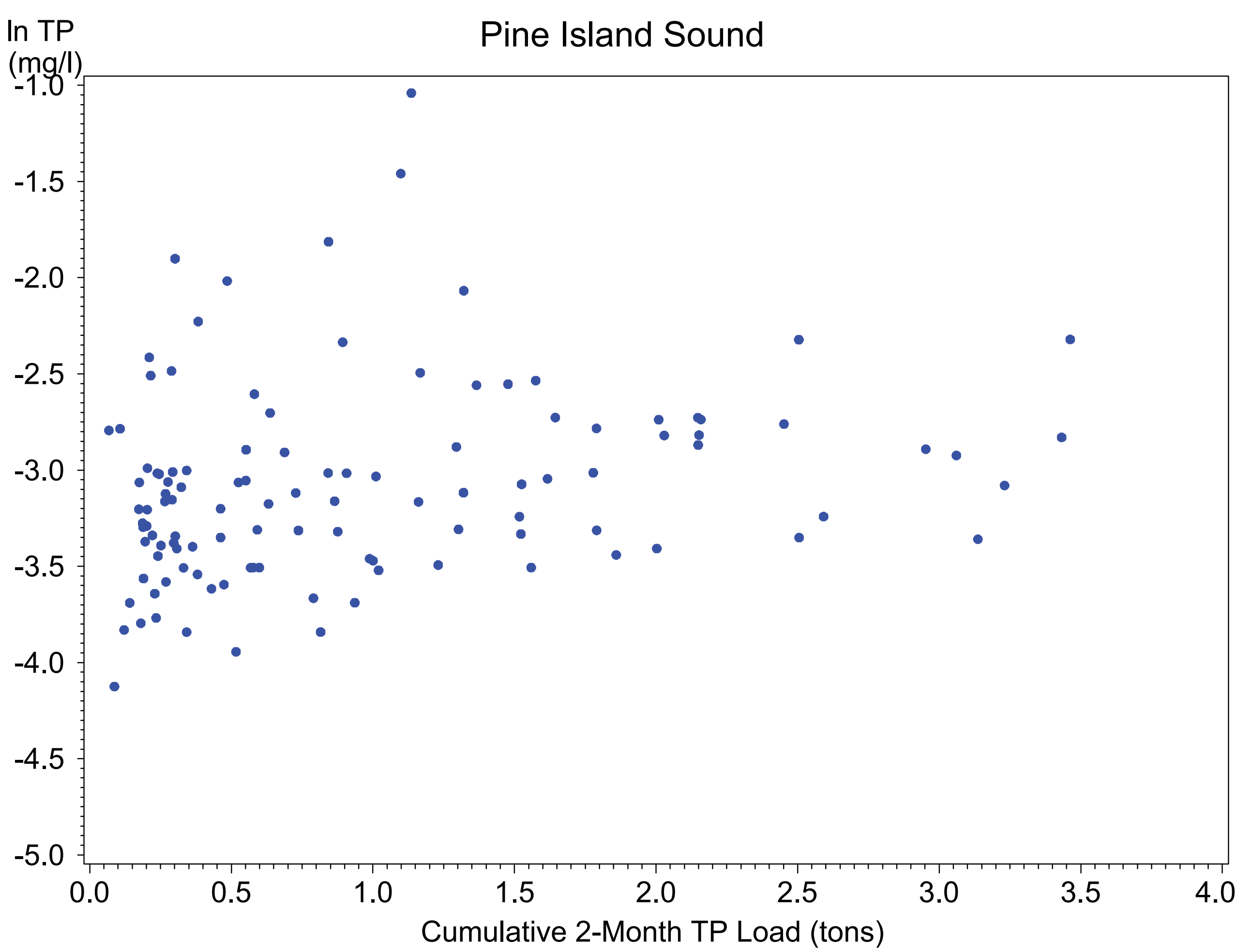

Pine Island Sound
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Cumulative 3-Month TP Load (tons)

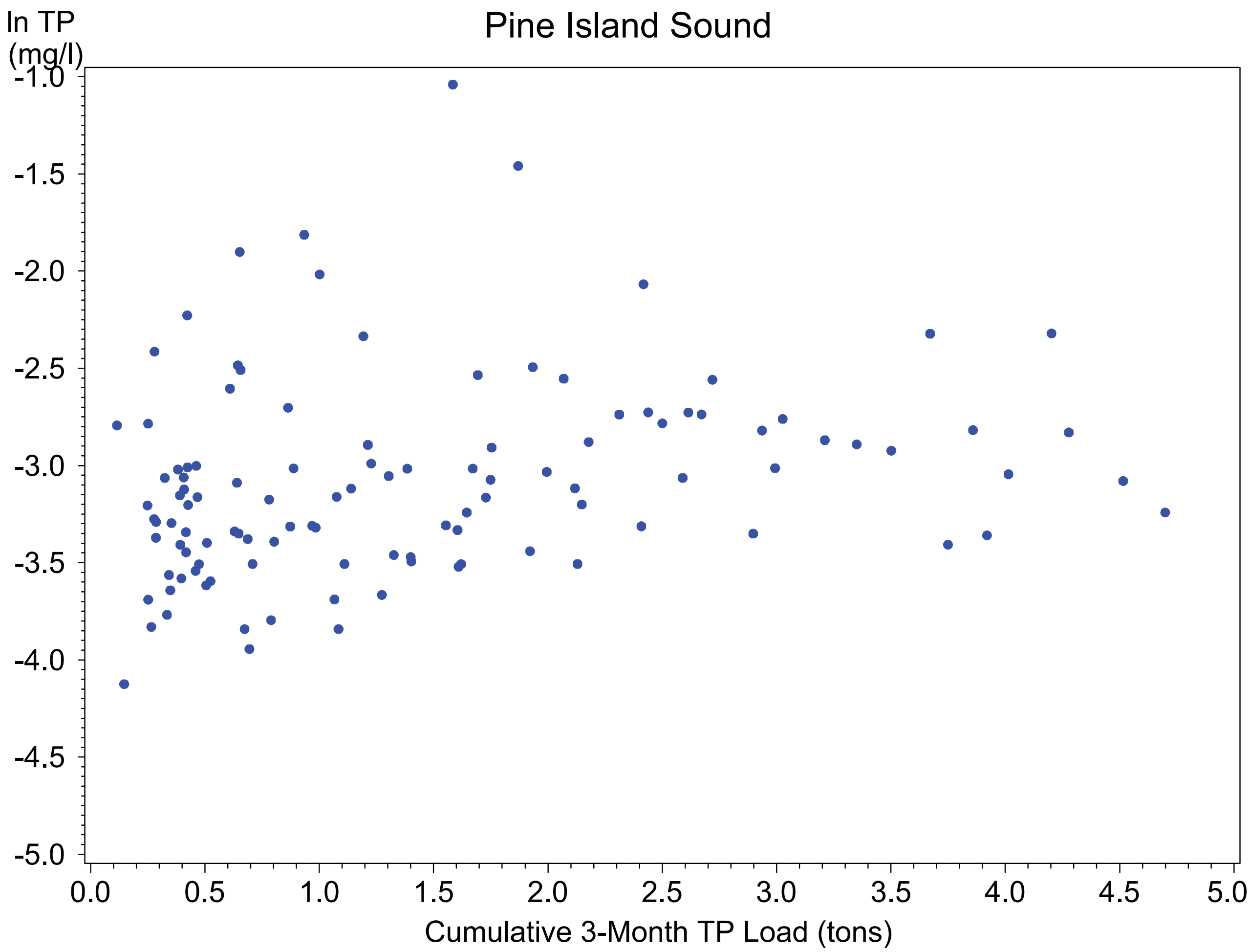

Pine Island Sound
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-4
-3
-2
-1
0
1
ln Monthly TP Load (tons)

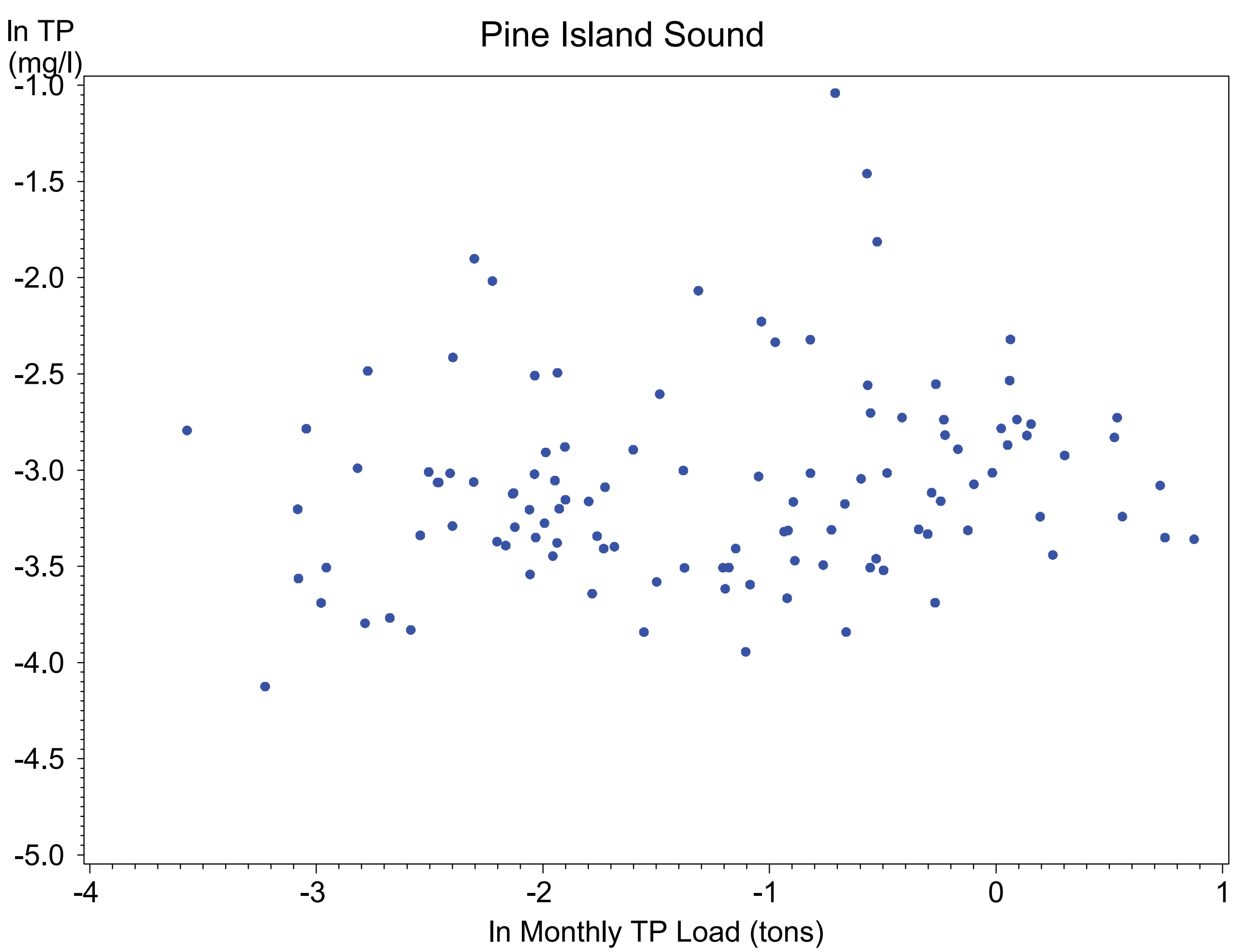

TP
(mg/l)
Pine Island Sound
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-3
-2
-1
0
1
2
ln Cumulative 2-Month TP Load (tons)

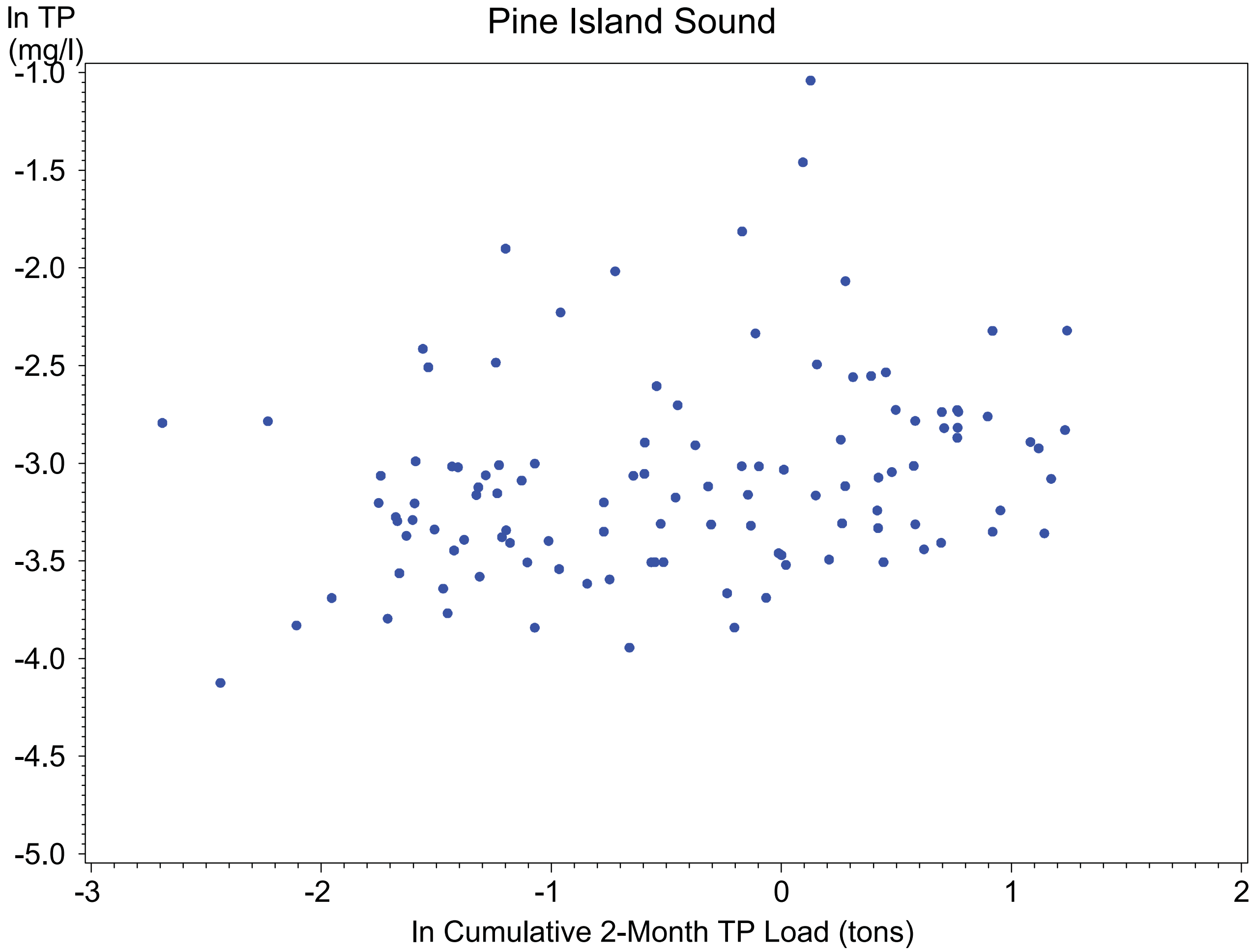

TP
(mg/l)
Pine Island Sound
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-3
-2
-1
0
1
2
ln Cumulative 3-Month TP Load (tons)

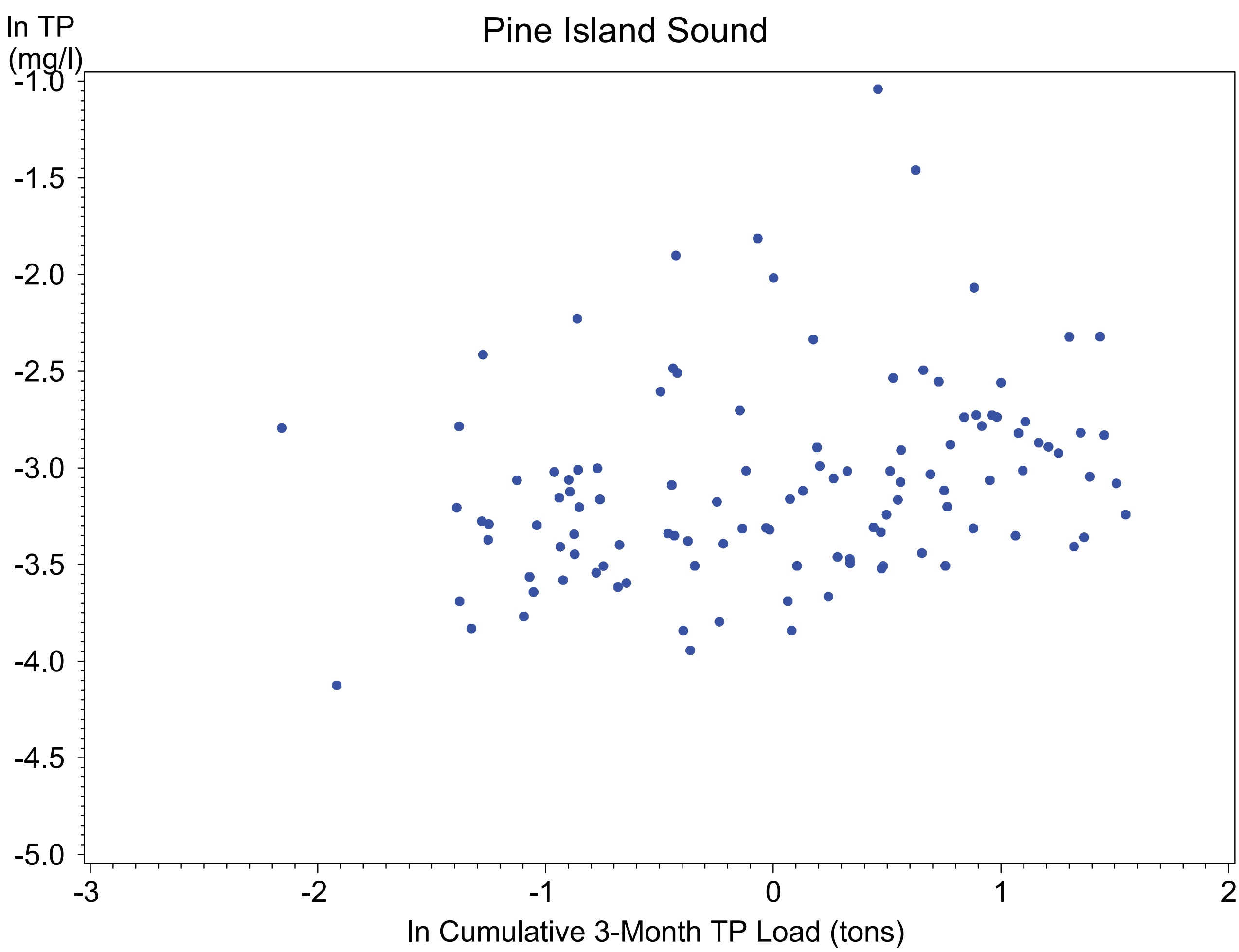

Pine Island Sound
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Monthly TP Load (tons)

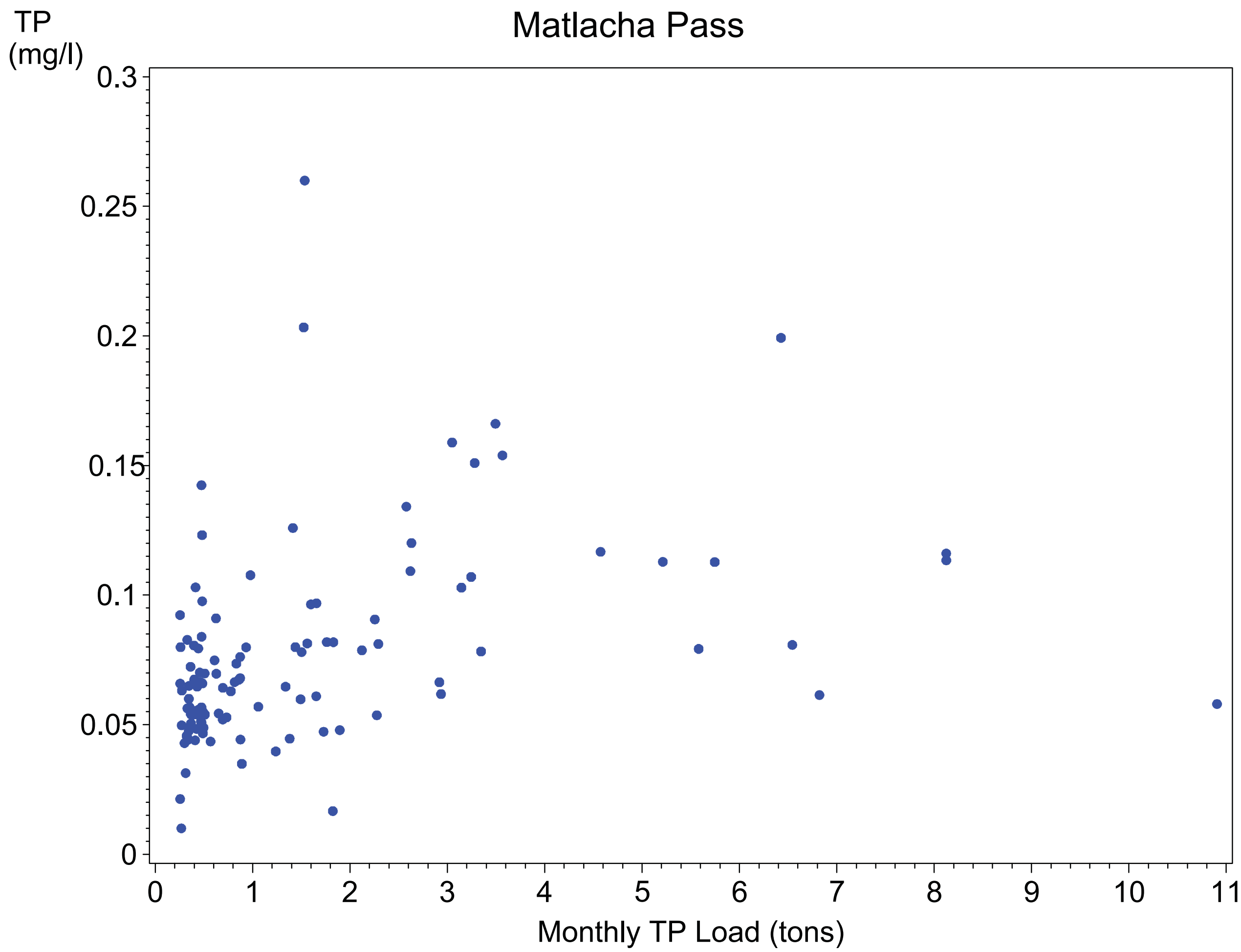

Pine Island Sound
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Cumulative 2-Month TP Load (tons)


Pine Island Sound
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Cumulative 3-Month TP Load (tons)

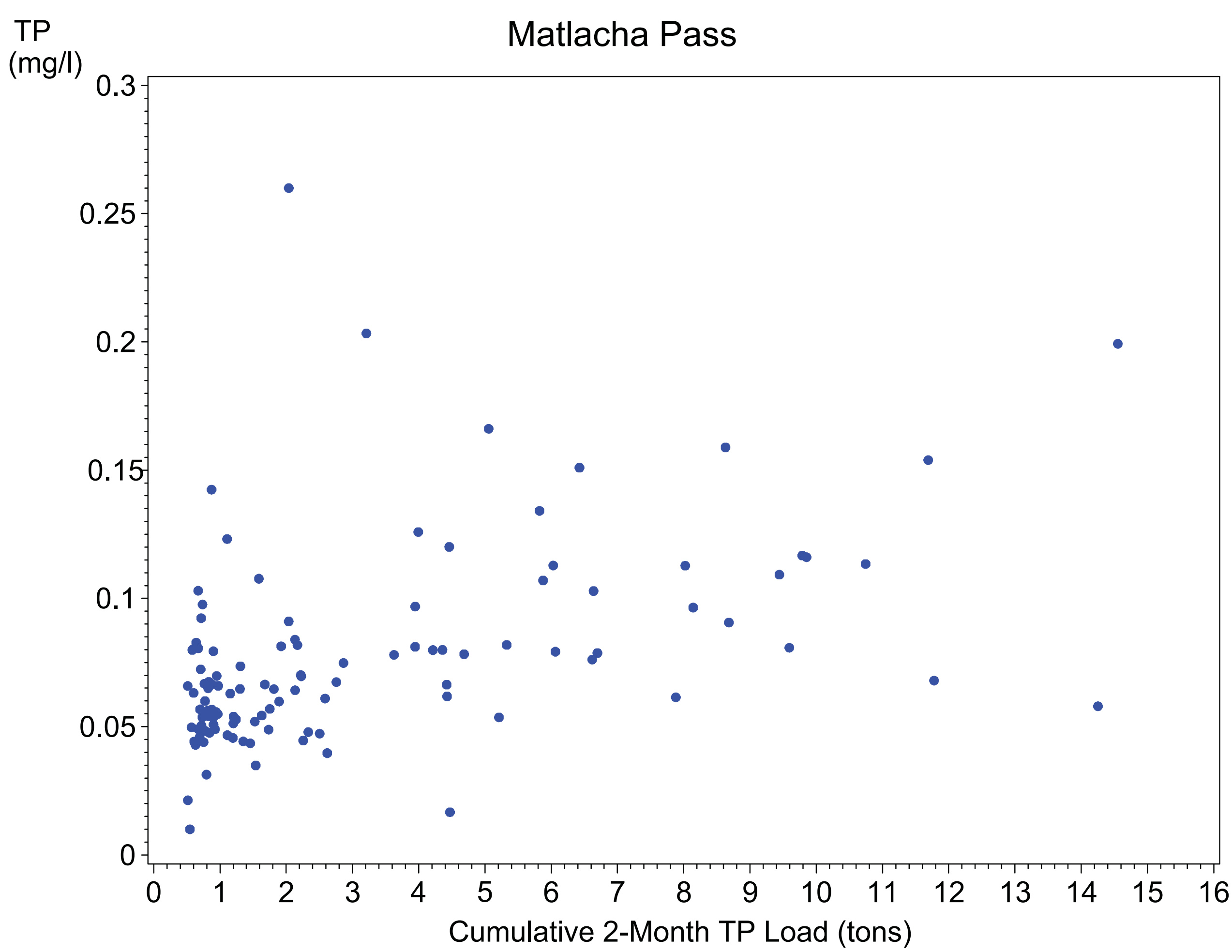

Pine Island Sound
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-4
-3
-2
-1
0
1
ln Monthly TP Load (tons)


Pine Island Sound
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-3
-2
-1
0
1
2
ln Cumulative 2-Month TP Load (tons)

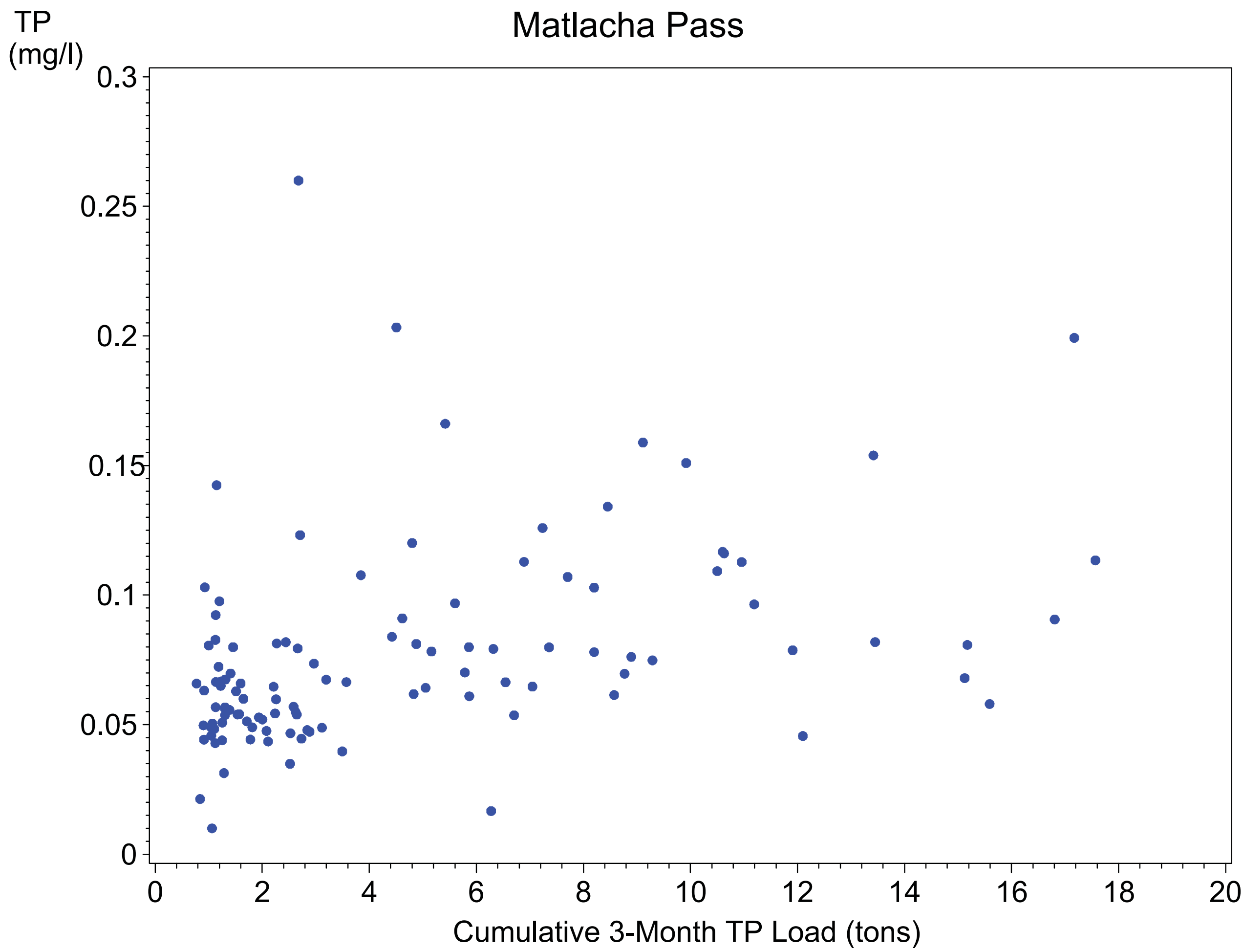

Pine Island Sound
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-3
-2
-1
0
1
2
ln Cumulative 3-Month TP Load (tons)

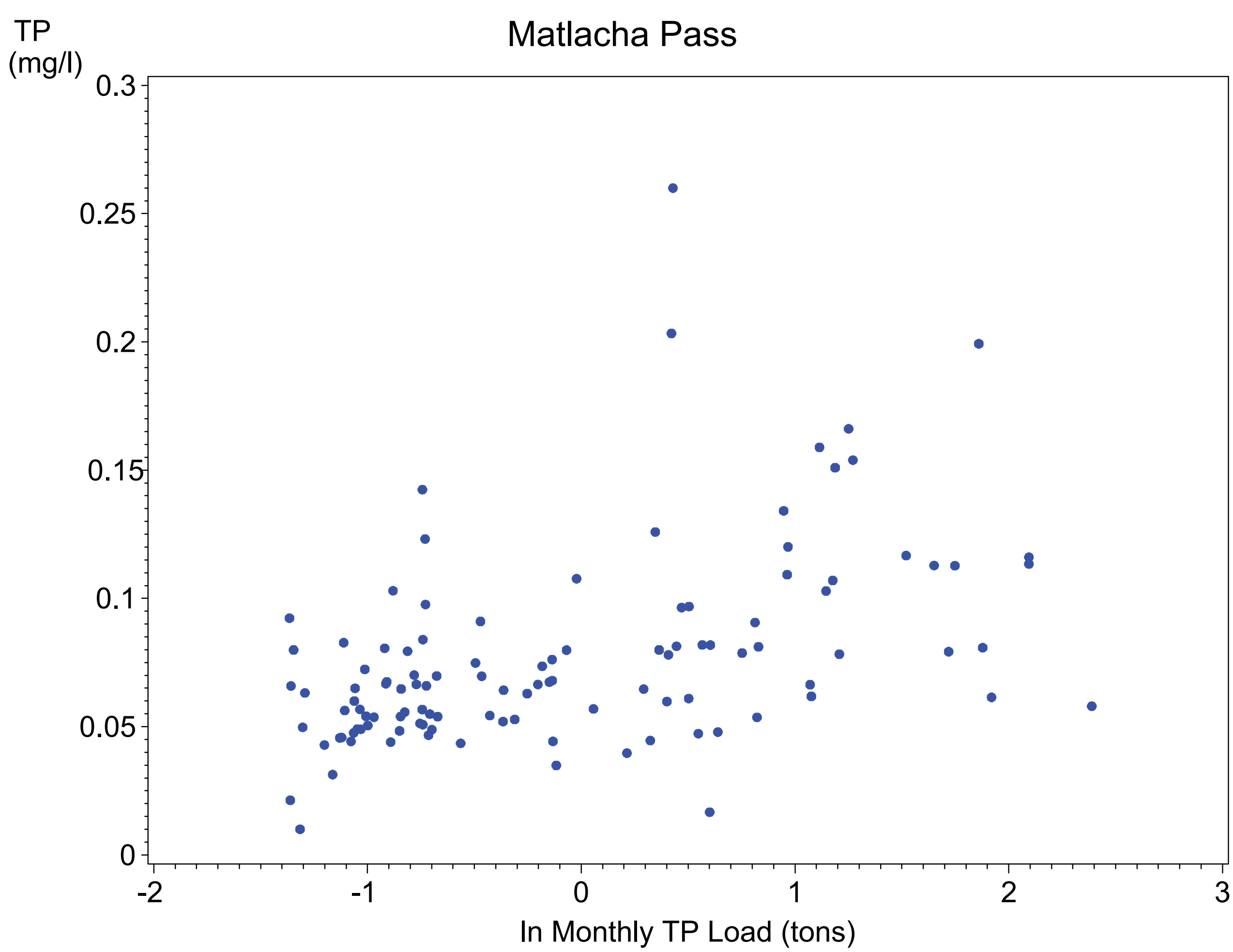


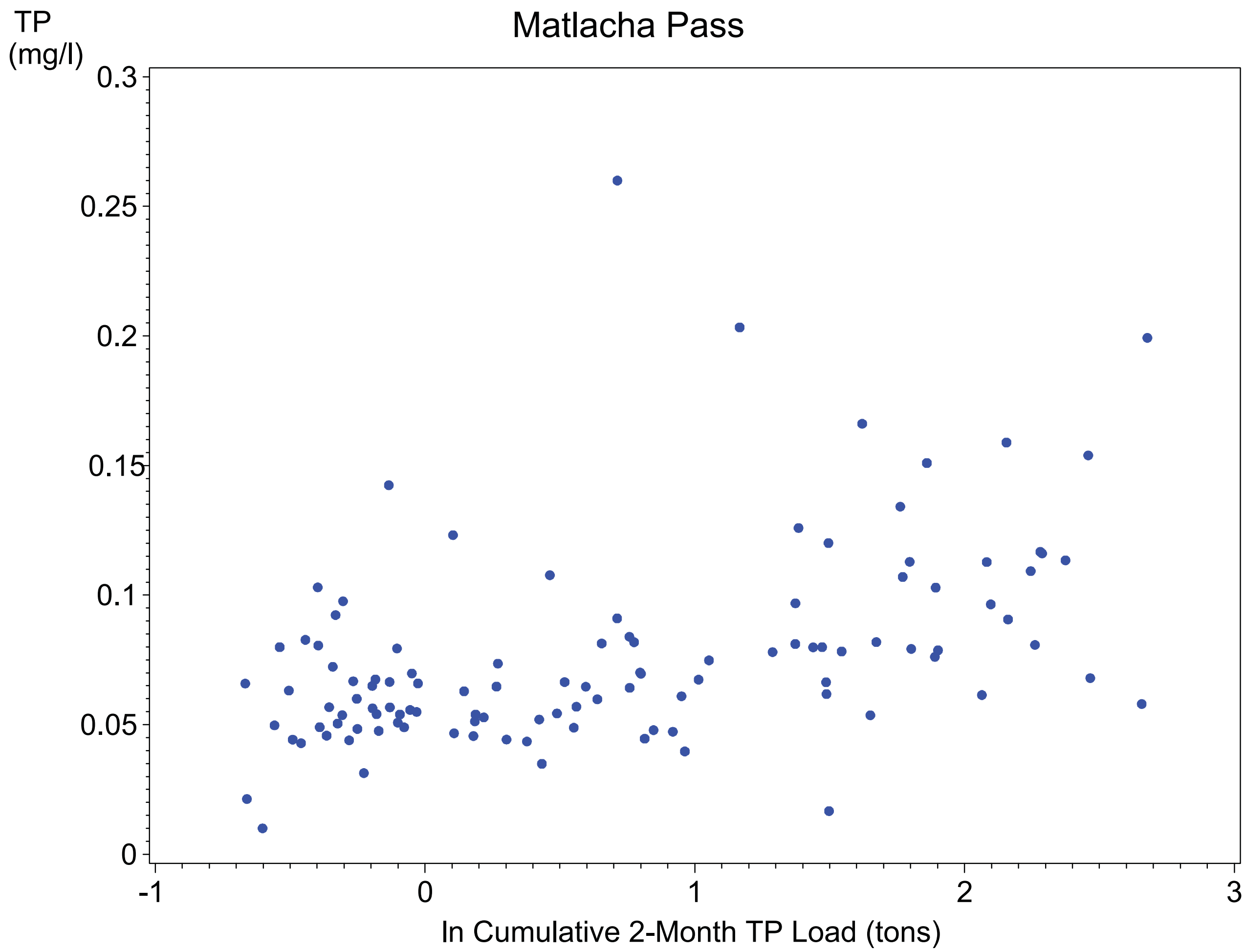
TP
(mg/l)
Matlacha Pass
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
7
8
9
10
11
Monthly TP Load (tons)

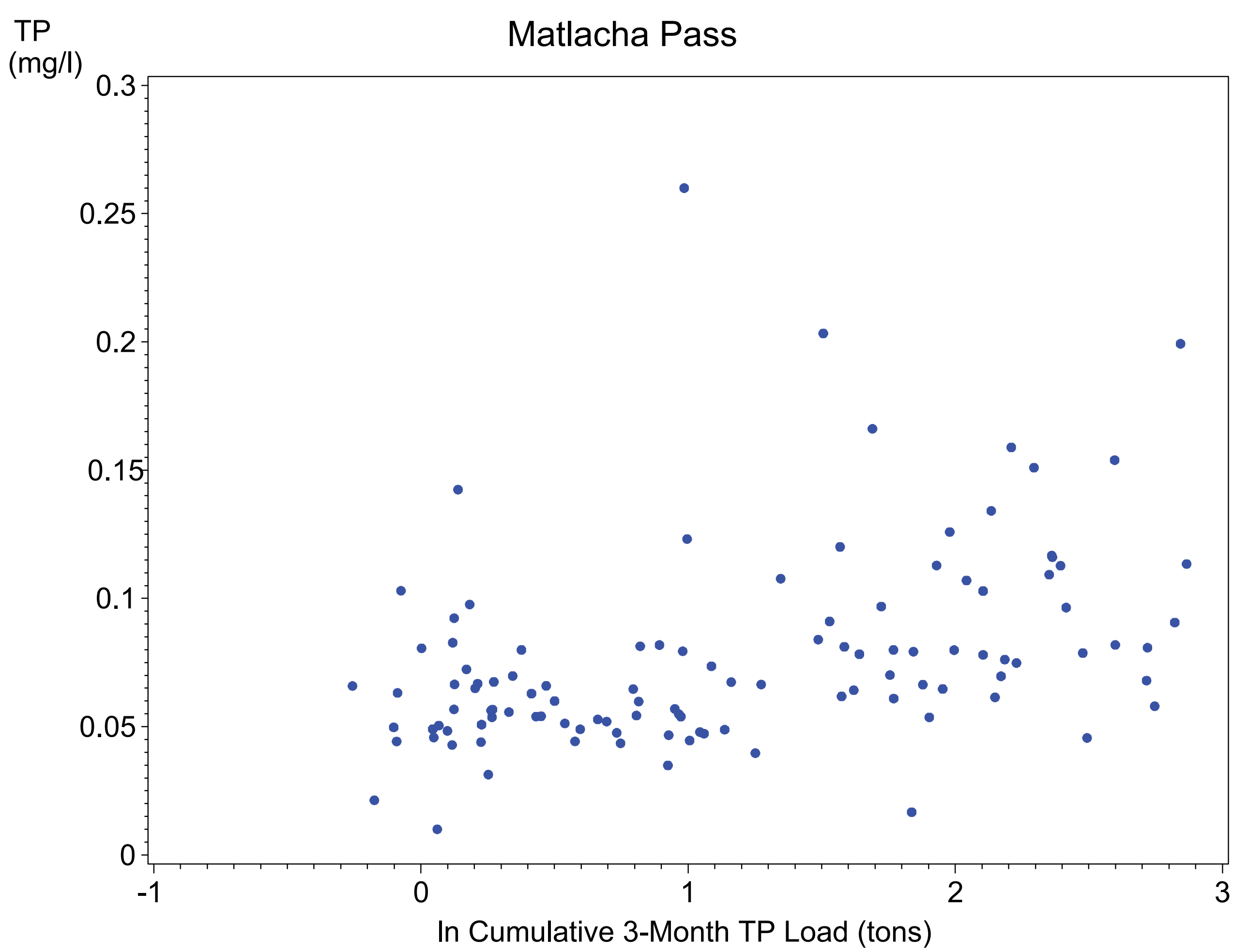


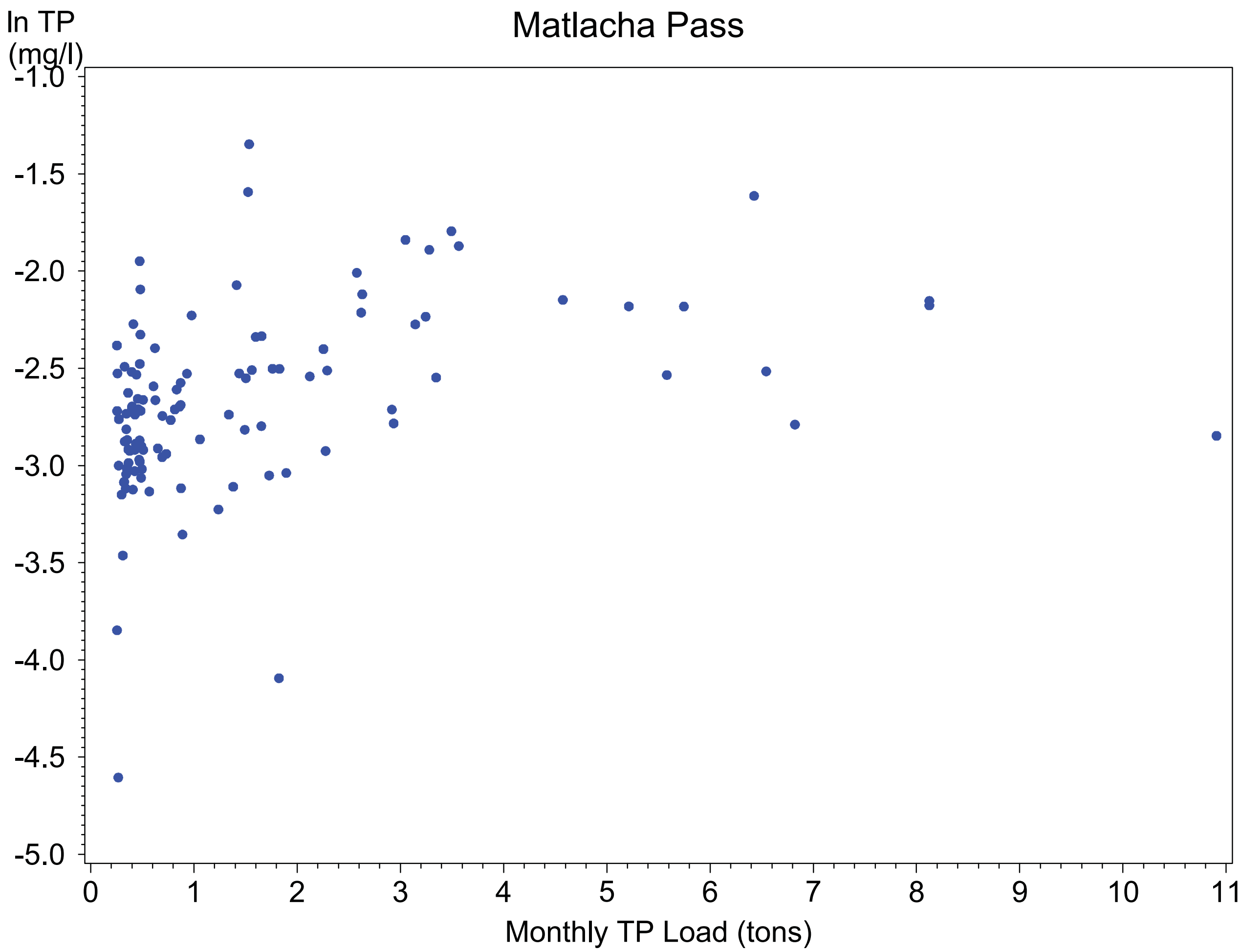
TP
(mg/l)
Matlacha Pass
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Cumulative 2-Month TP Load (tons)

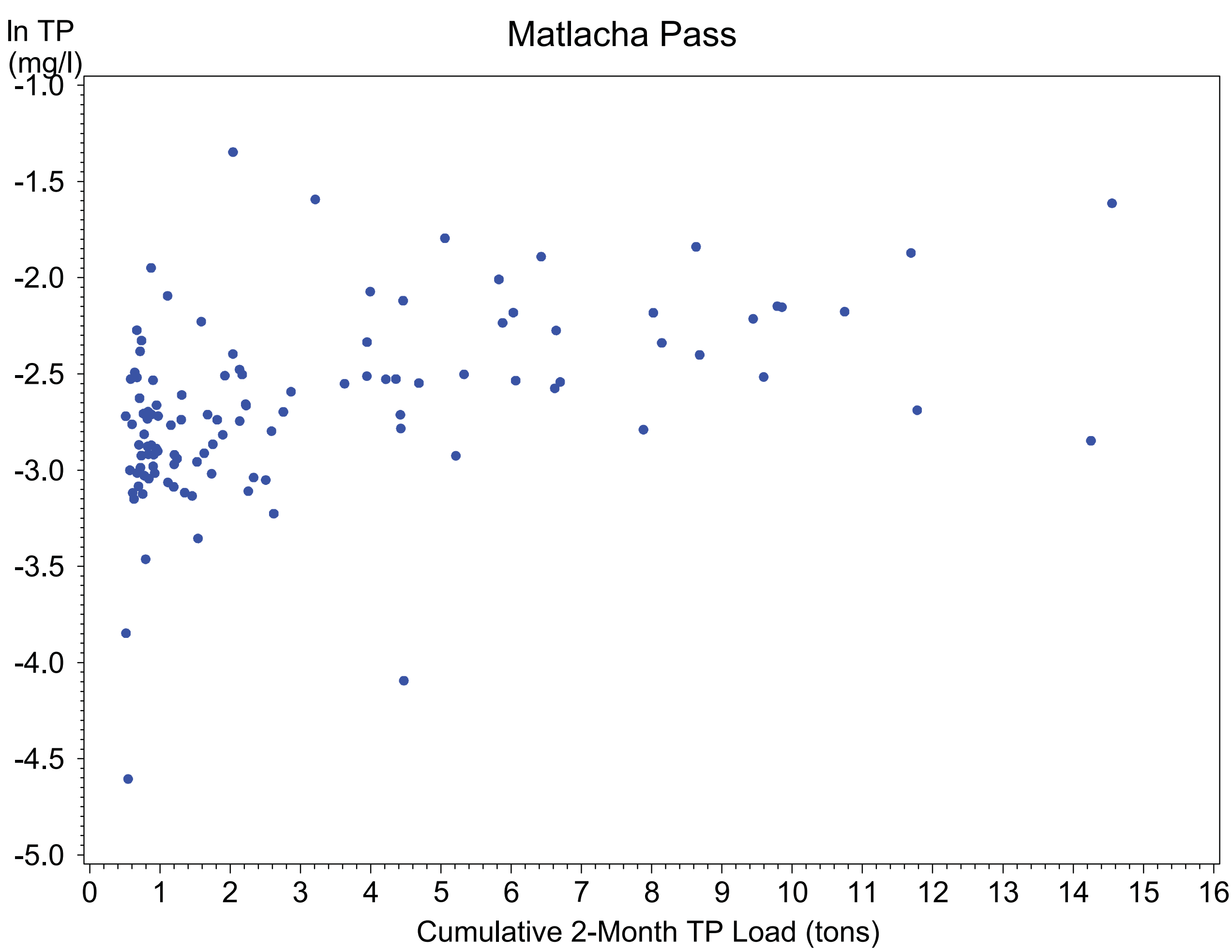

Matlacha Pass
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
0
2
4
6
8
10
12
14
16
18
20
Cumulative 3-Month TP Load (tons)

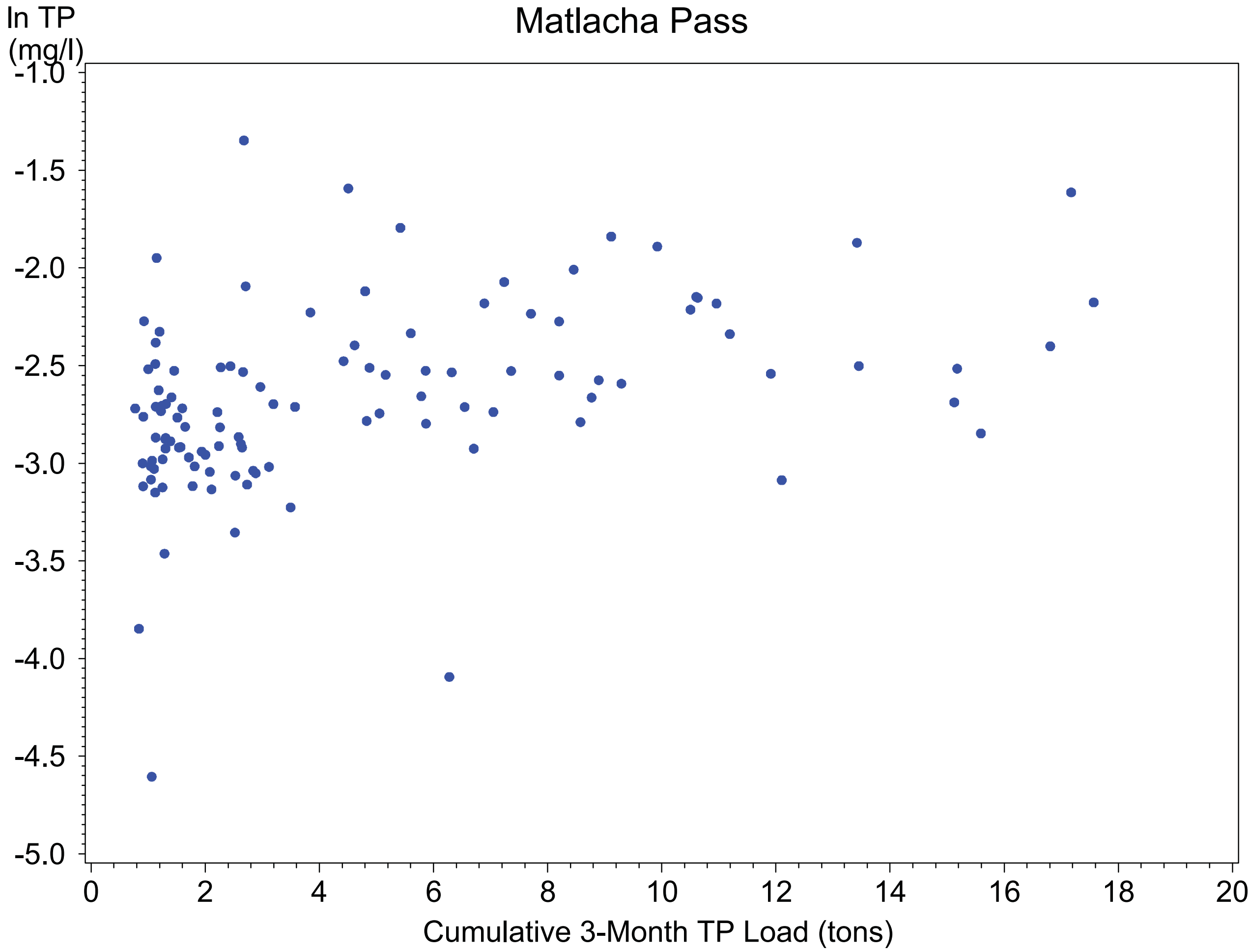

Matlacha Pass
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-2
-1
0
1
2
3
ln Monthly TP Load (tons)

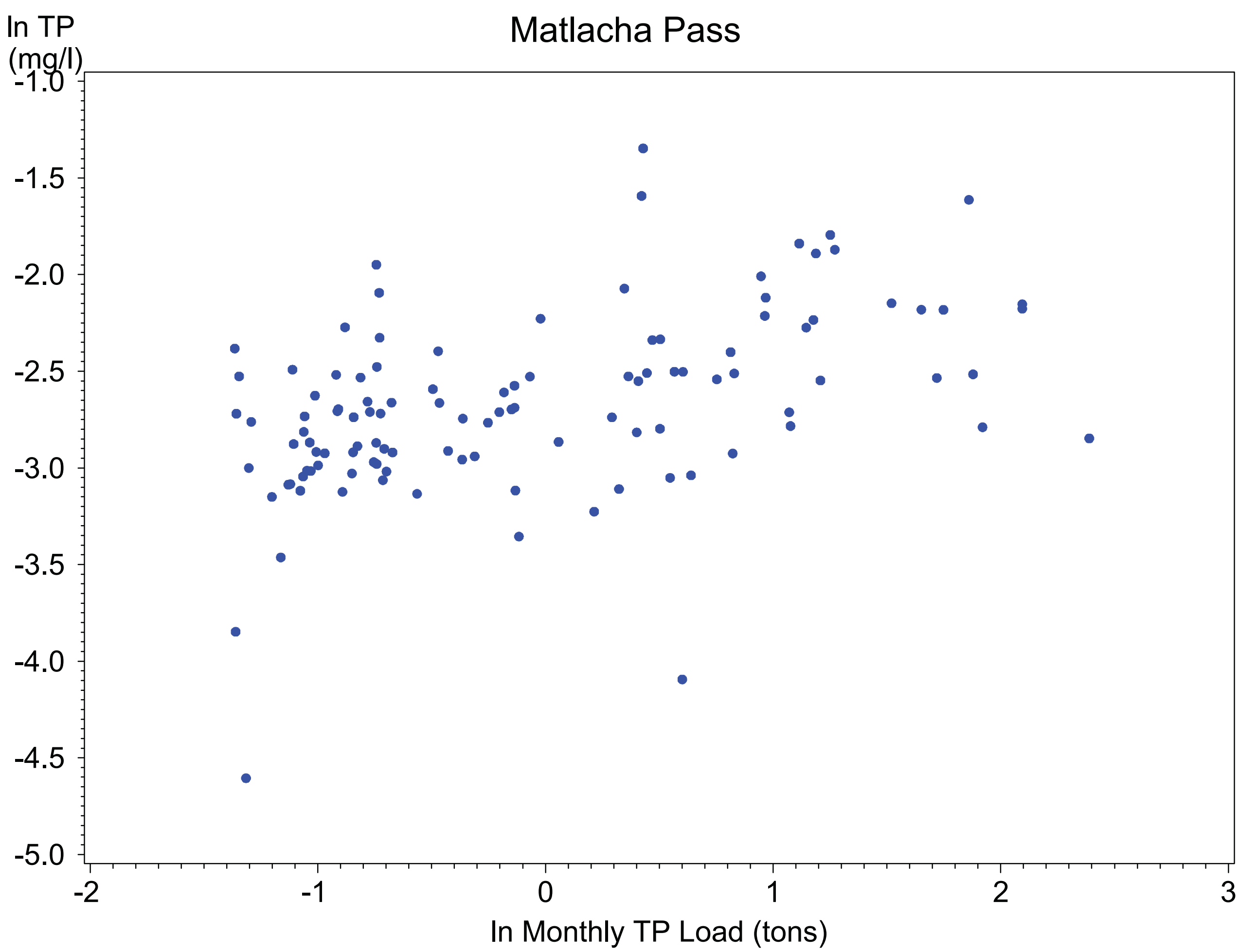

Matlacha Pass
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

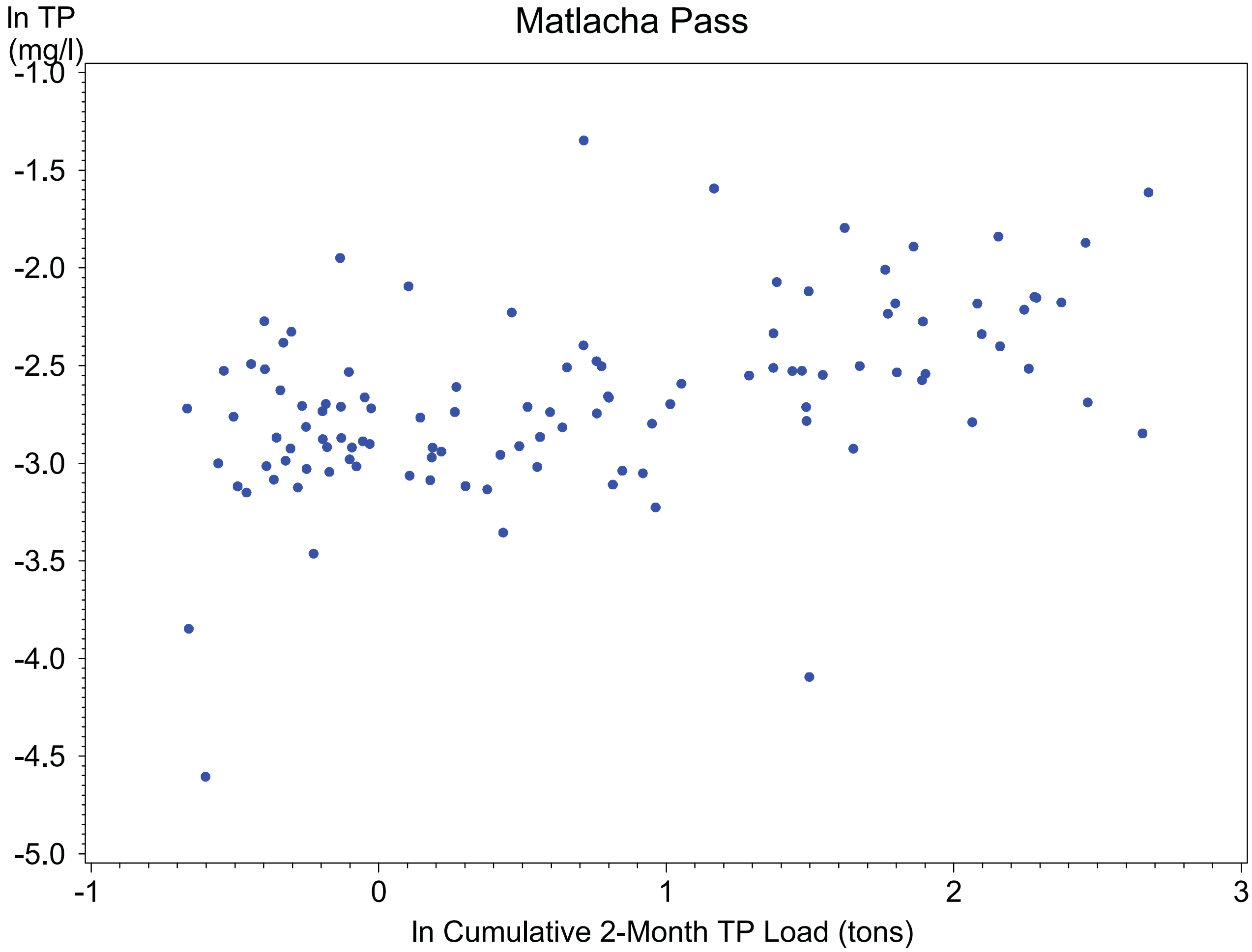

Matlacha Pass
TP
(mg/l)
0.3
0.25
0.2
0.15
0.1
0.05
0
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)

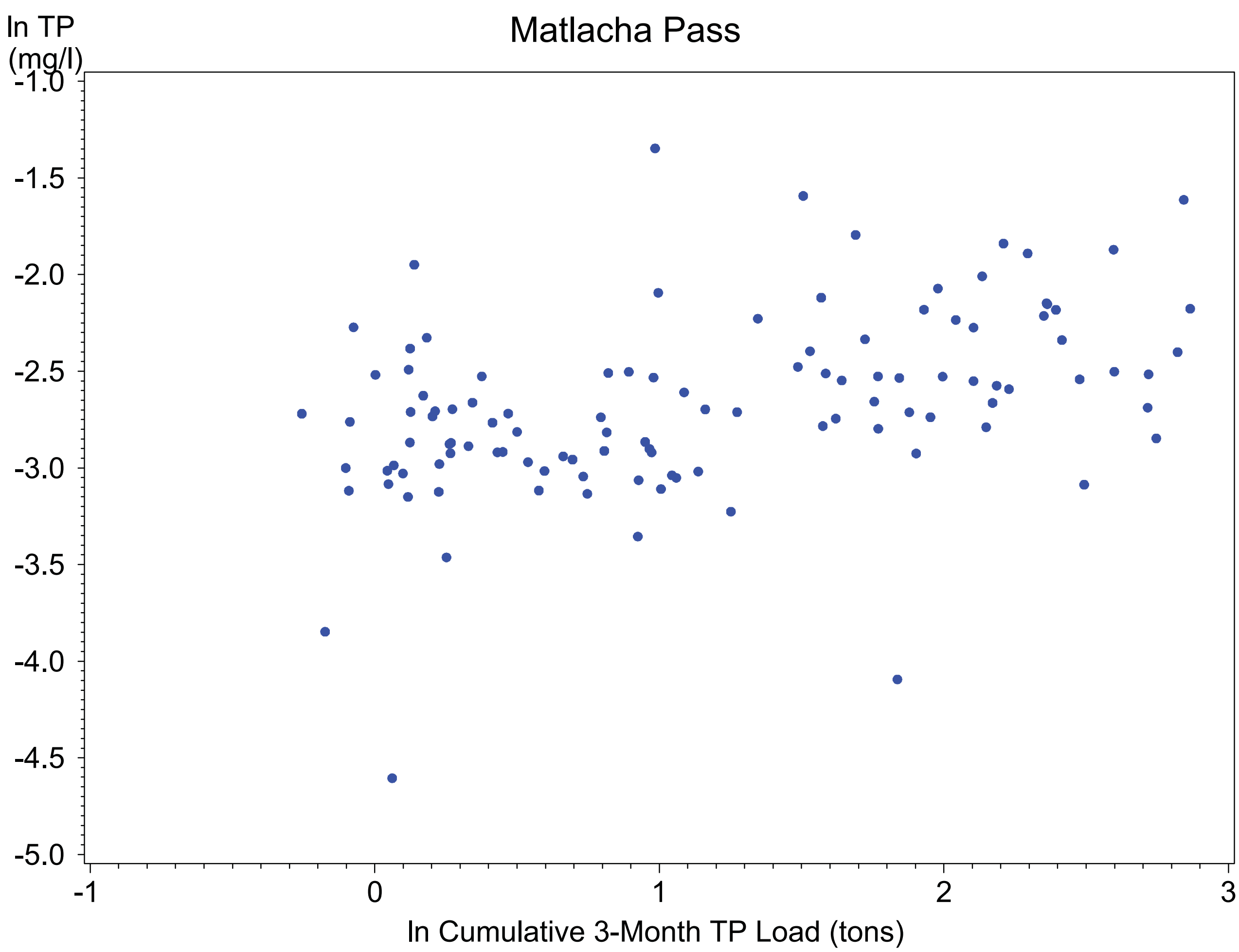

Matlacha Pass
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0 1 2 3 4 5 6 7 8 9 10 11
Monthly TP Load (tons)

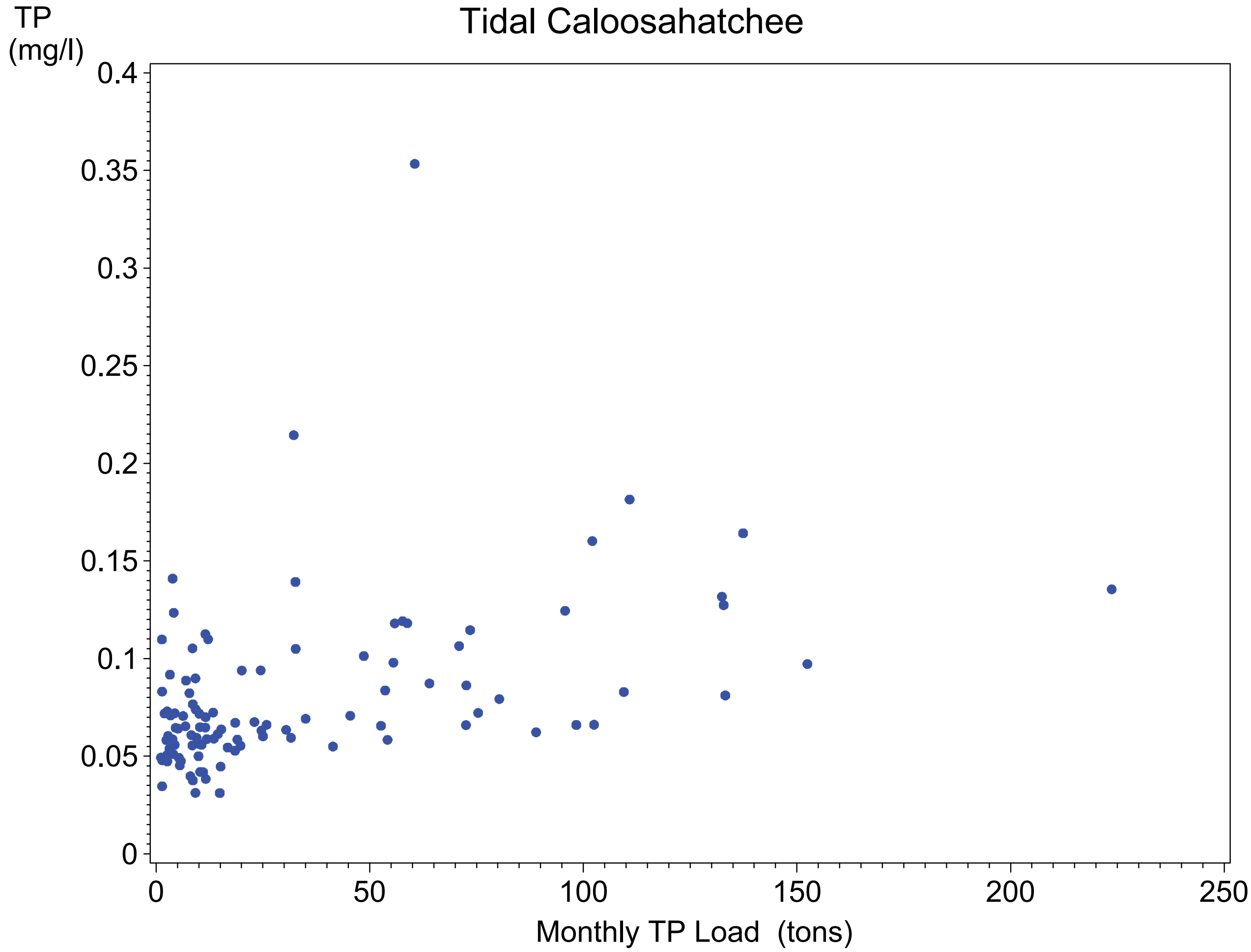

Matlacha Pass
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
Cumulative 2-Month TP Load (tons)

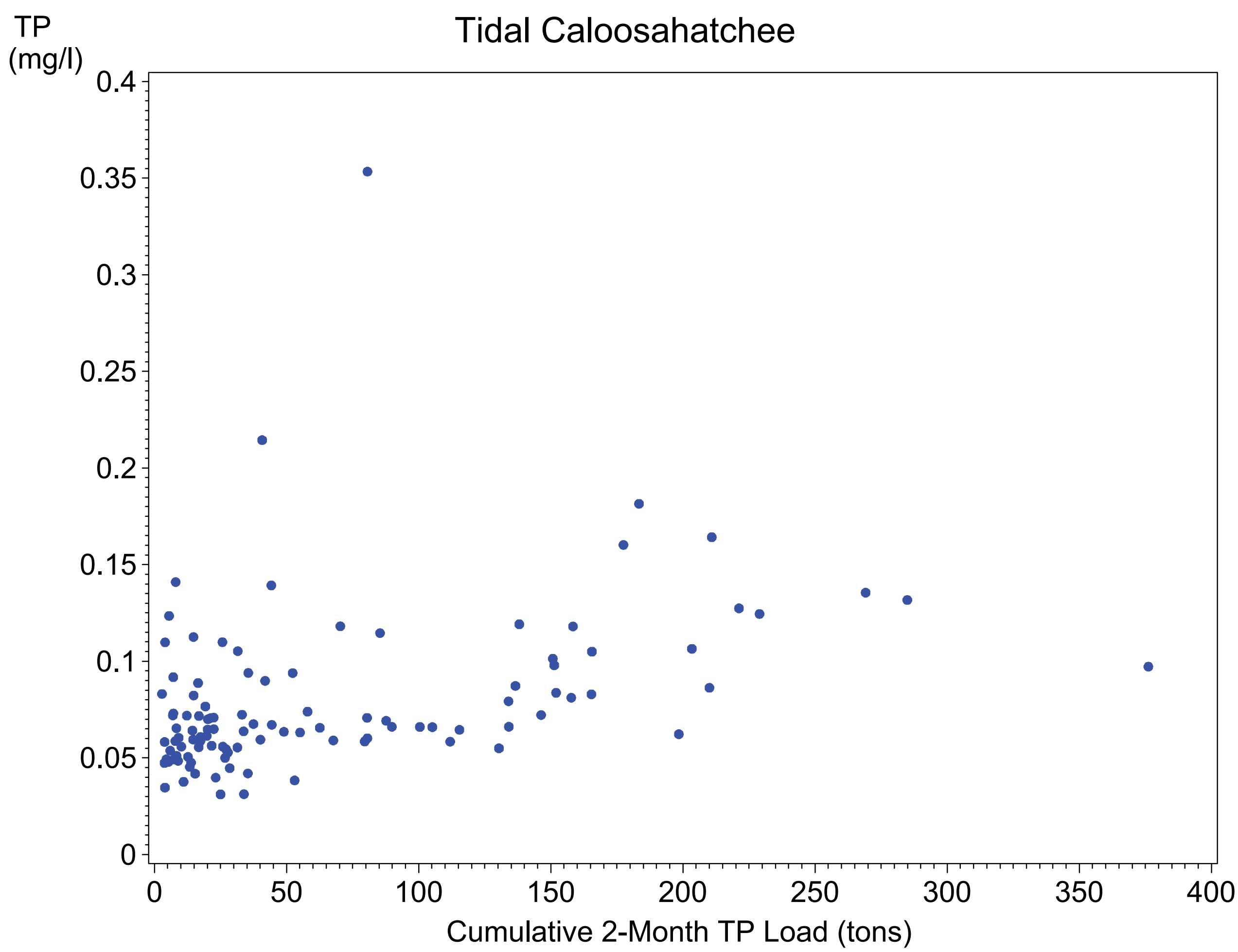

Matlacha Pass
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
2
4
6
8
10
12
14
16
18
20
Cumulative 3-Month TP Load (tons)

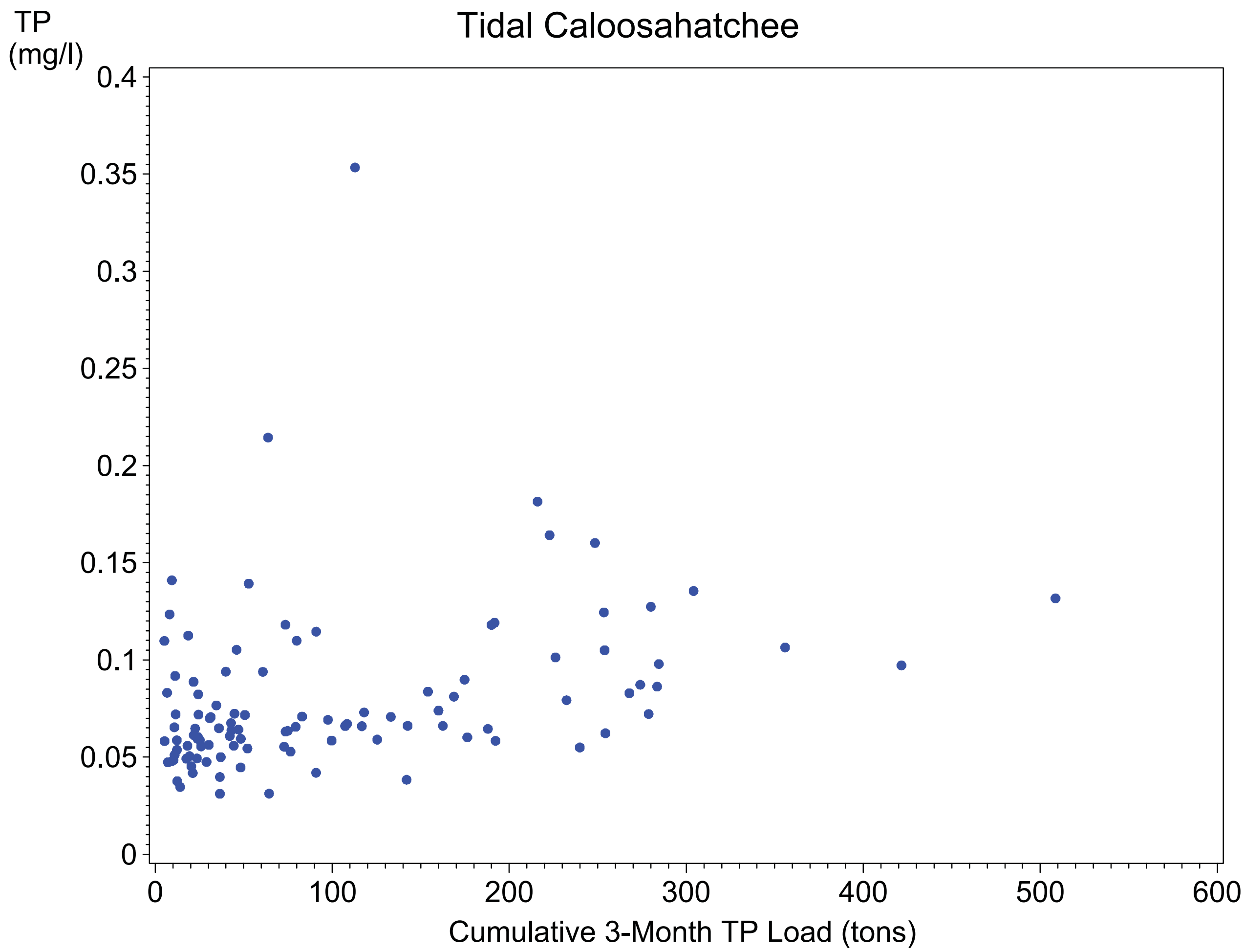

Matlacha Pass
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-2
-1
0
1
2
3
ln Monthly TP Load (tons)

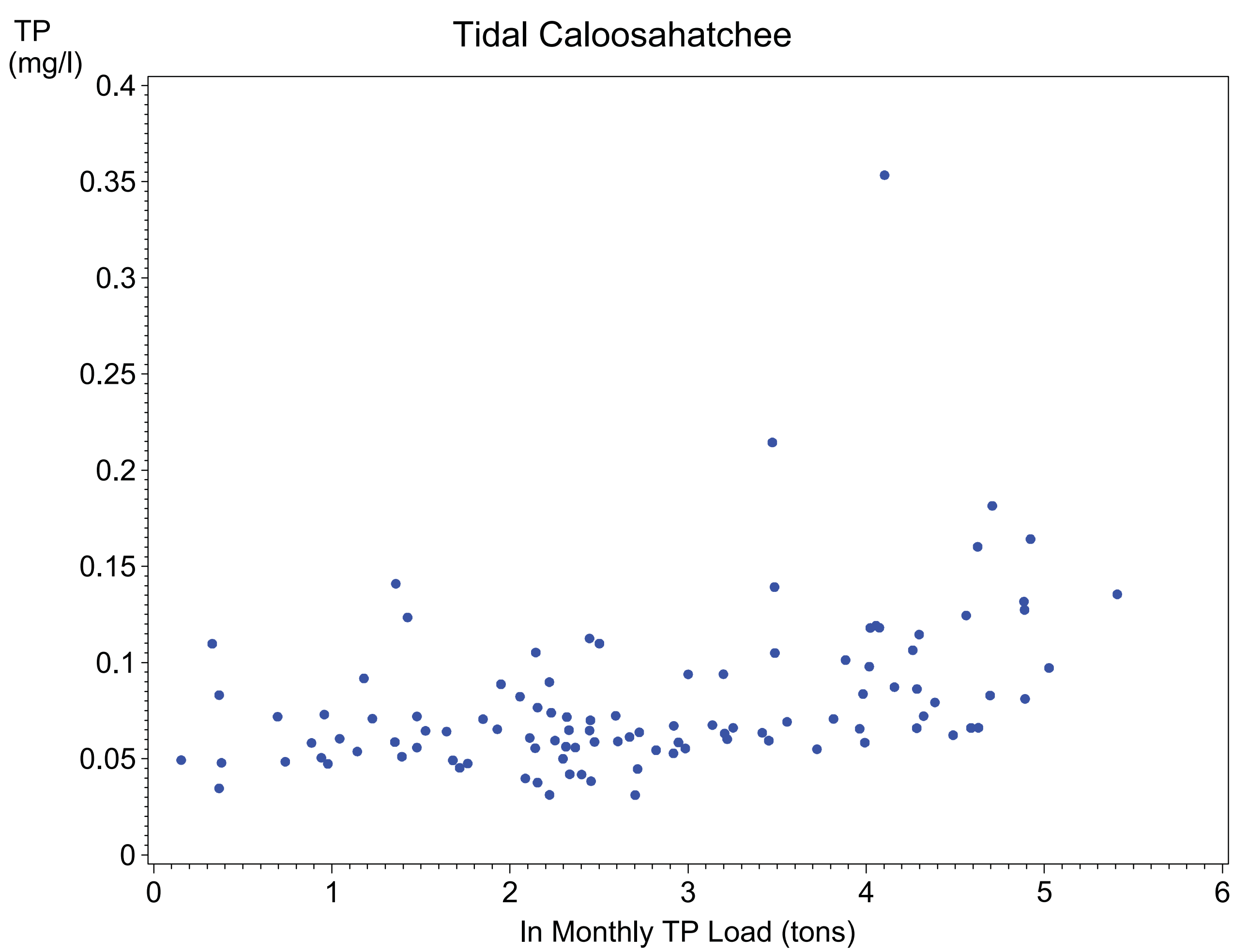

Matlacha Pass
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

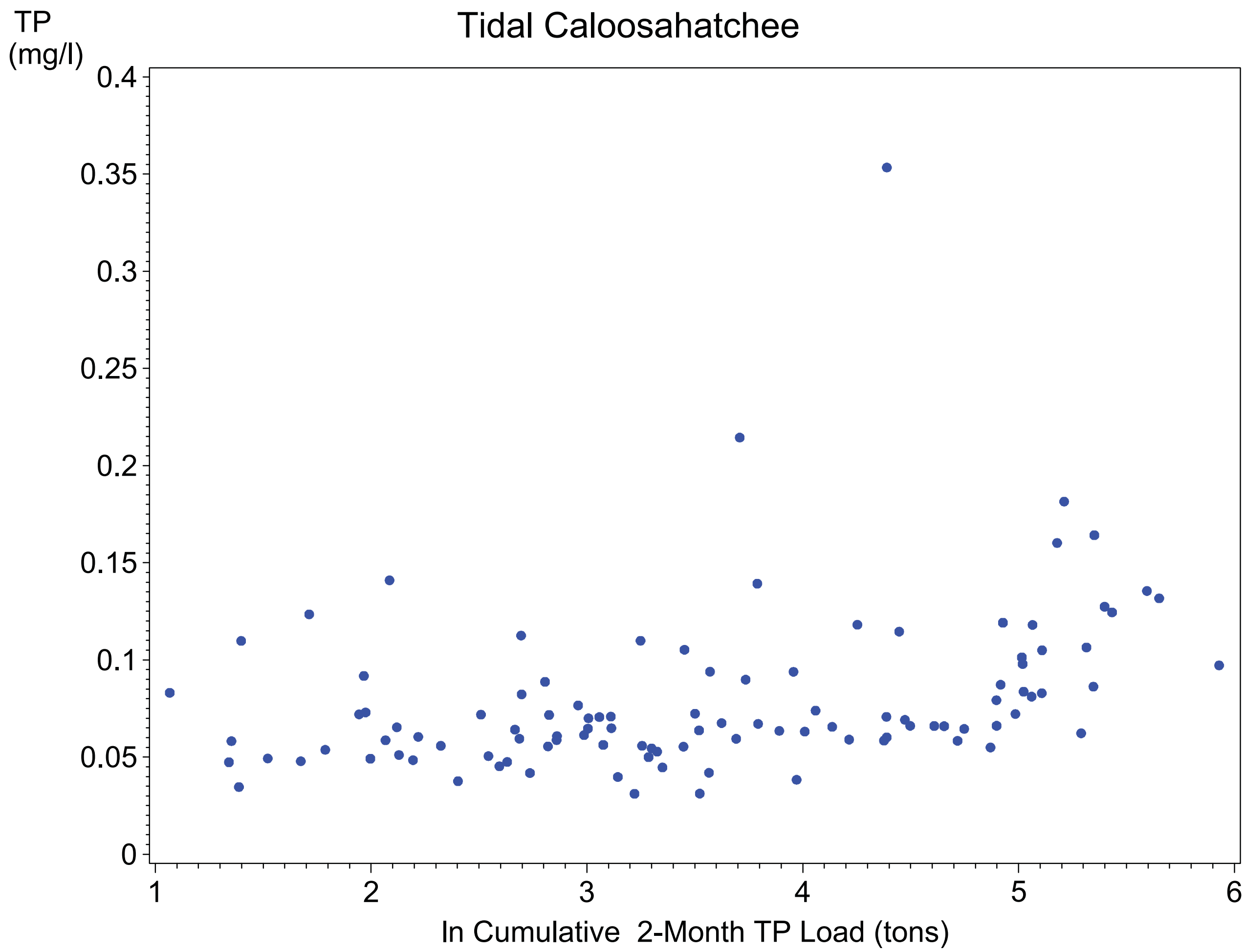

Matlacha Pass
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)


Tidal Caloosahatchee
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
50
100
150
200
250
Monthly TP Load (tons)

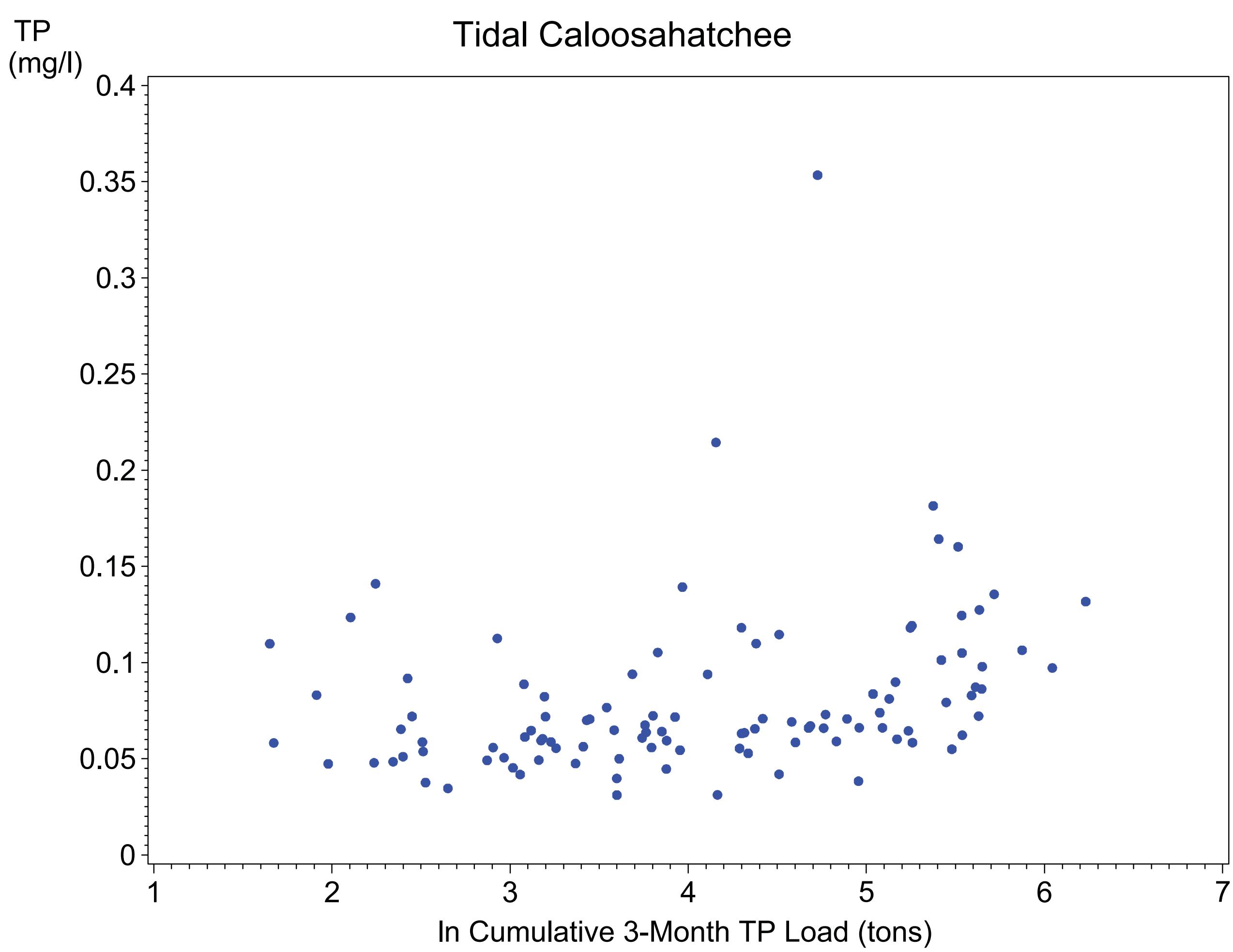

Tidal Caloosahatchee
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)


TP
(mg/l)
Tidal Caloosahatchee
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

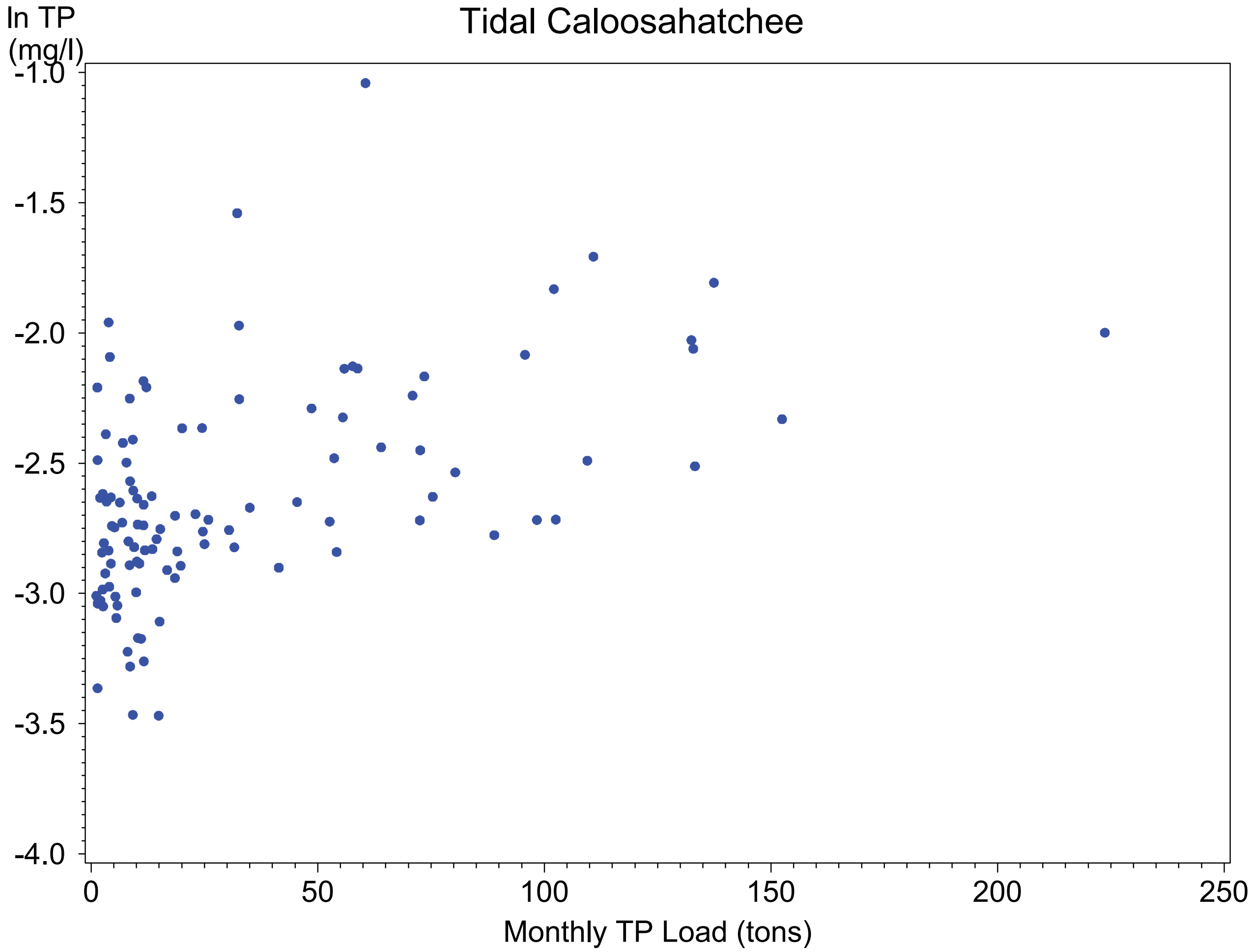

TP
(mg/l)
Tidal Caloosahatchee
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
ln Monthly TP Load (tons)

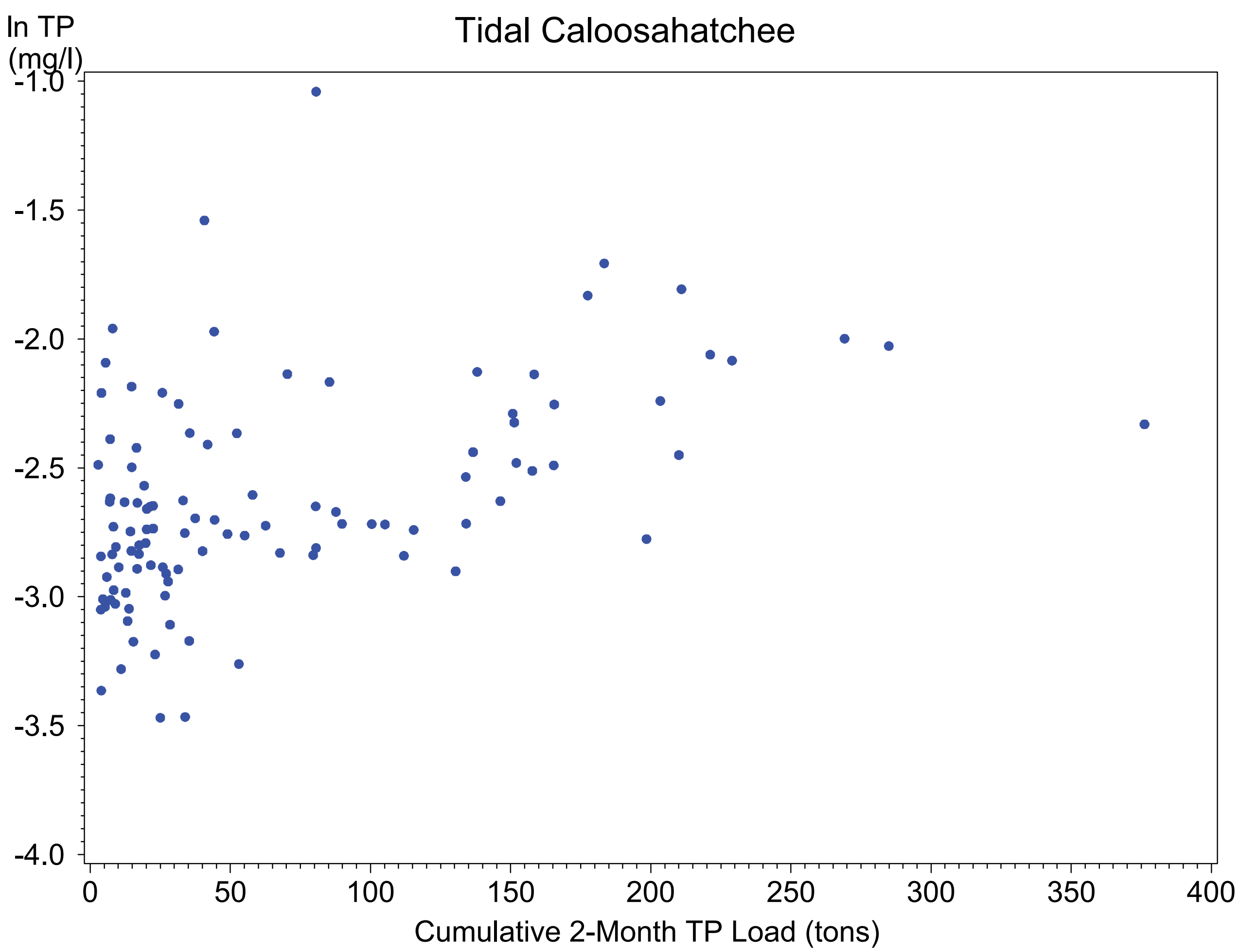


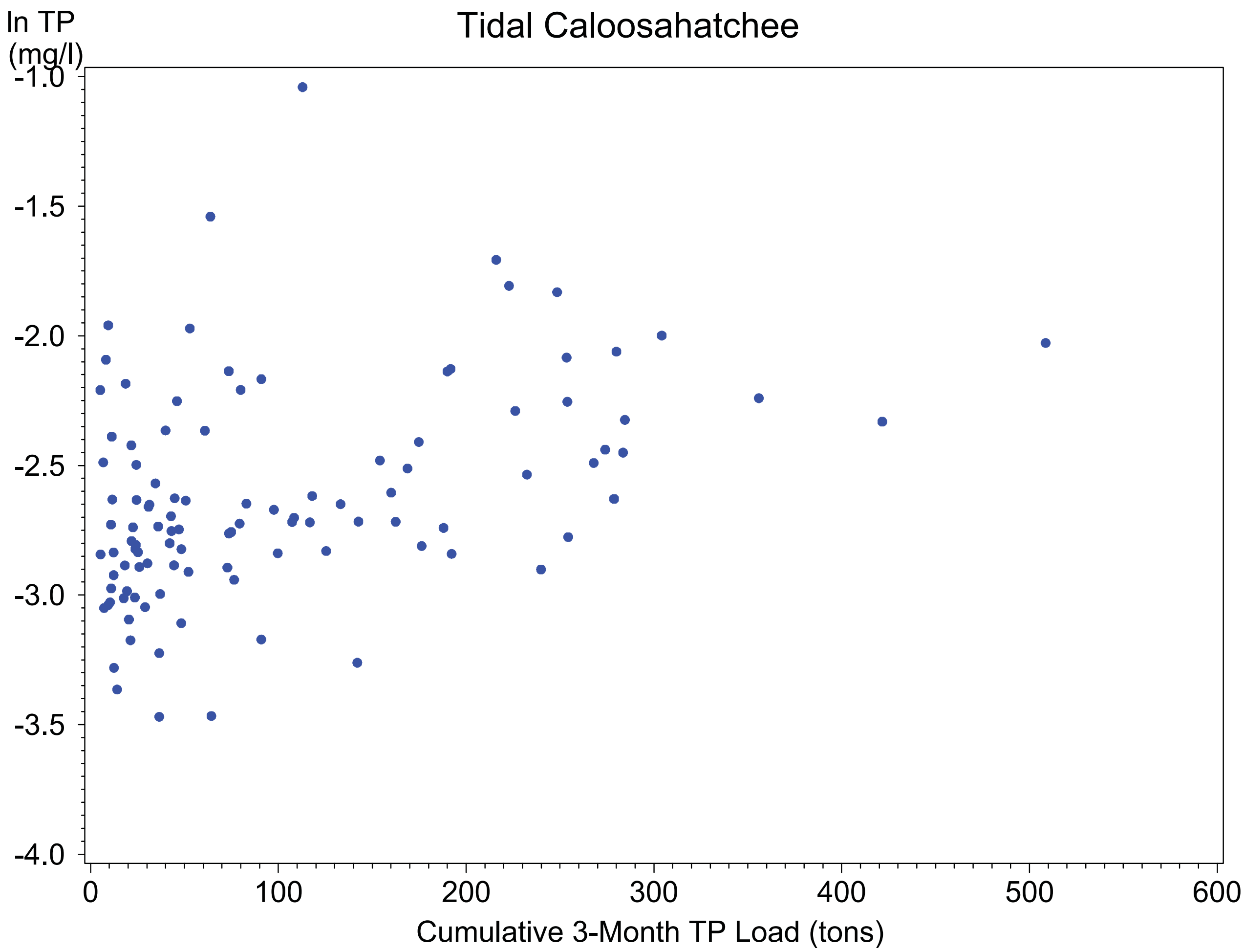
Tidal Caloosahatchee
TP (mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

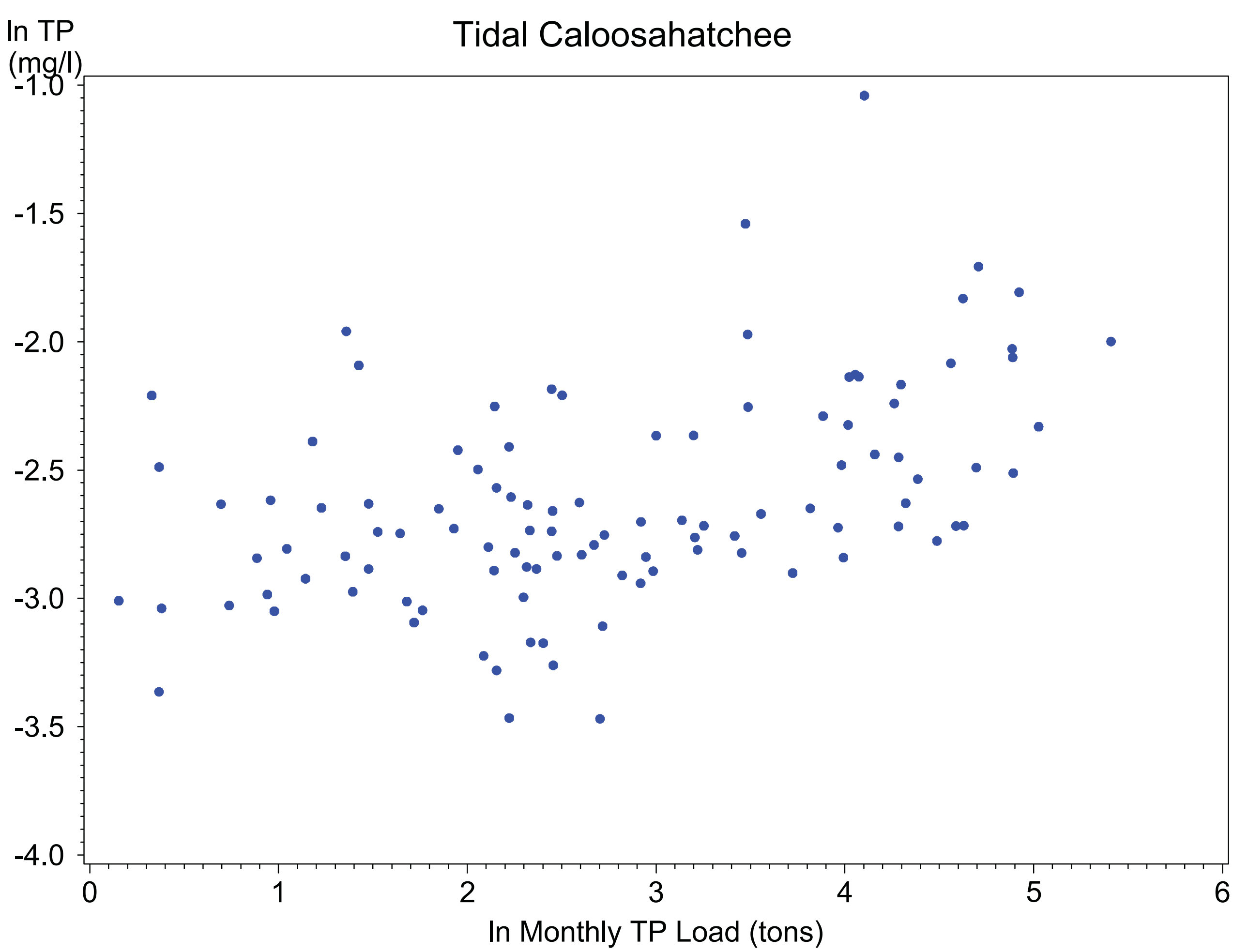


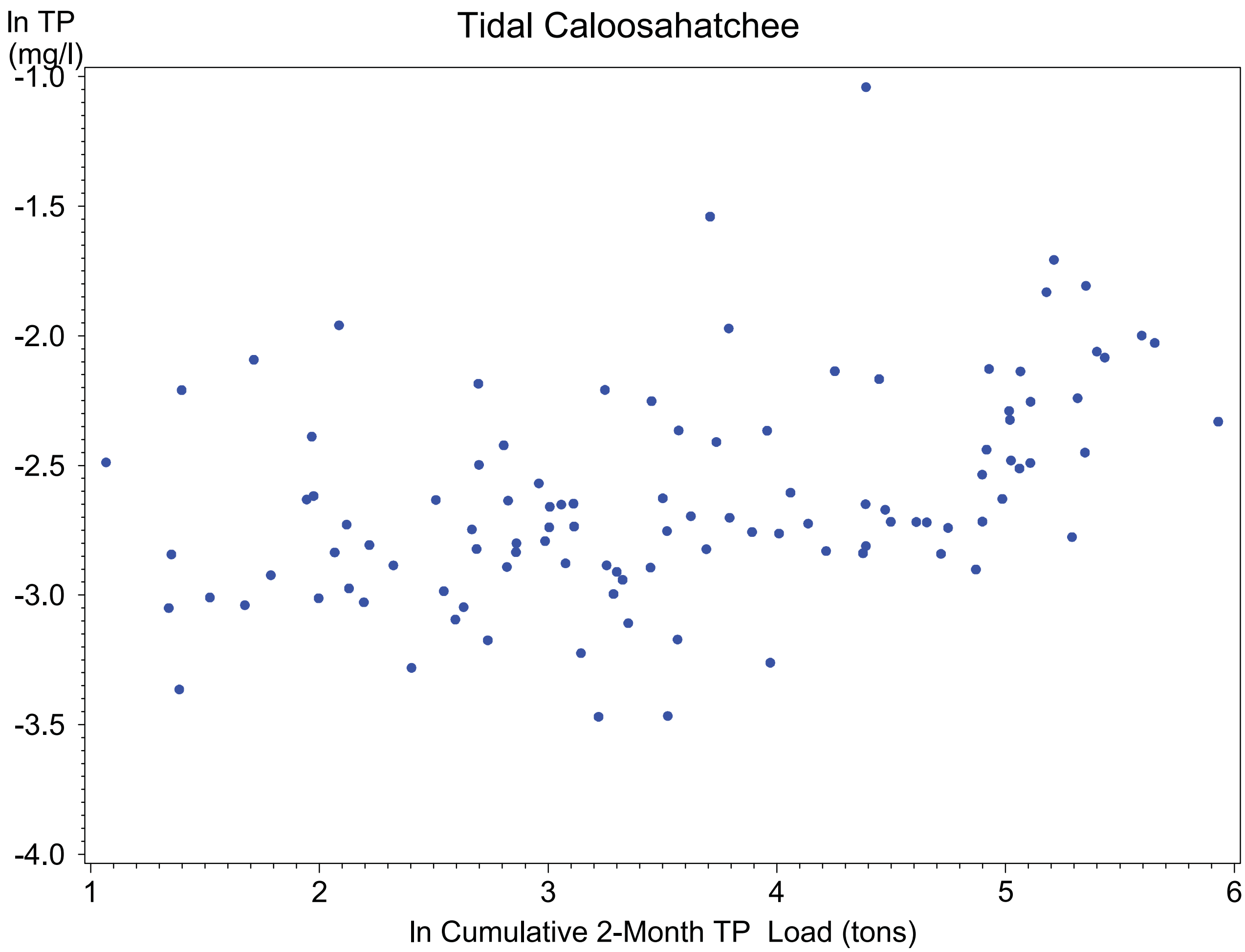
Tidal Caloosahatchee
TP (mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)


Tidal Caloosahatchee
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
50
100
150
200
250
Monthly TP Load (tons)

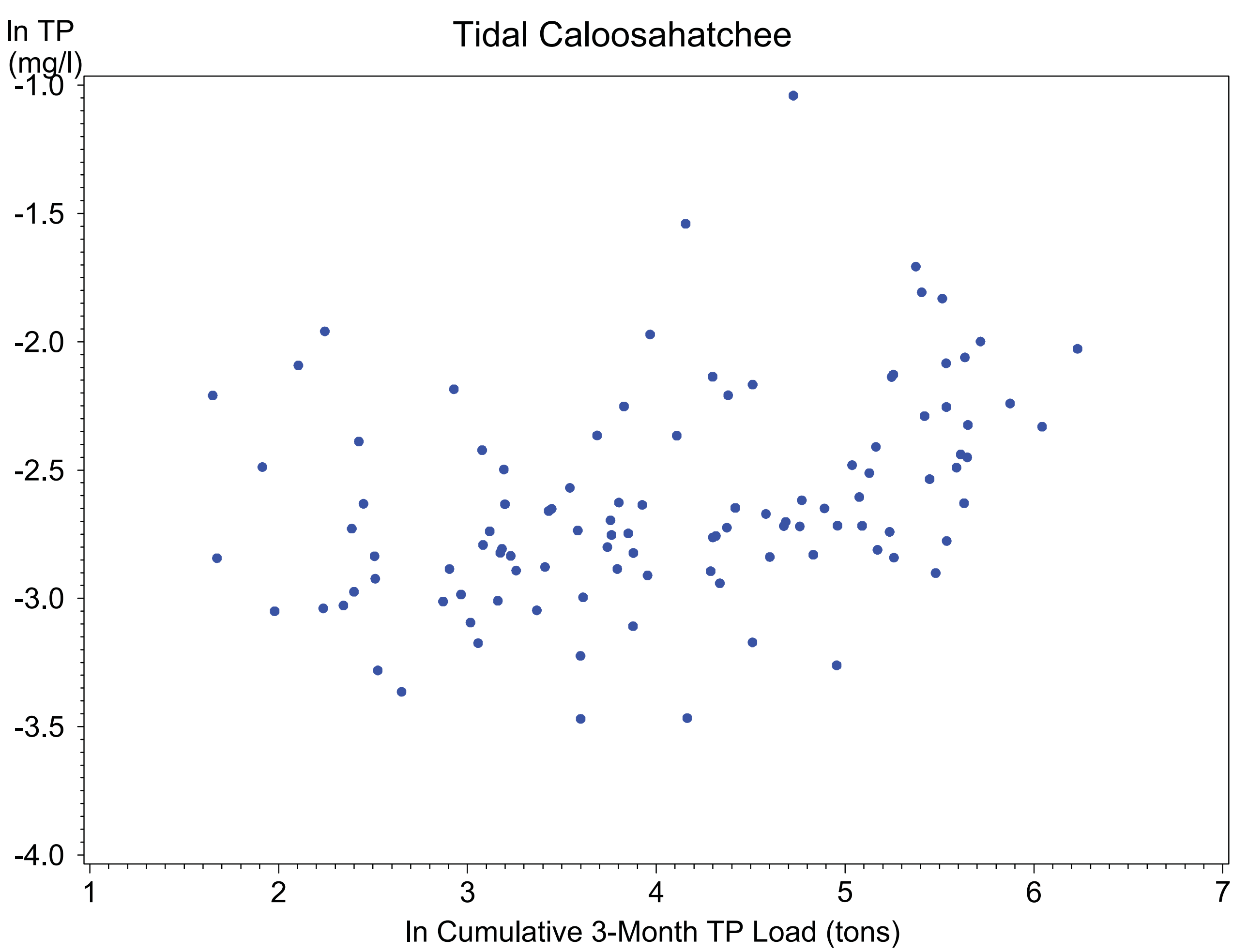

Tidal Caloosahatchee
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)


Tidal Caloosahatchee
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

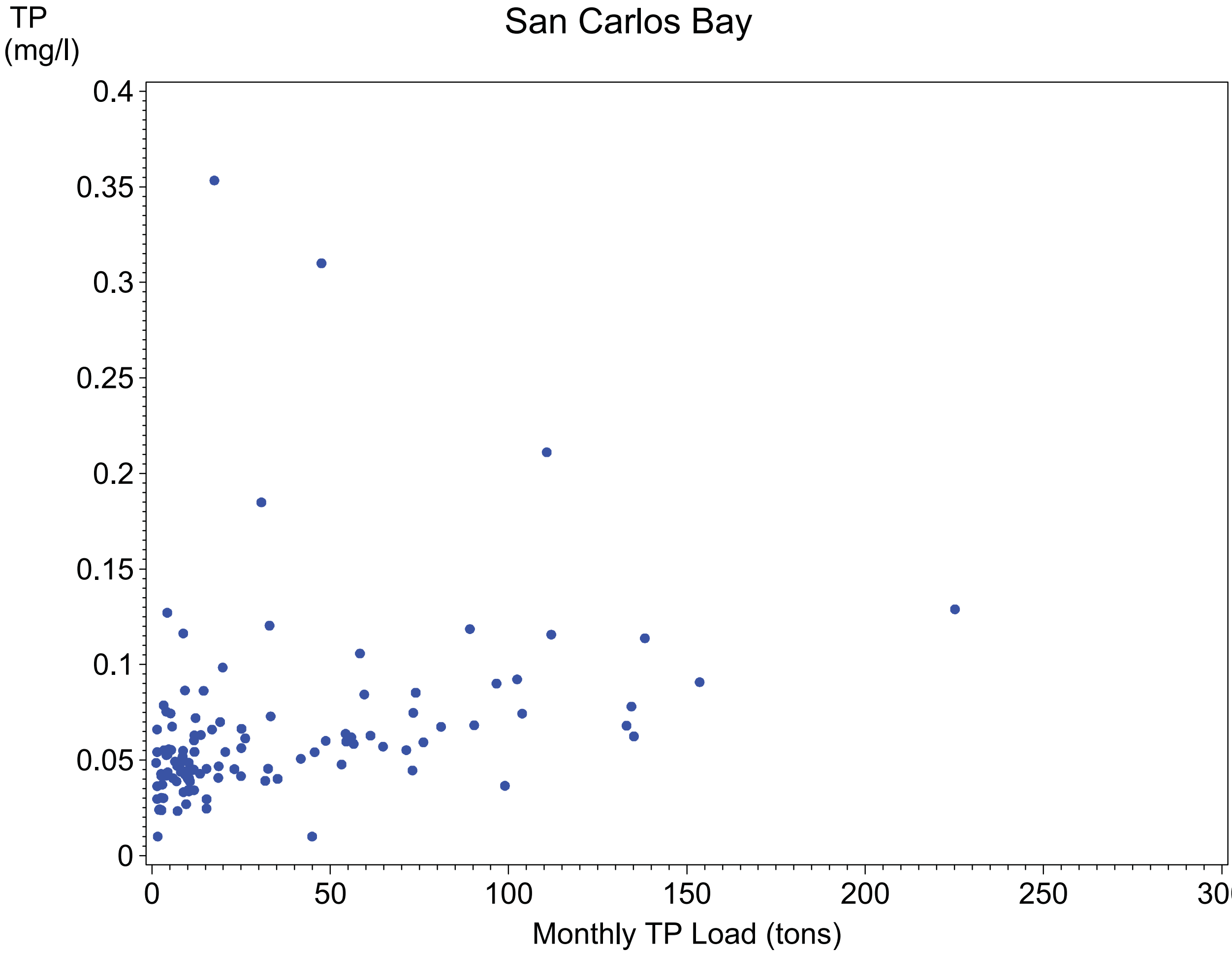

Tidal Caloosahatchee
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
1
2
3
4
5
6
ln Monthly TP Load (tons)

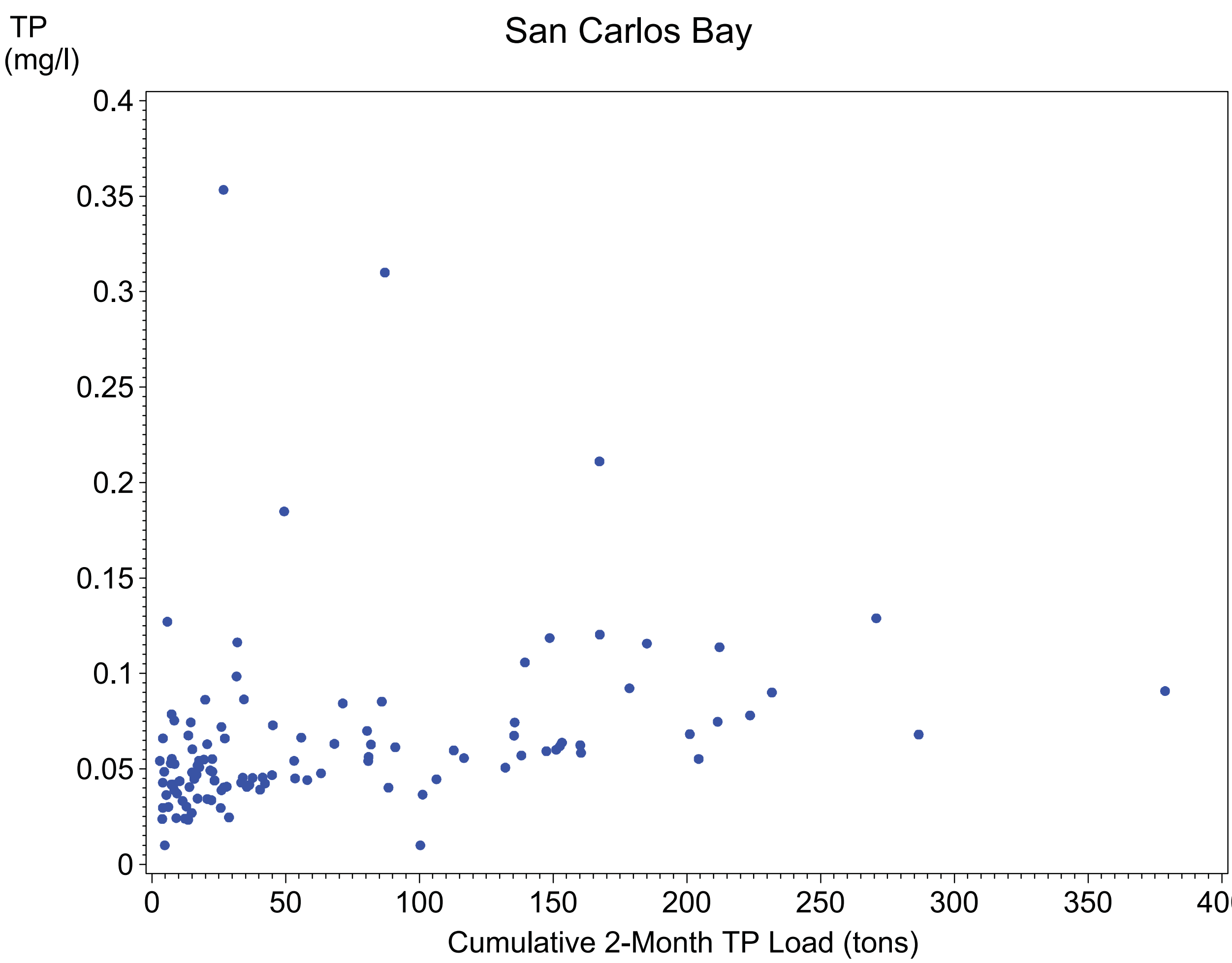


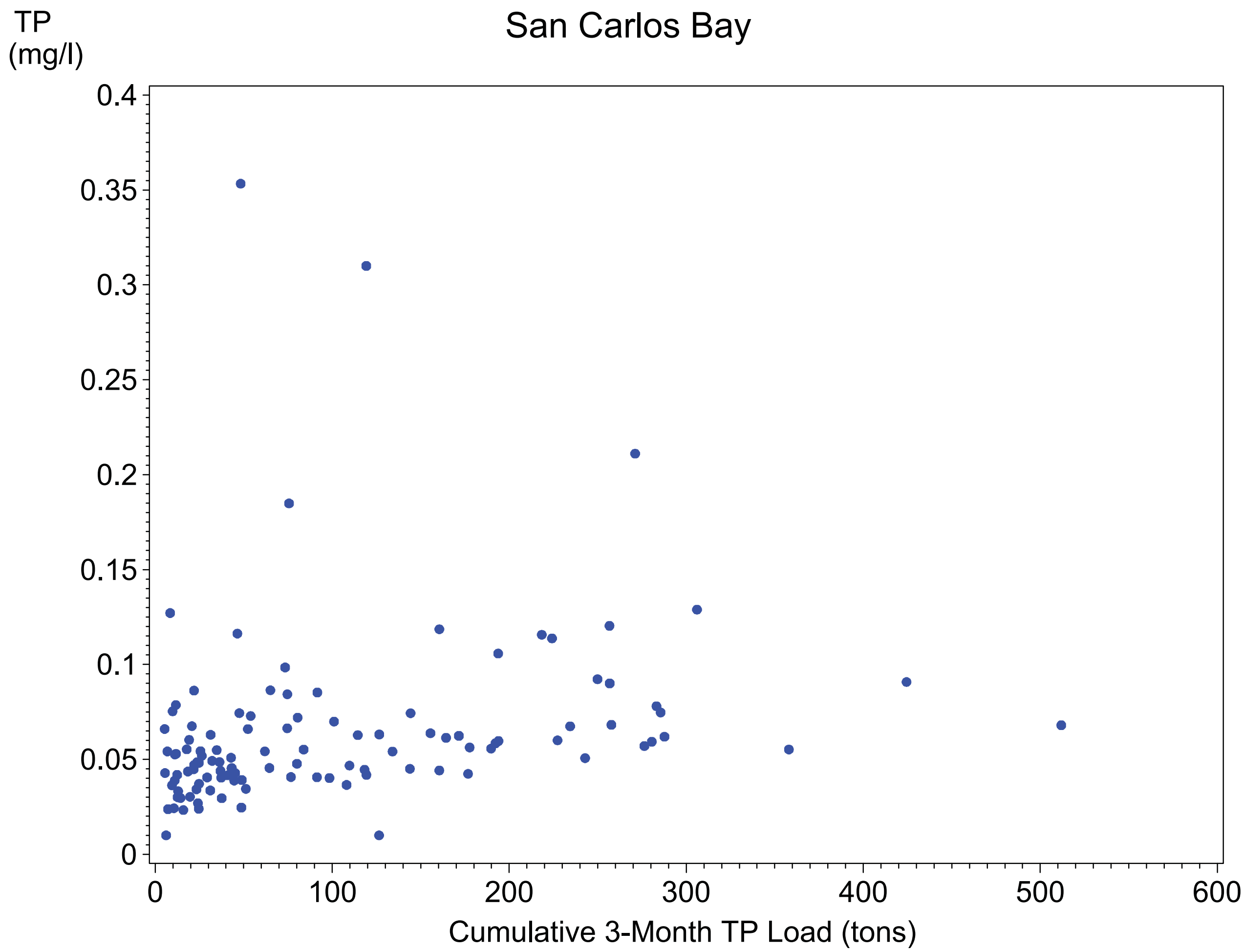
Tidal Caloosahatchee
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

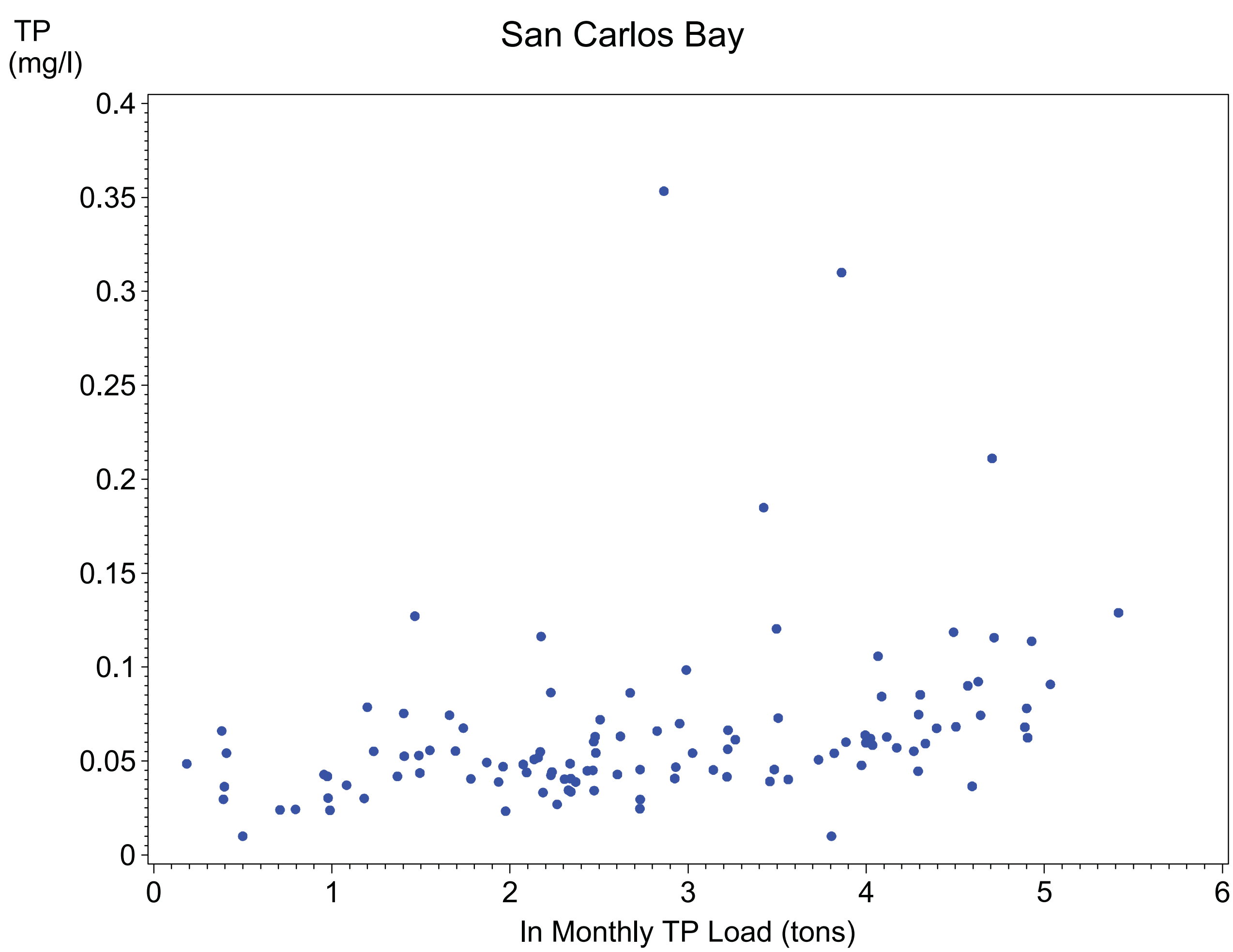


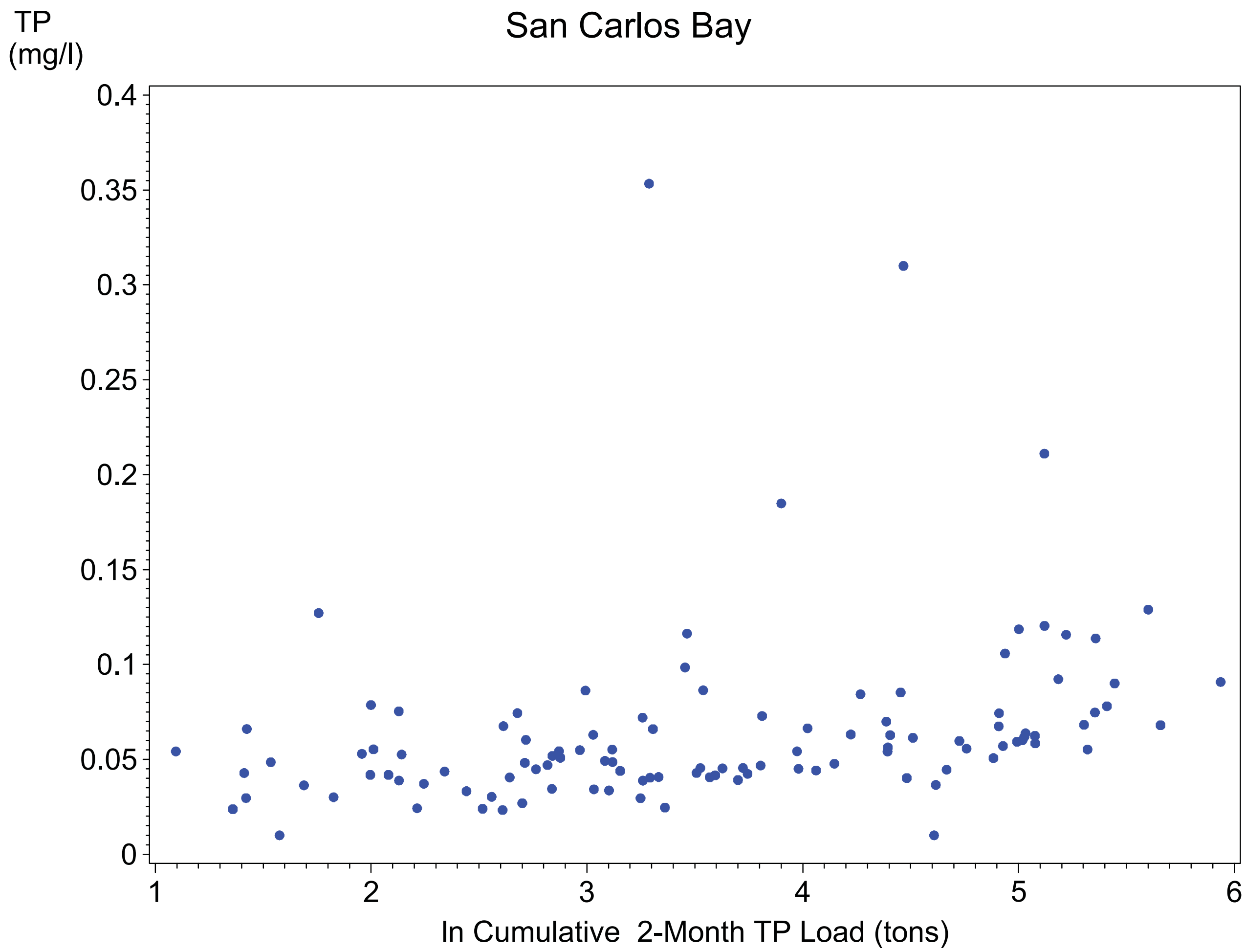
Tidal Caloosahatchee
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)

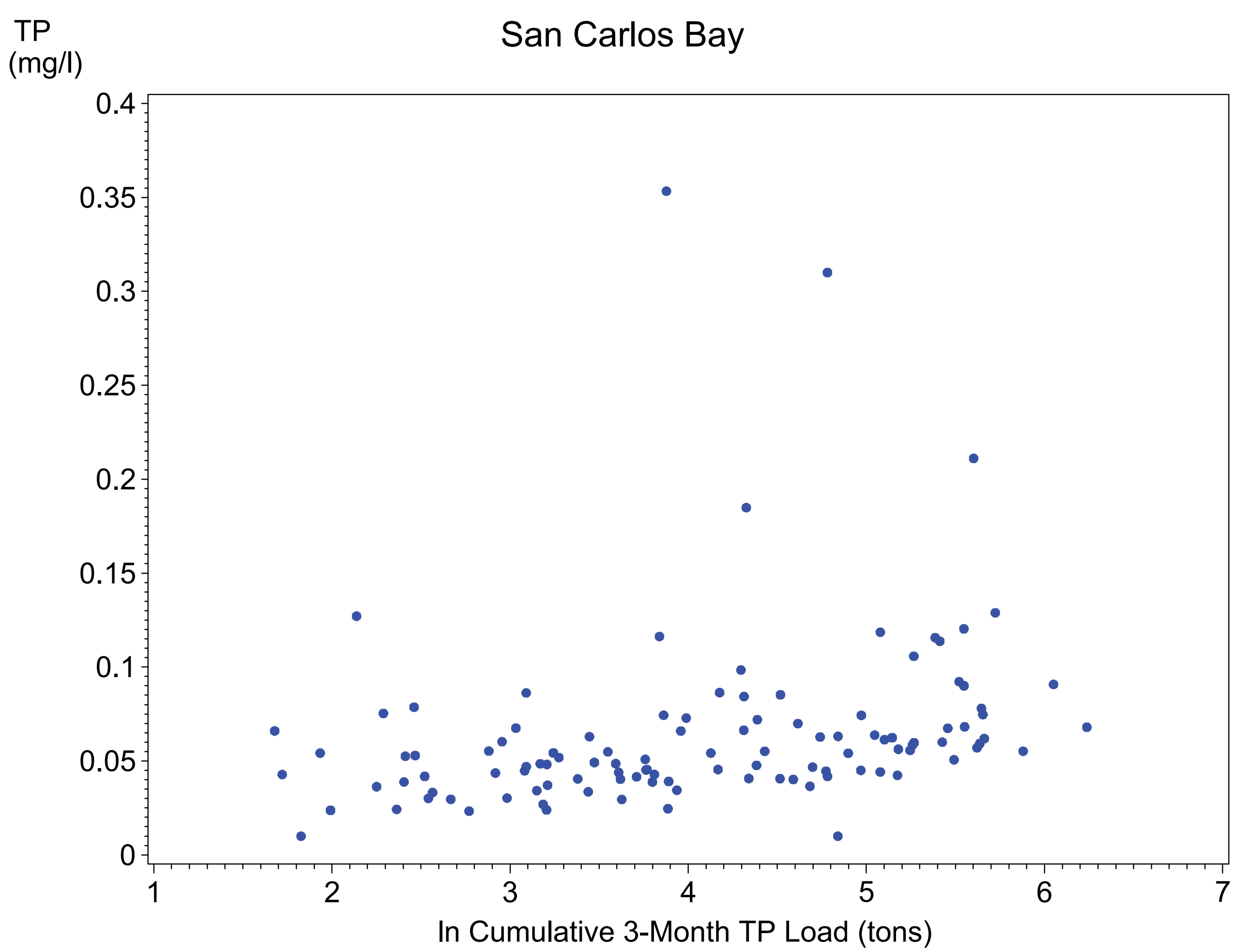

San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
50
100
150
200
250
300
Monthly TP Load (tons)

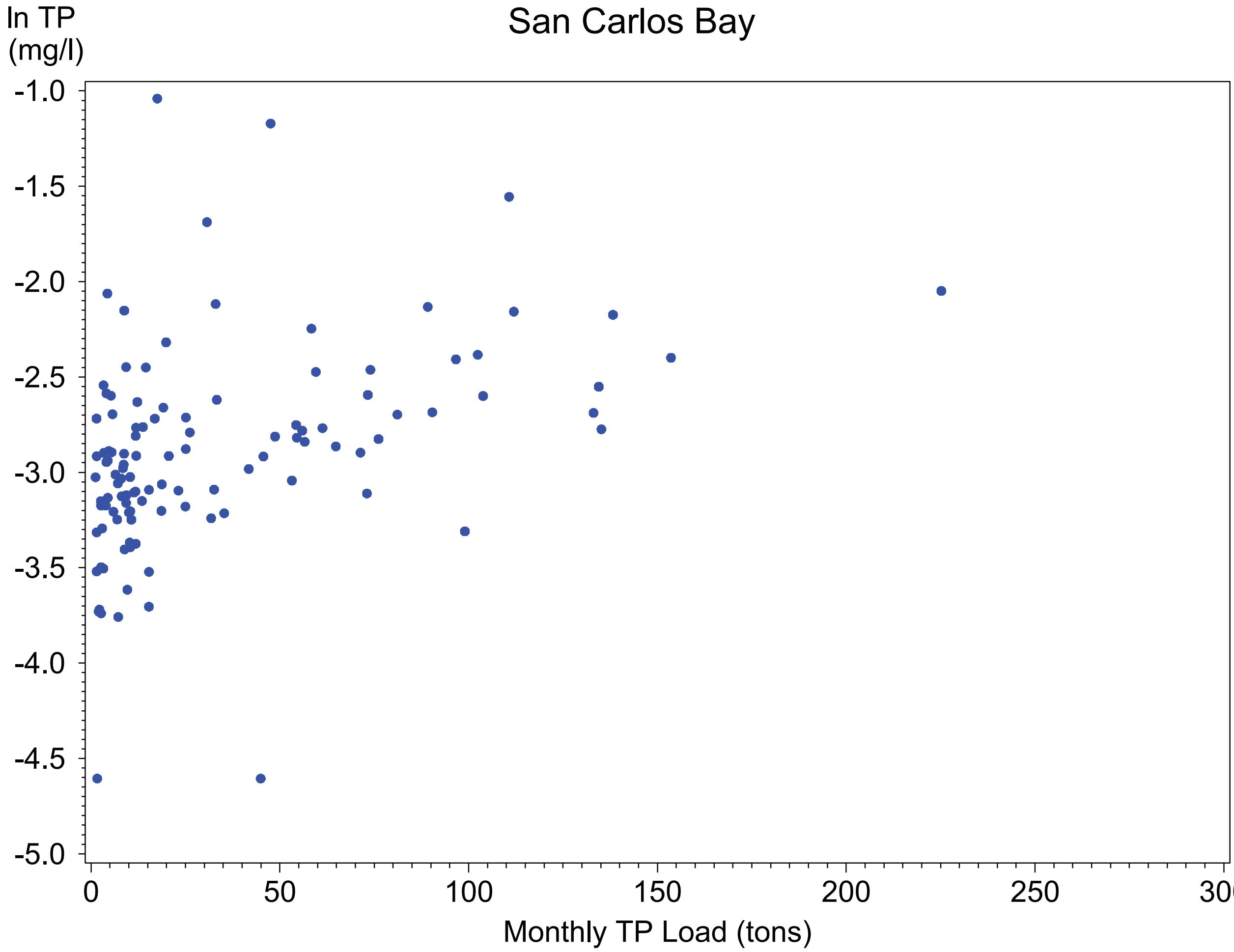

San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)


San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

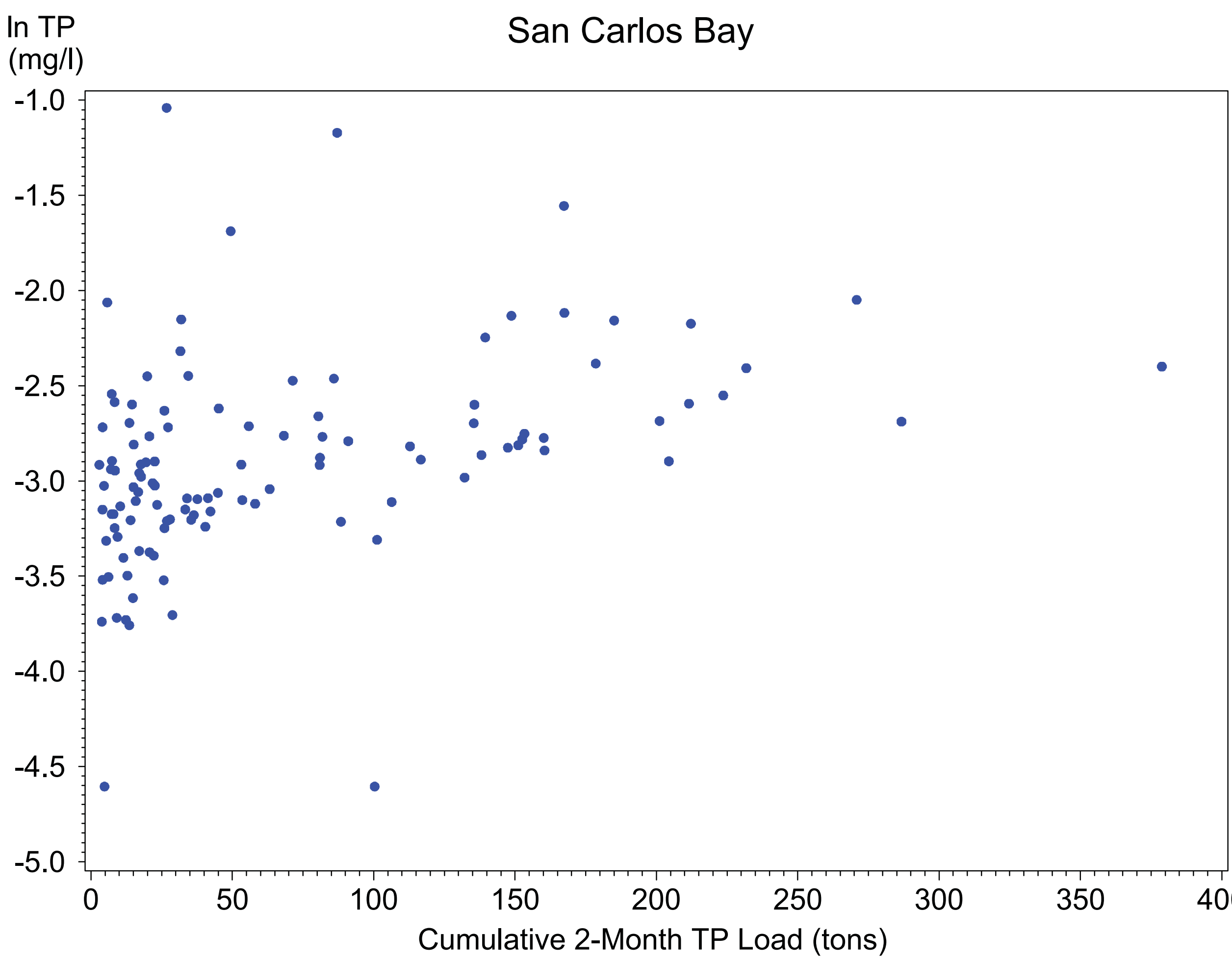

San Carlos Bay
TP
(mg/l)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
6
ln Monthly TP Load (tons)


TP
(mg/l)
San Carlos Bay
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

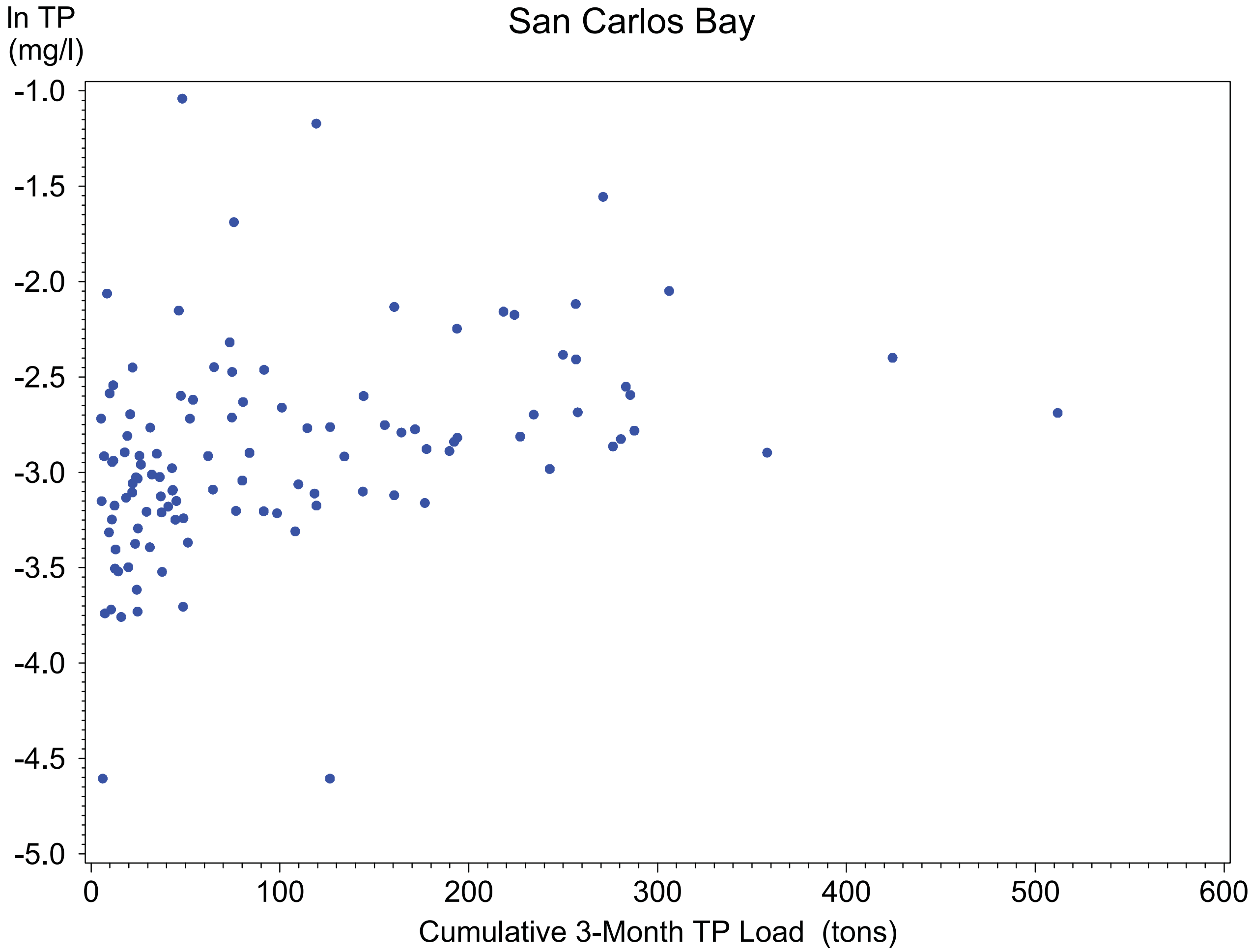

TP
(mg/l)
San Carlos Bay
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)

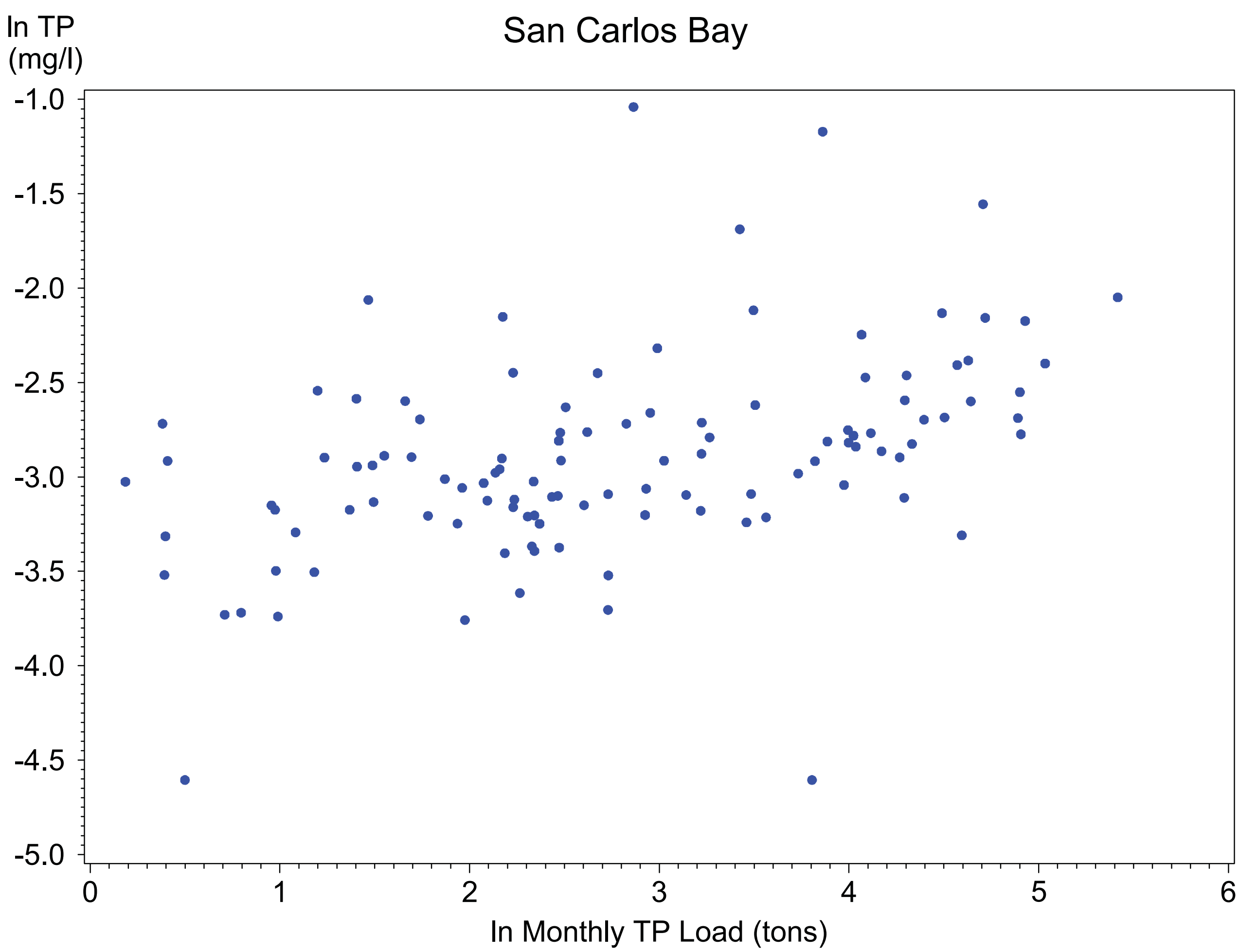


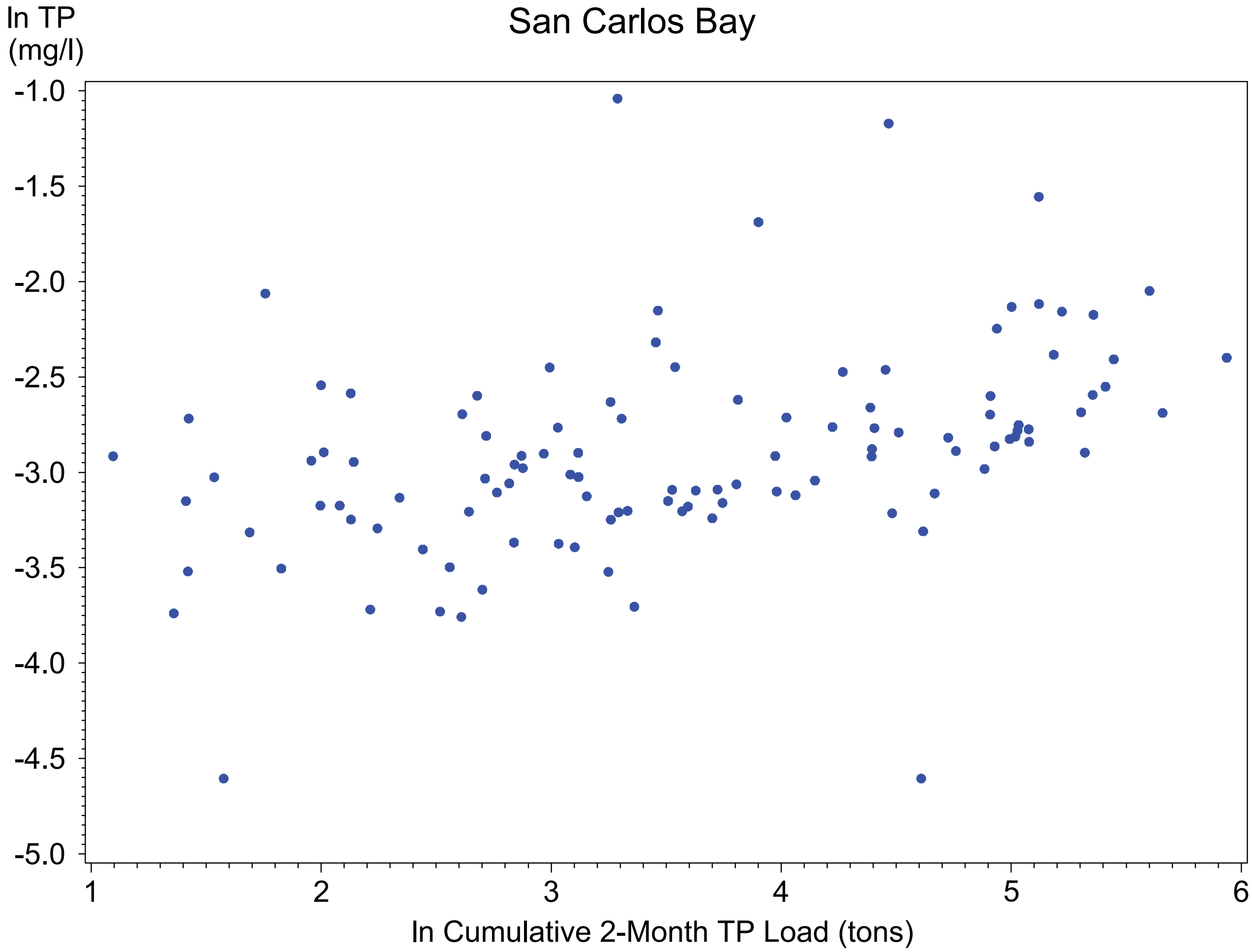
San Carlos Bay
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
50
100
150
200
250
300
Monthly TP Load (tons)

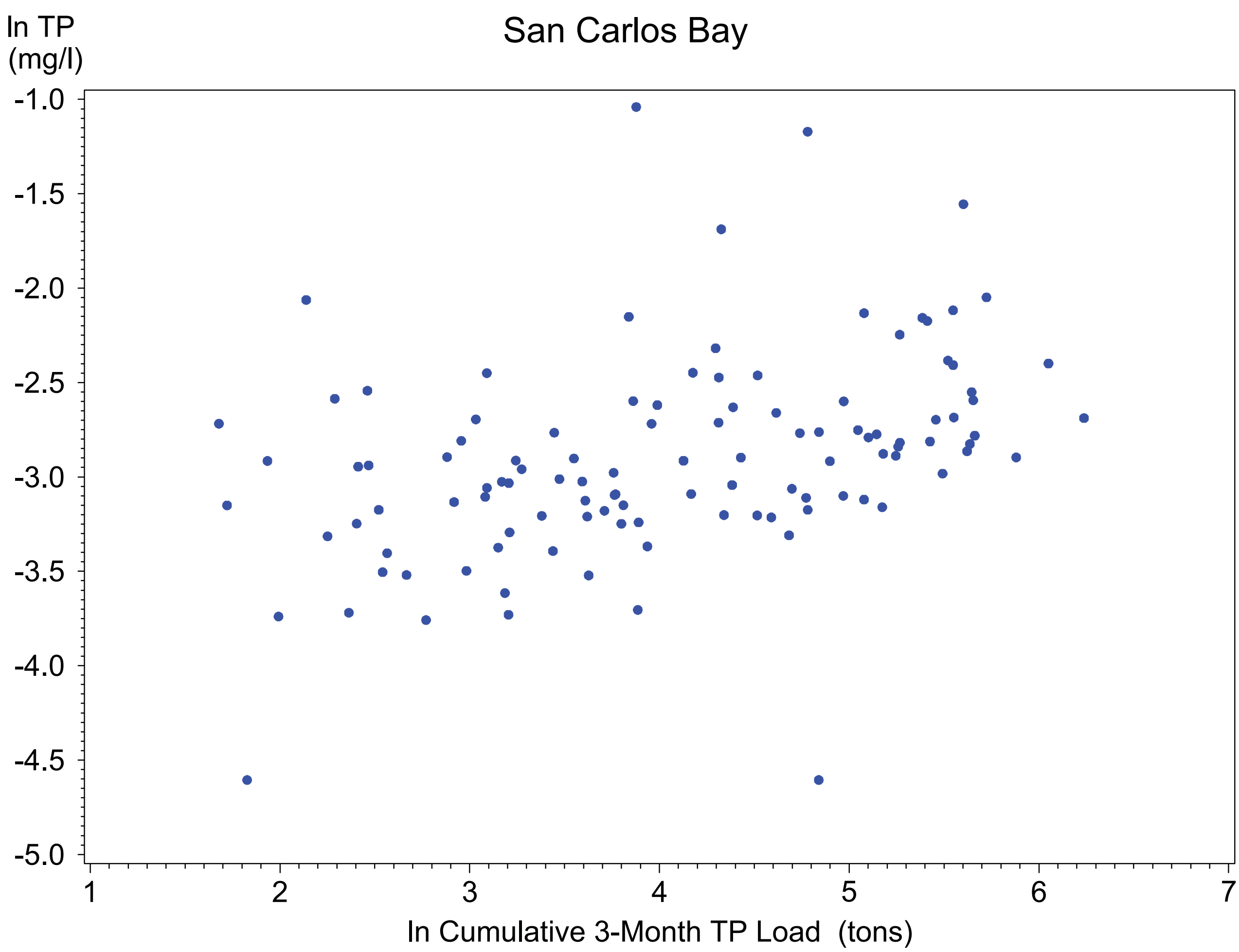


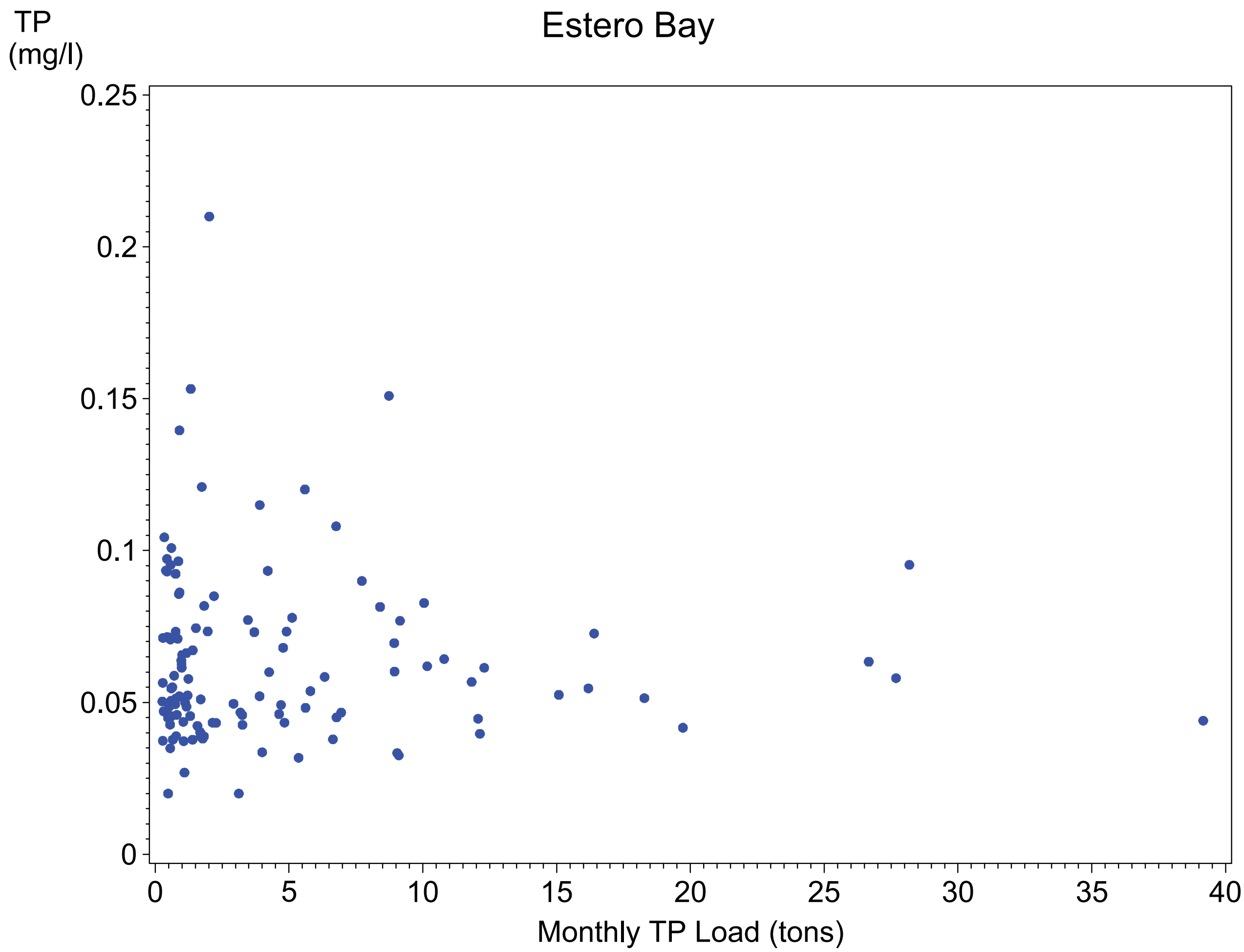
San Carlos Bay
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)

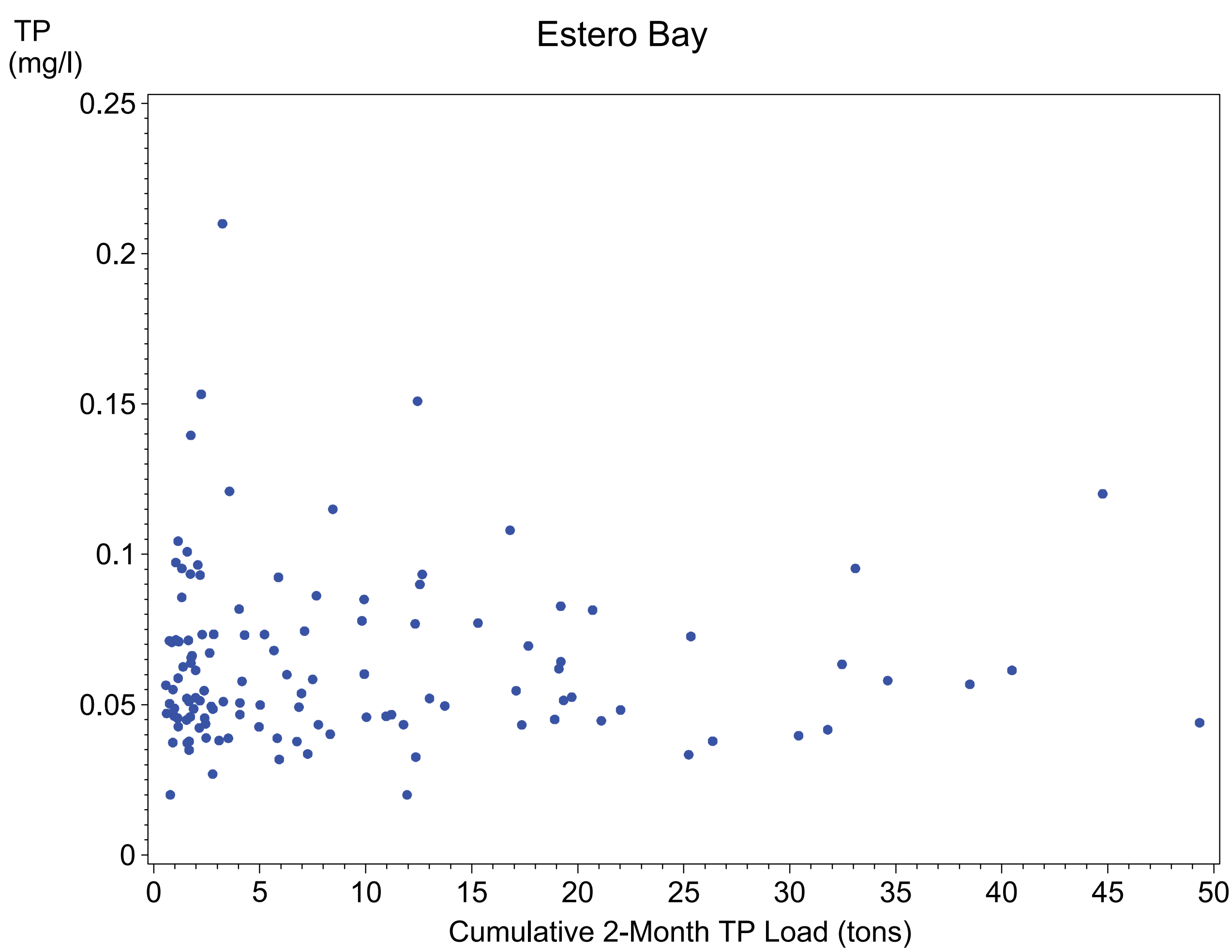

San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

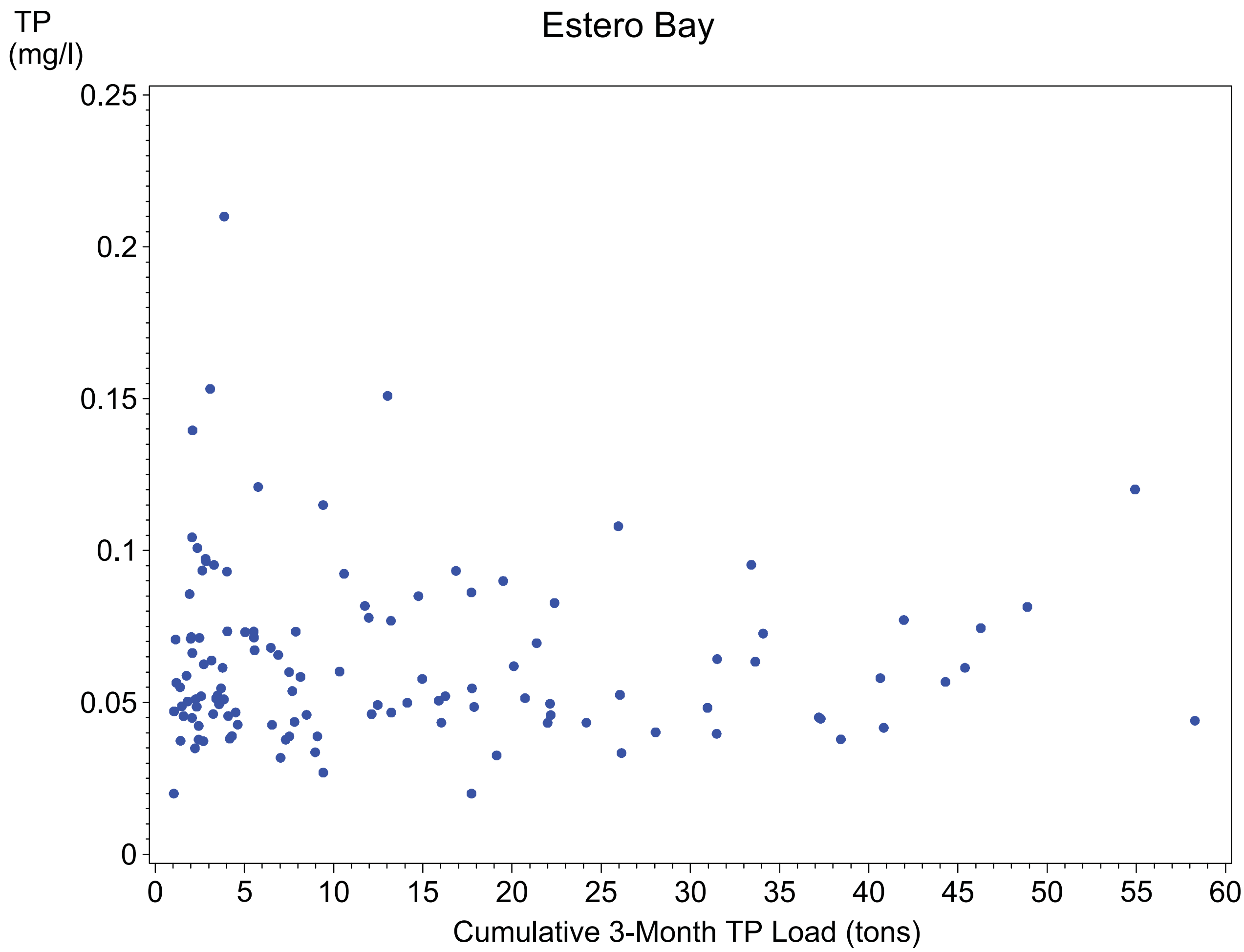

San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
0
1
2
3
4
5
6
ln Monthly TP Load (tons)


San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

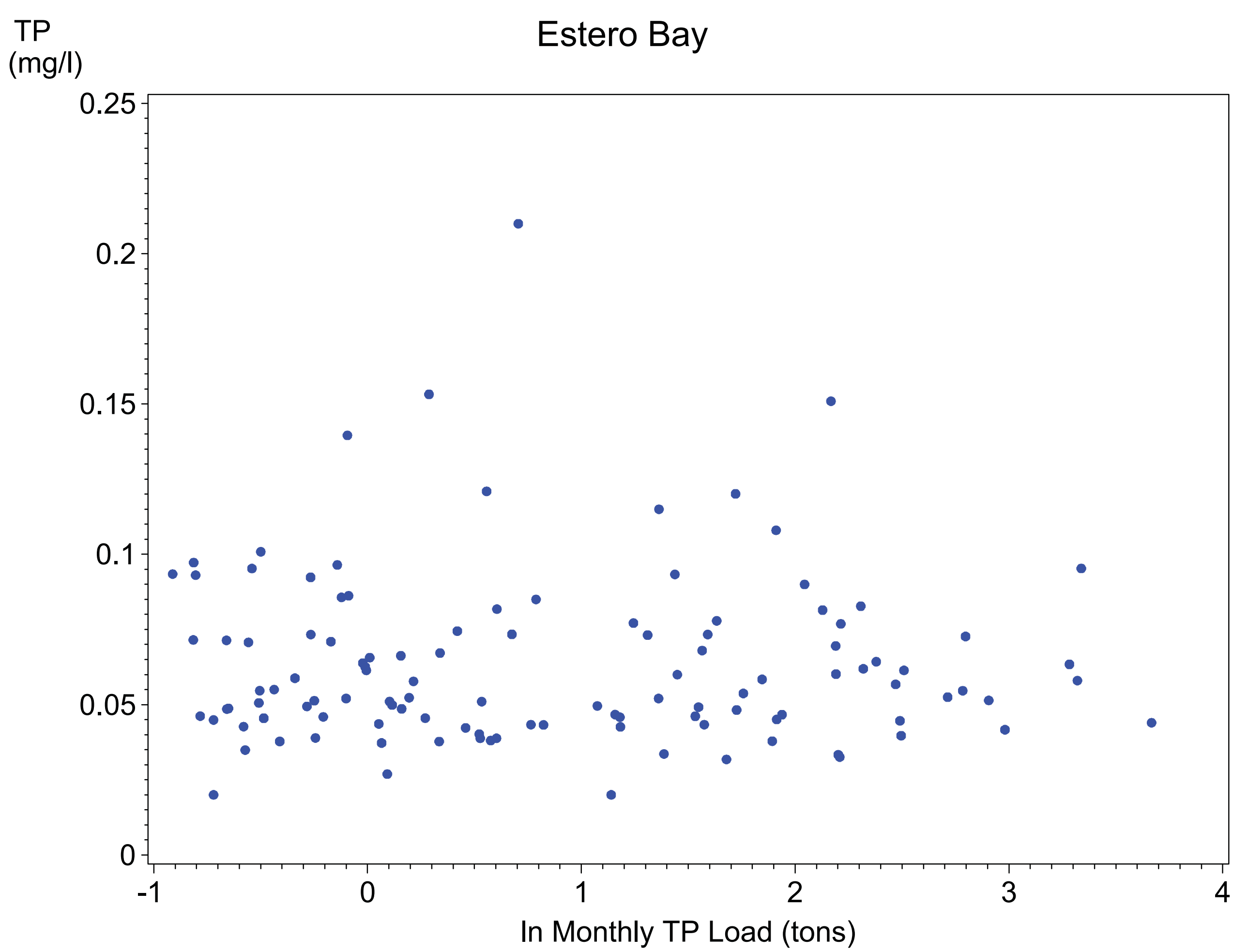

San Carlos Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)


Estero Bay
TP
(mg/l)
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
25
30
35
40
Monthly TP Load (tons)

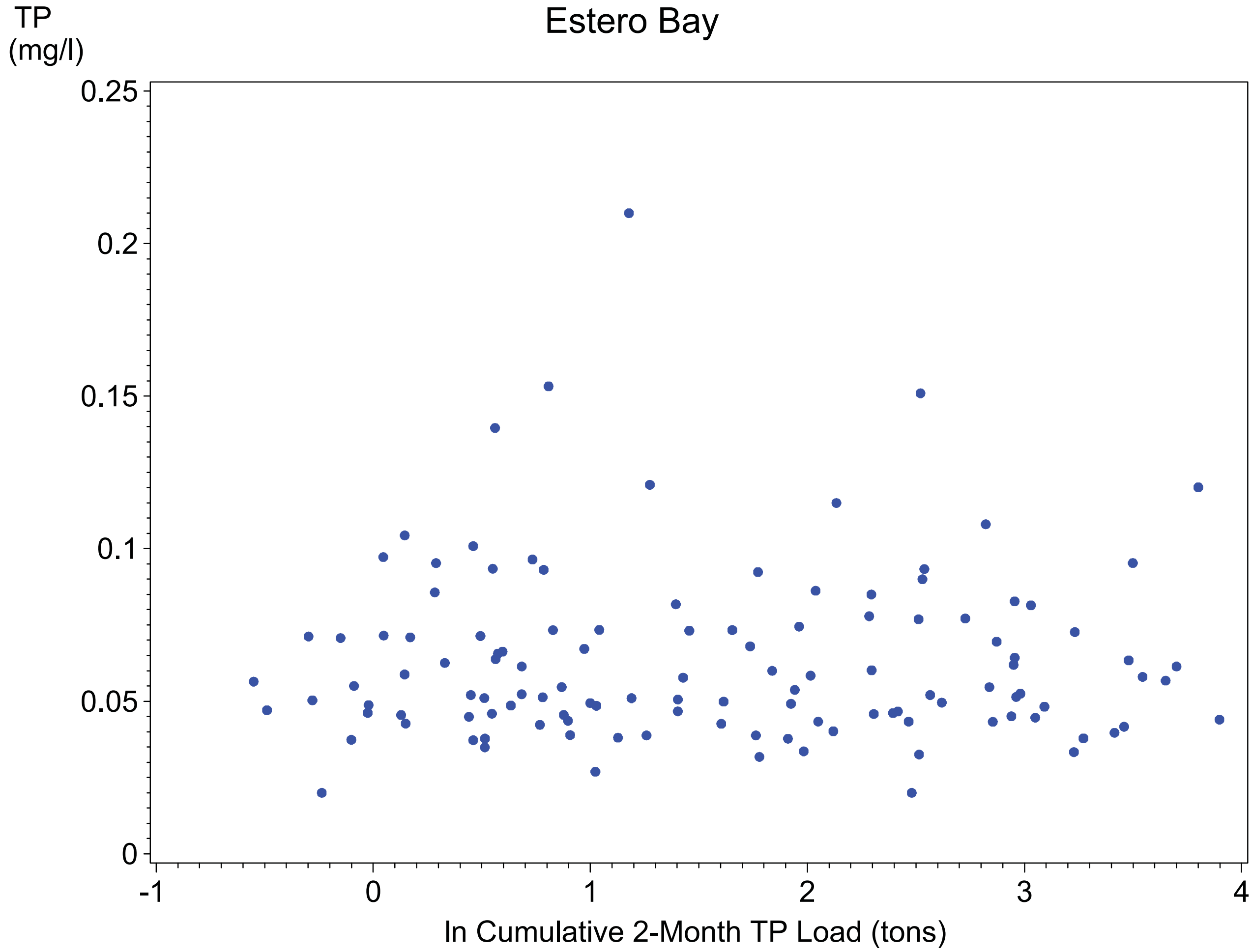

Estero Bay
TP
(mg/l)
0.25
0.2
0.15
0.1
0.05
0
0
5
10
15
20
25
30
35
40
45
50
Cumulative 2-Month TP Load (tons)

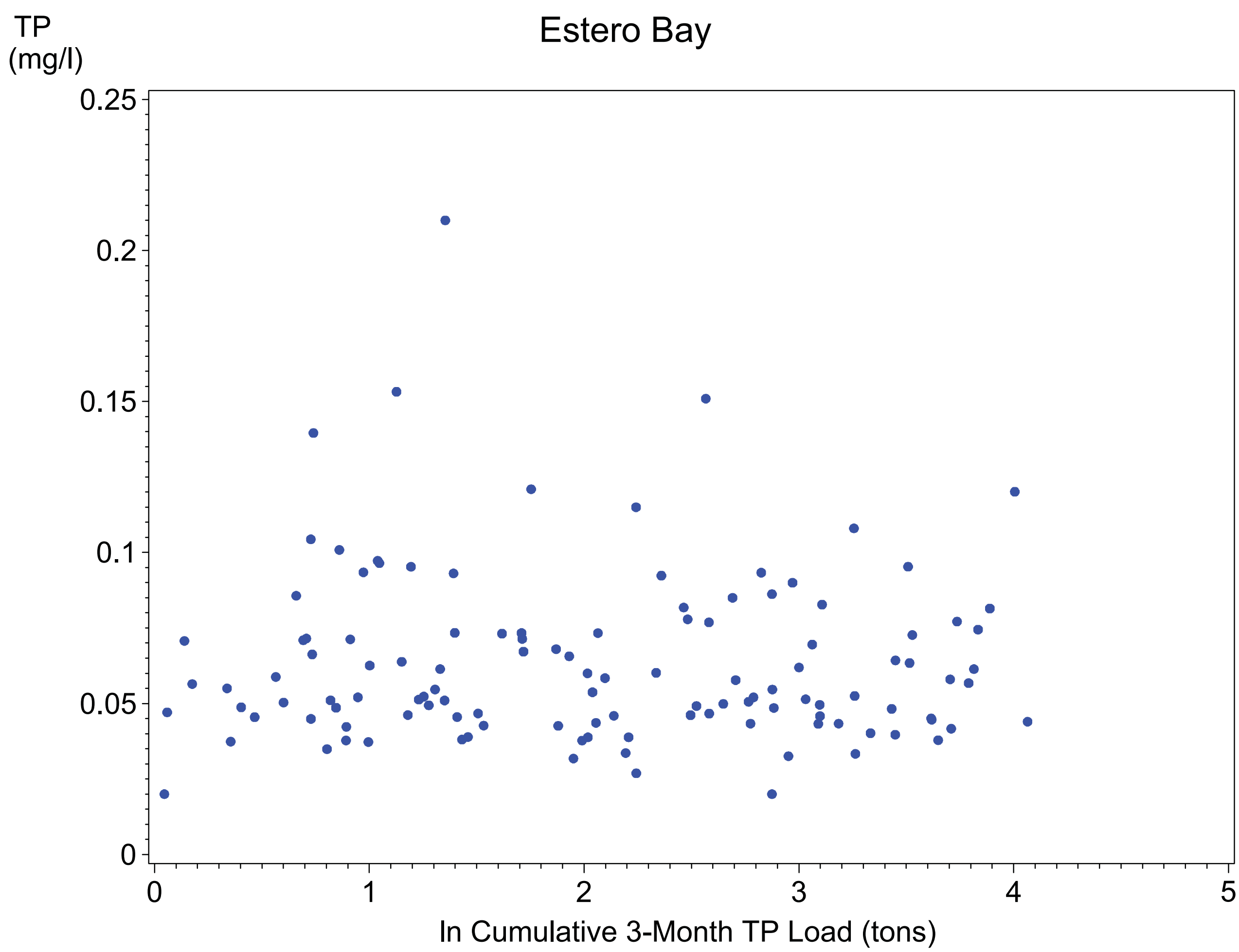


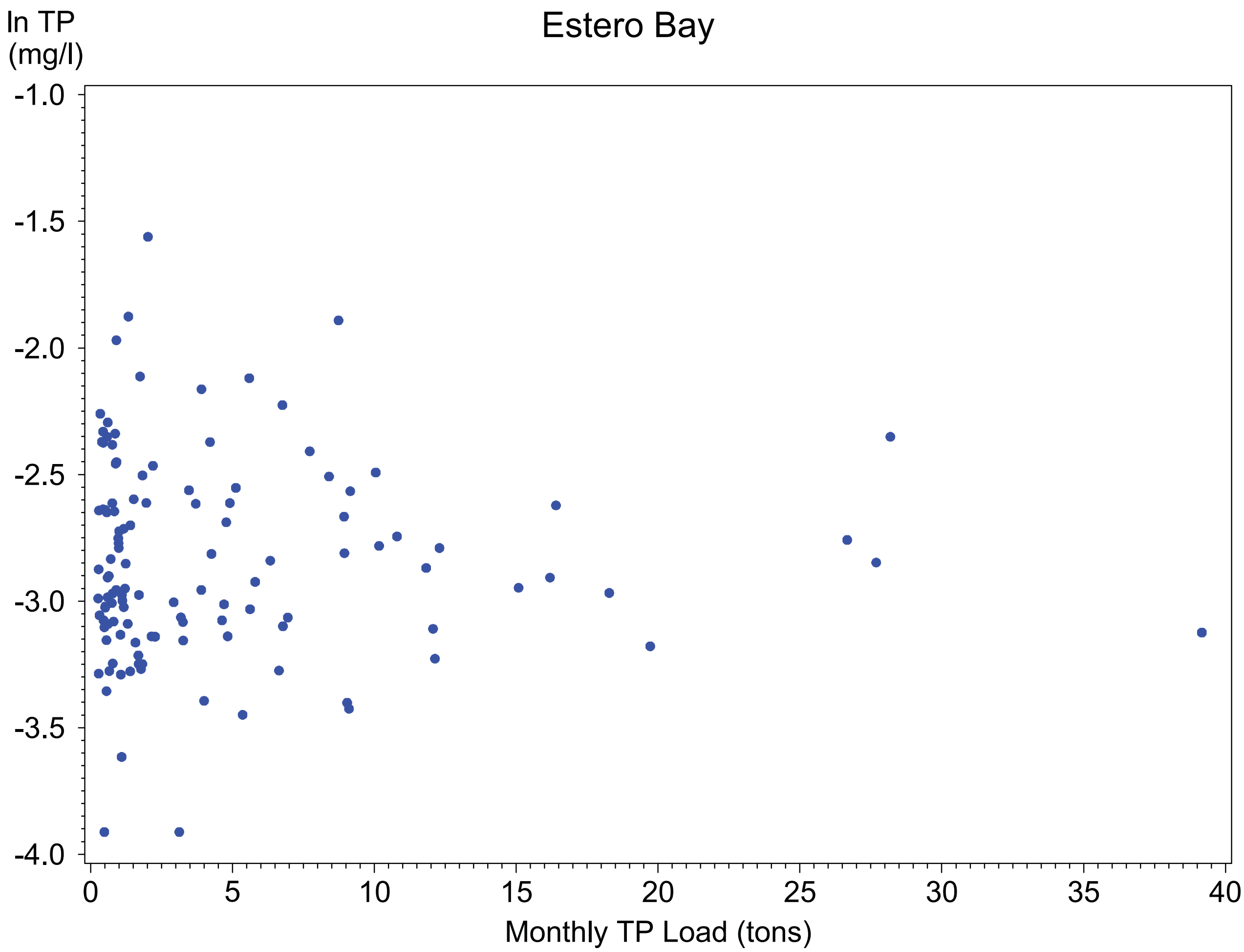
TP
(mg/l)
Estero Bay
0.25
0.2
0.15
0.1
0.05
0
0 5 10 15 20 25 30 35 40 45 50 55 60
Cumulative 3-Month TP Load (tons)

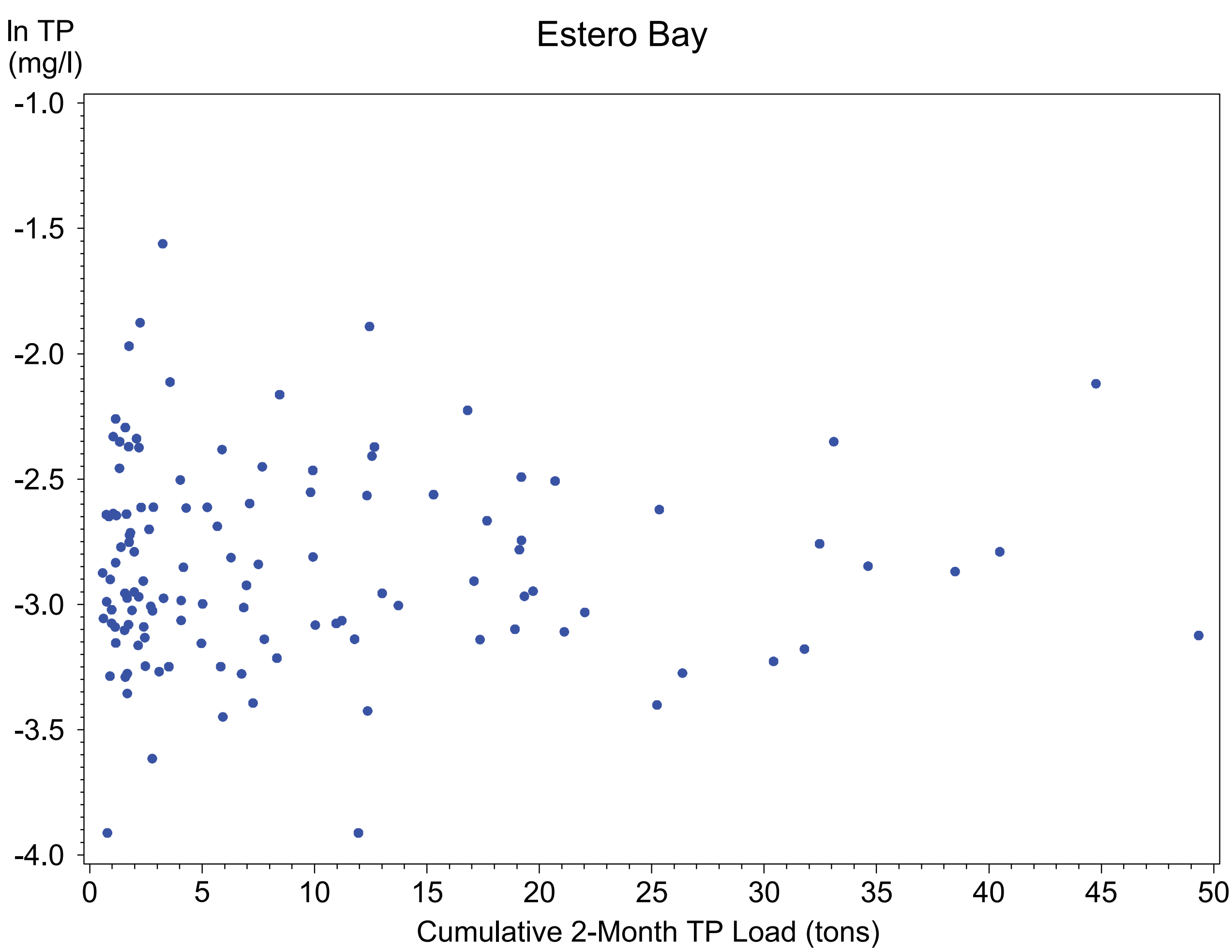


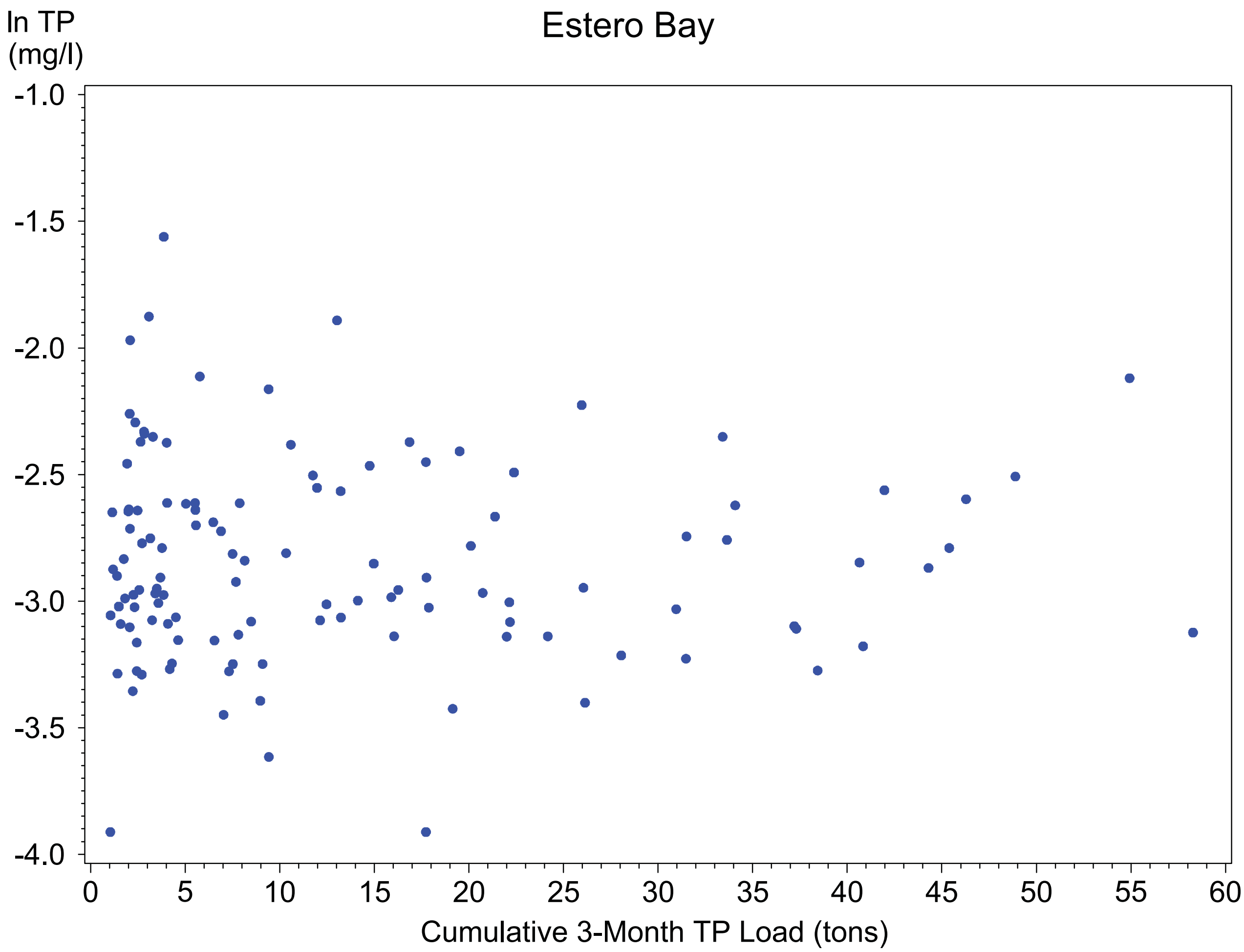
TP
(mg/l)
Estero Bay
0.25
0.2
0.15
0.1
0.05
0
-1 0 1 2 3 4
ln Monthly TP Load (tons)

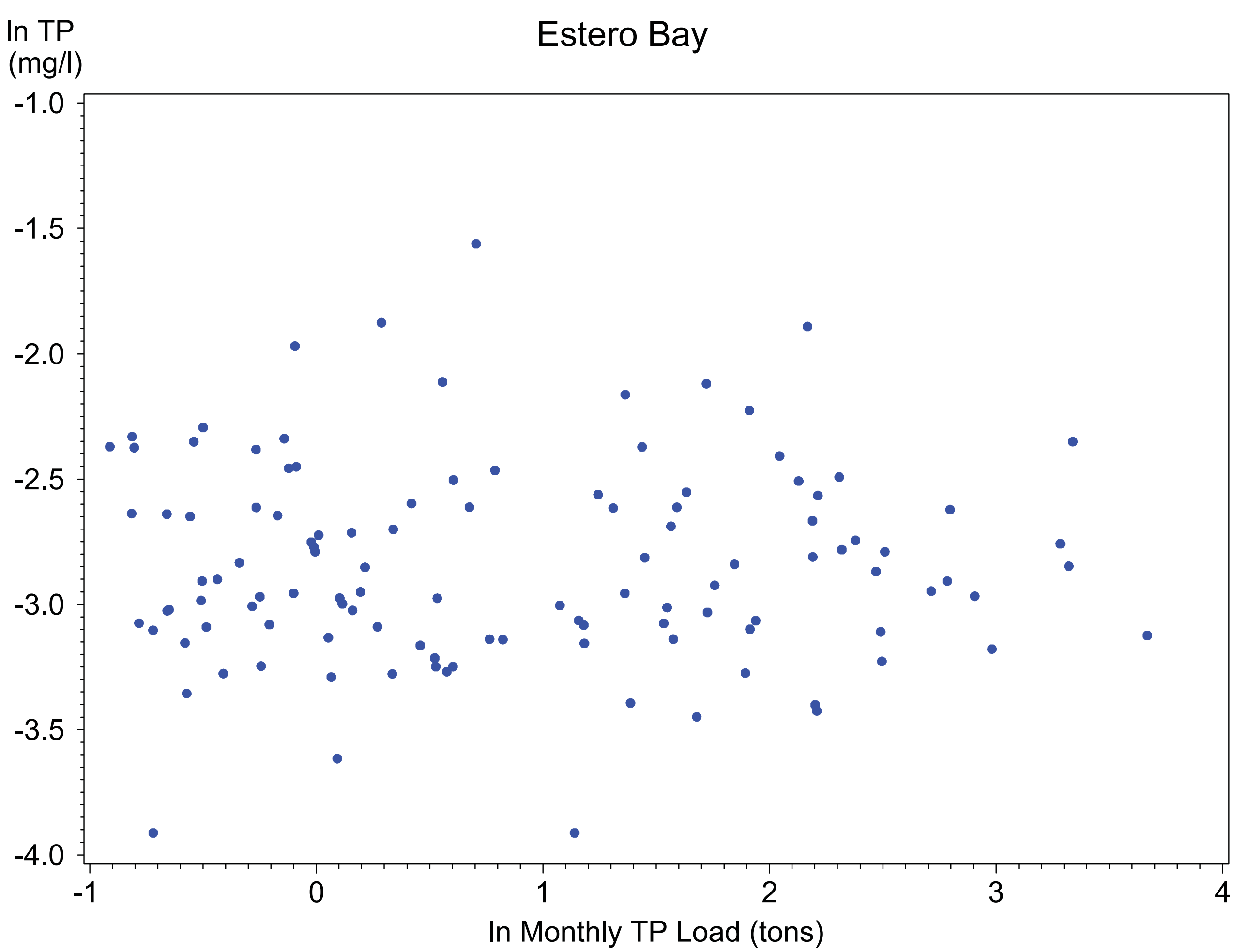

Estero Bay
TP
(mg/l)
0.25
0.2
0.15
0.1
0.05
0
-1
0
1
2
3
4
ln Cumulative 2-Month TP Load (tons)

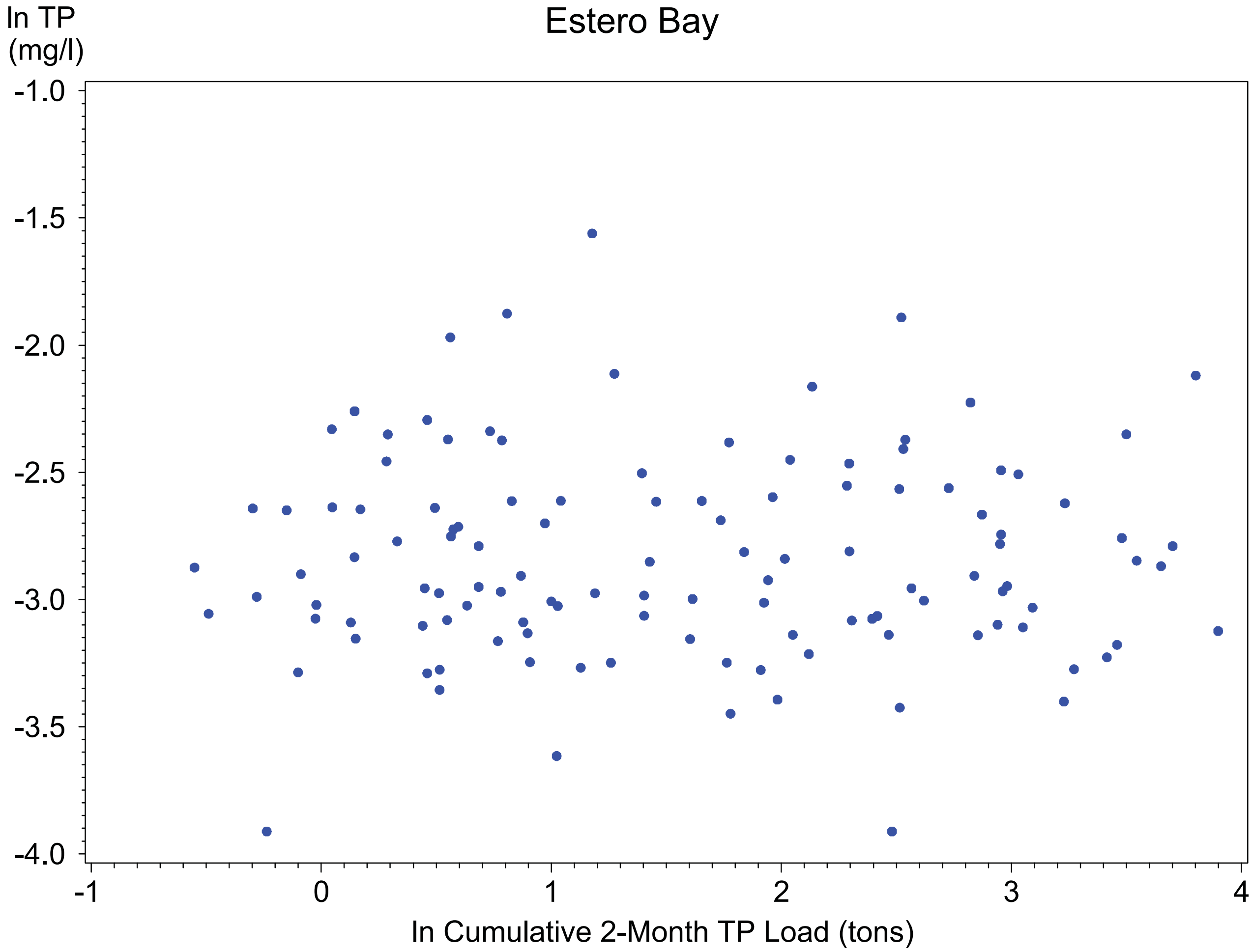

Estero Bay
TP
(mg/l)
0.25
0.2
0.15
0.1
0.05
0
0
1
2
3
4
5
ln Cumulative 3-Month TP Load (tons)


Estero Bay
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
5
10
15
20
25
30
35
40
Monthly TP Load (tons)

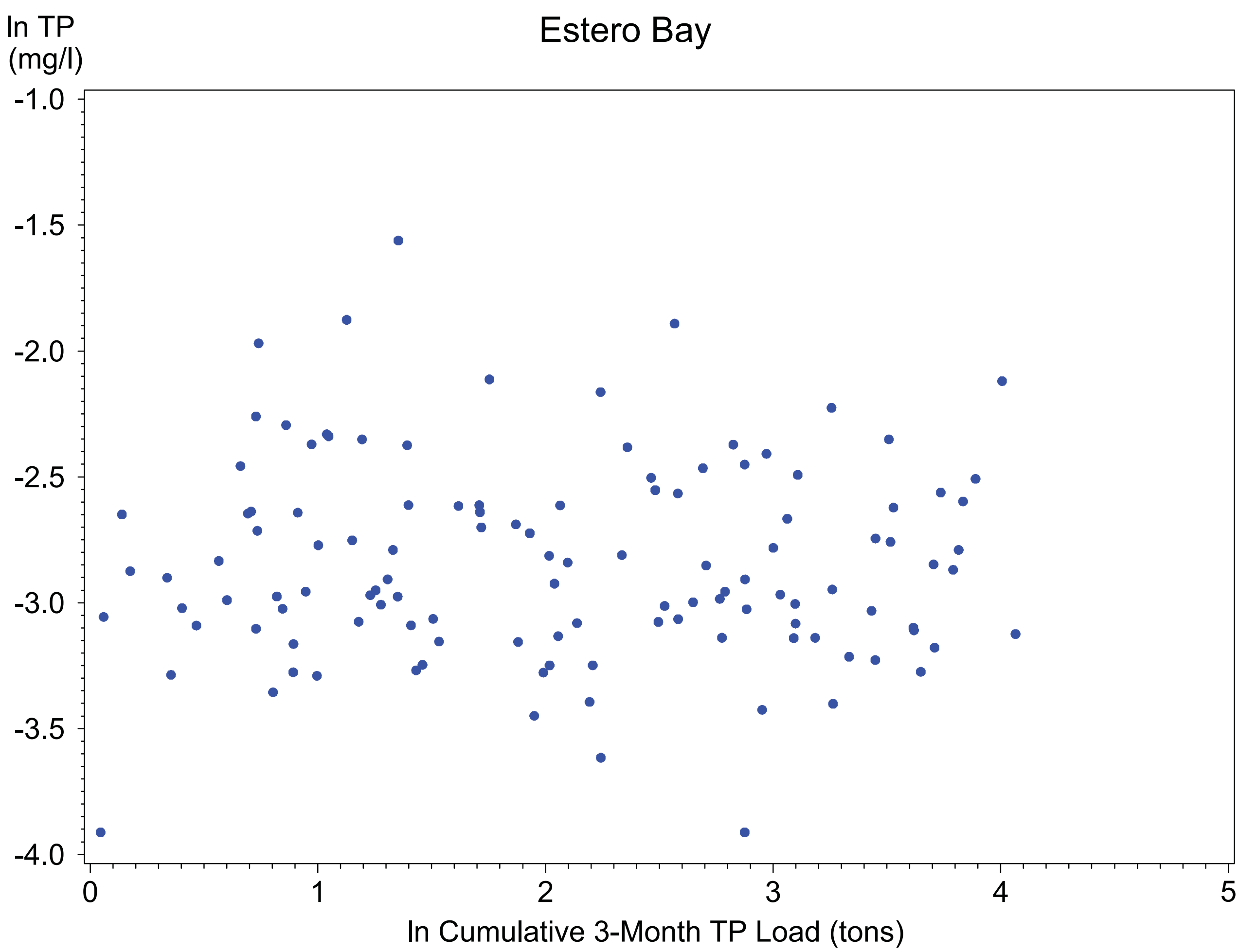

Estero Bay
ln TP (mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
5
10
15
20
25
30
35
40
45
50
Cumulative 2-Month TP Load (tons)


Estero Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
5
10
15
20
25
30
35
40
45
50
55
60
Cumulative 3-Month TP Load (tons)


Estero Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-1
0
1
2
3
4
ln Monthly TP Load (tons)

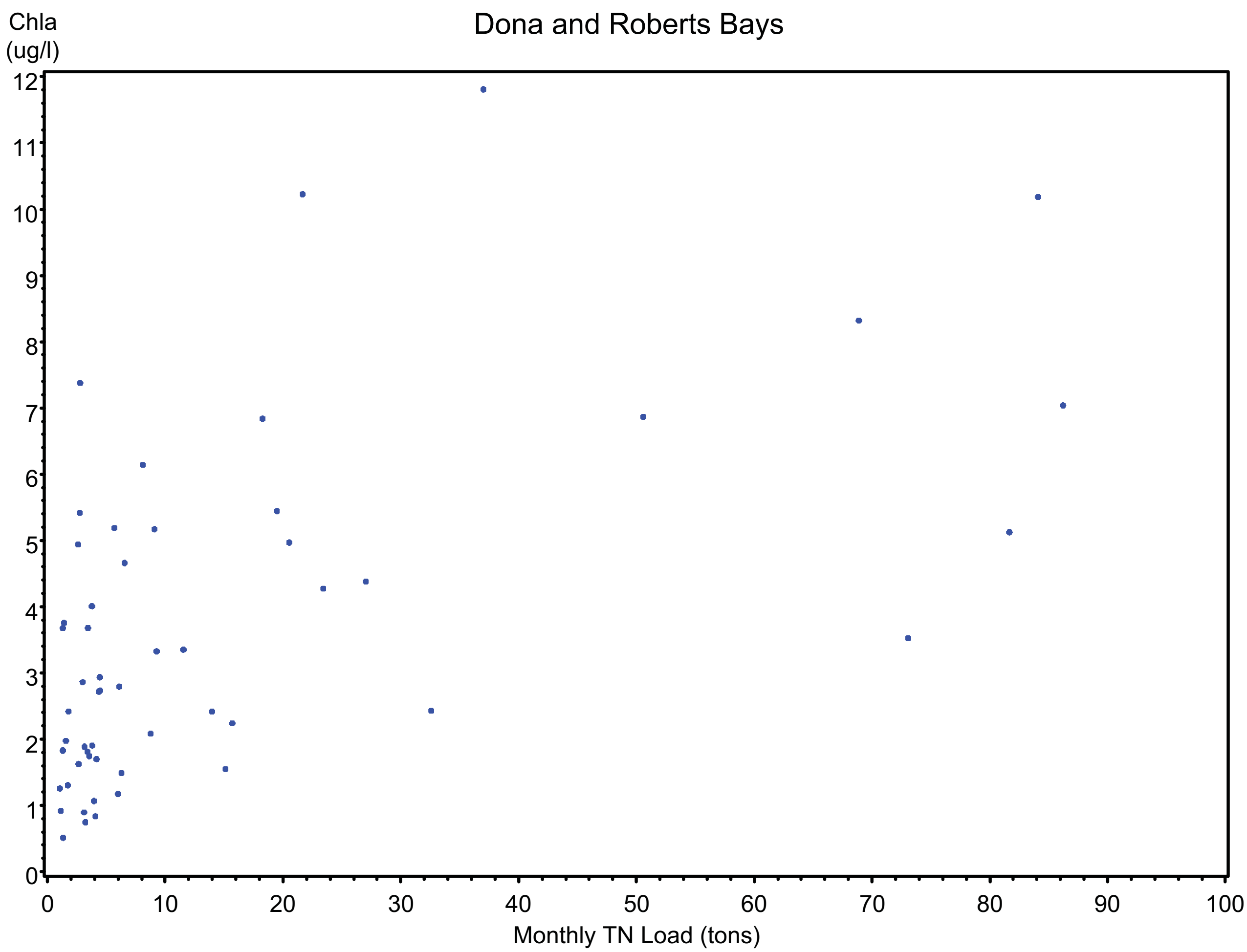


Estero Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-1
0
1
2
3
4
ln Cumulative 2-Month TP Load (tons)

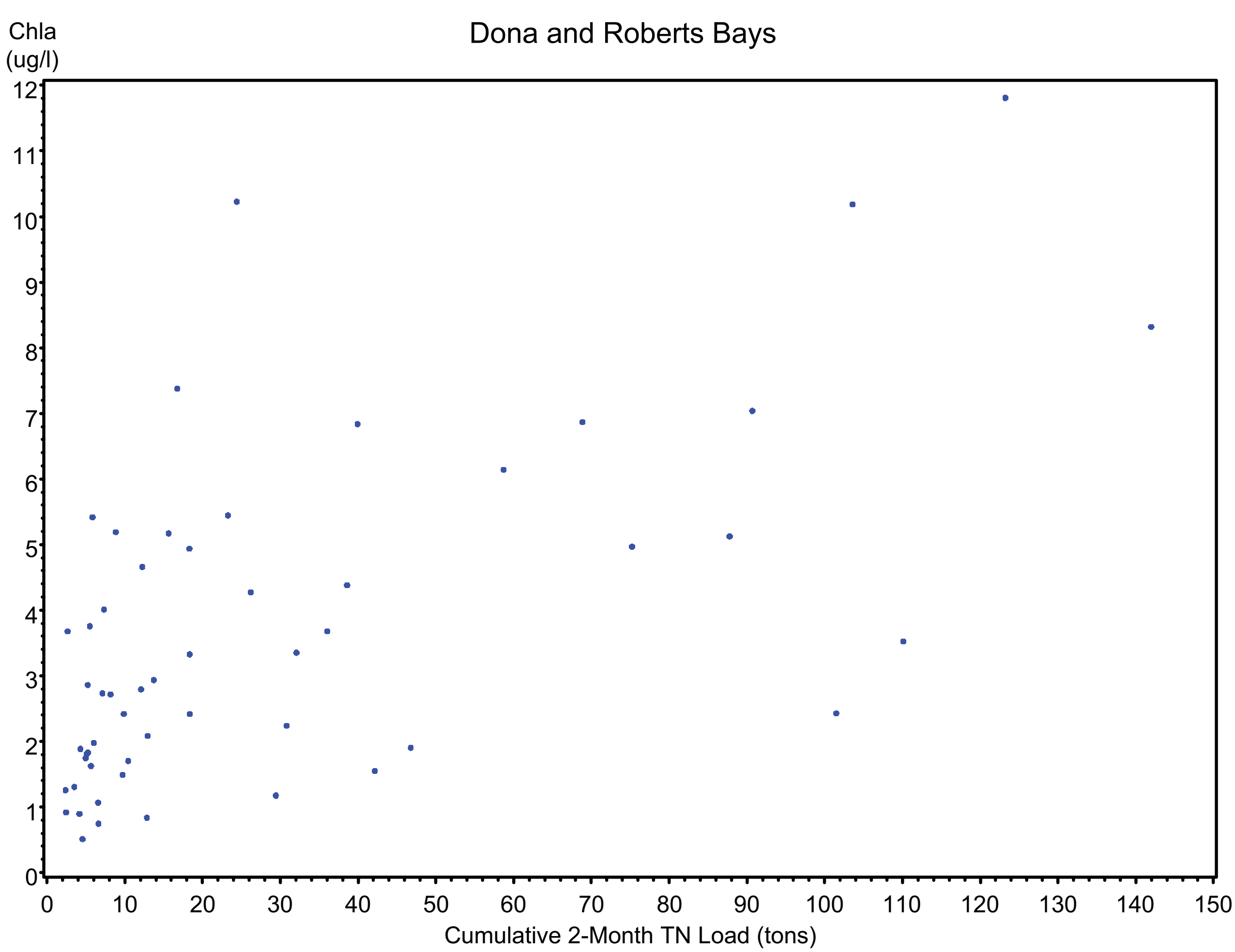


Estero Bay
ln TP
(mg/l)
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
0
1
2
3
4
5
ln Cumulative 3-Month TP Load (tons)

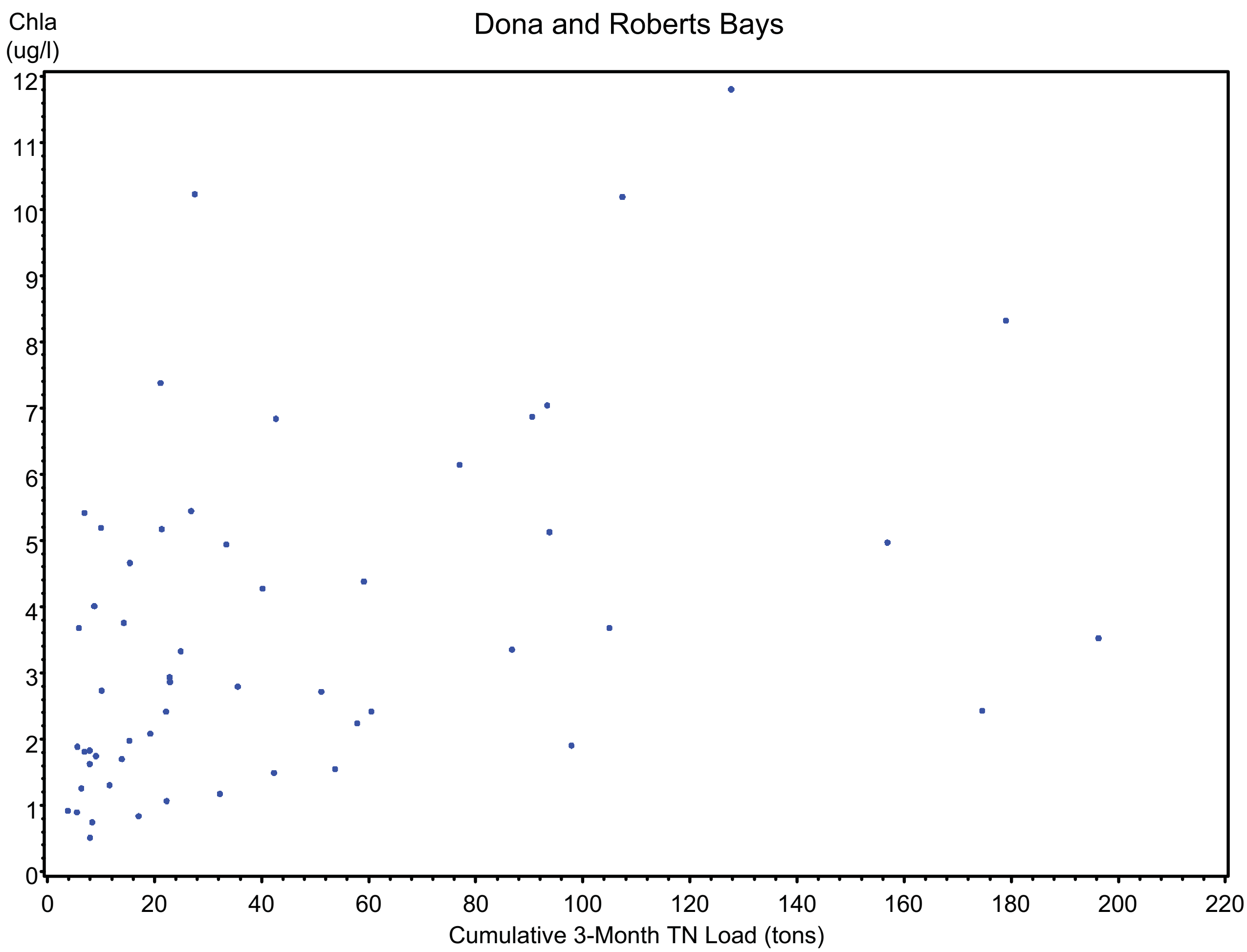
Attachment 5
Chlorophyll *a* concentration as a function of TN load

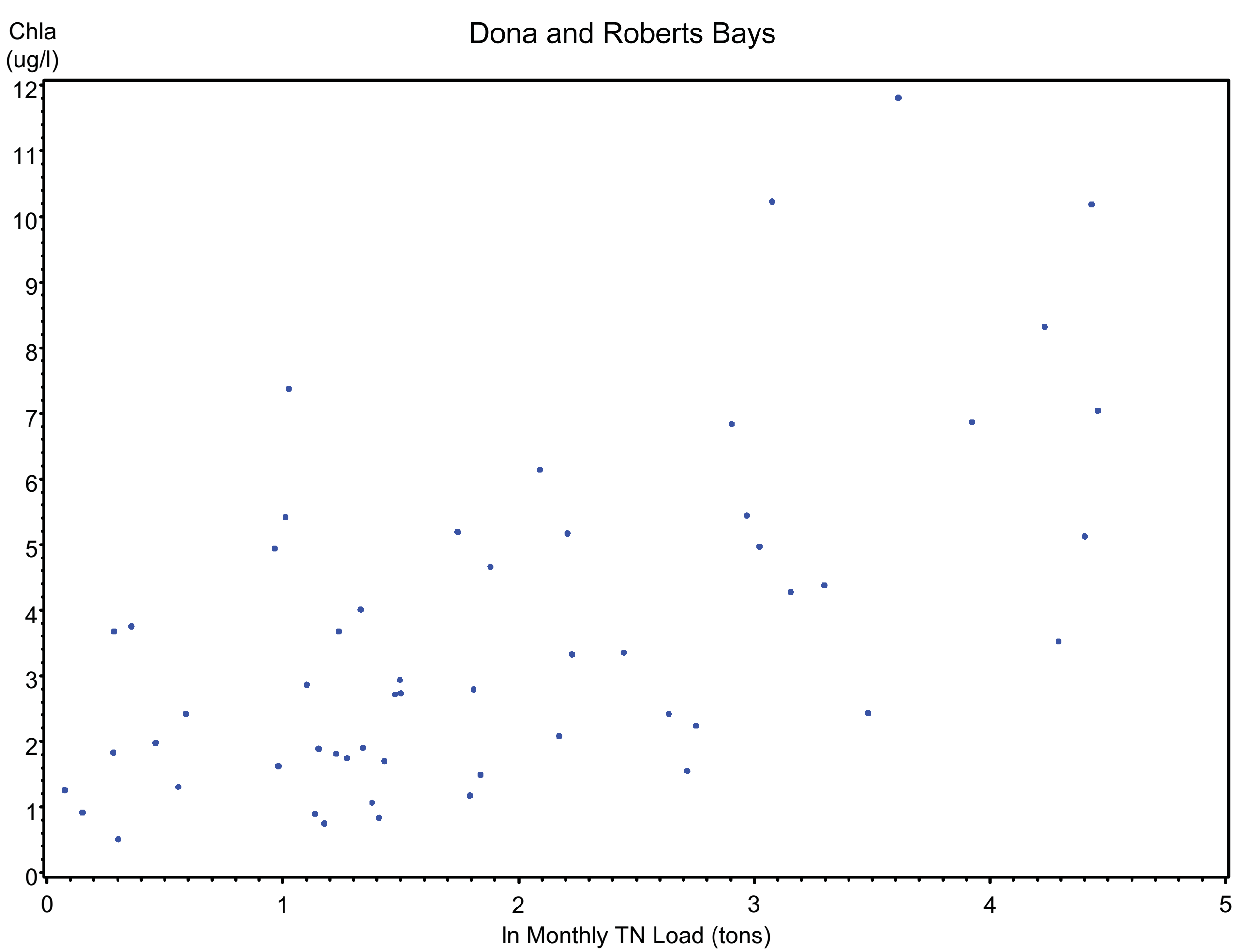


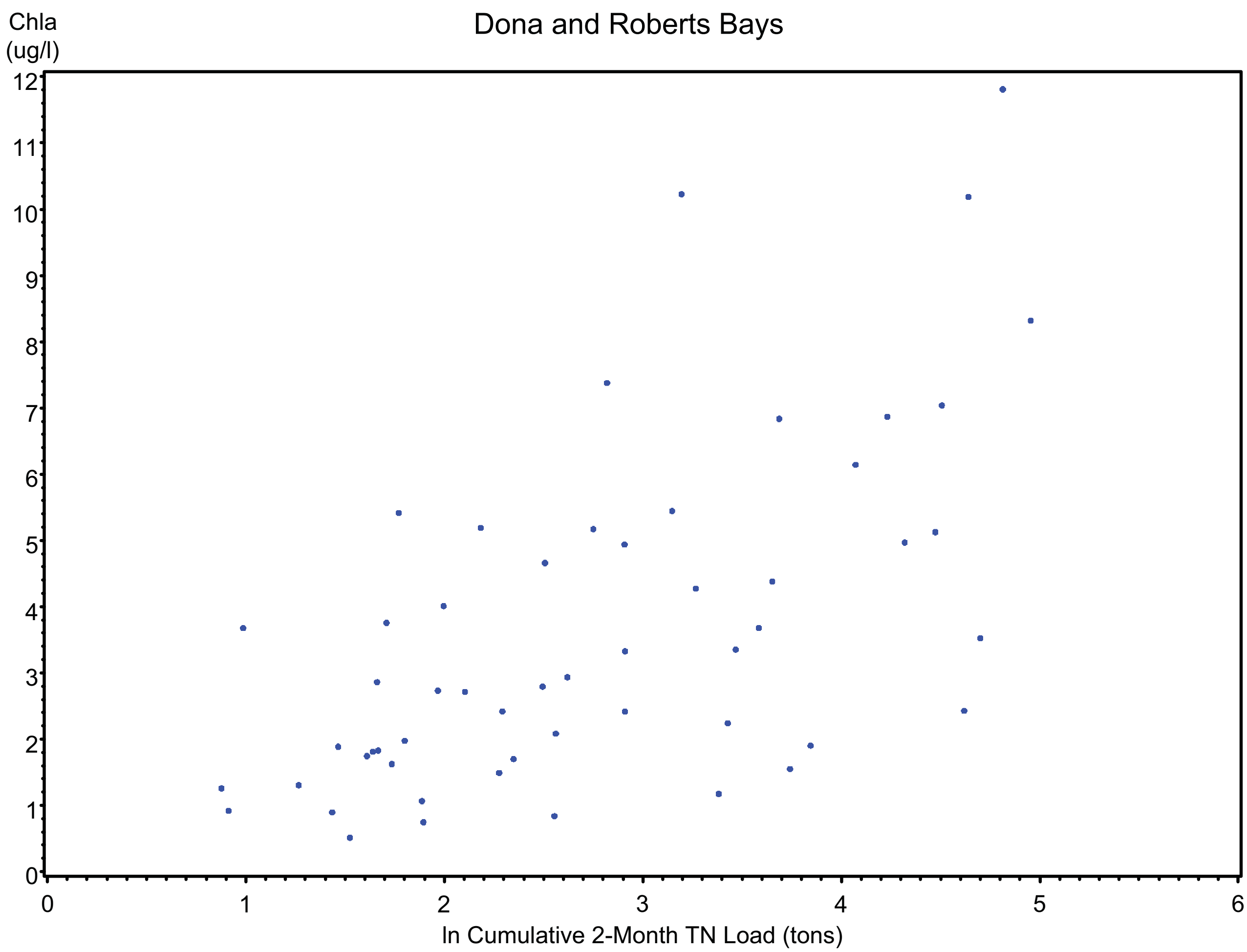
Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
10
20
30
40
50
60
70
80
90
100
Monthly TN Load (tons)



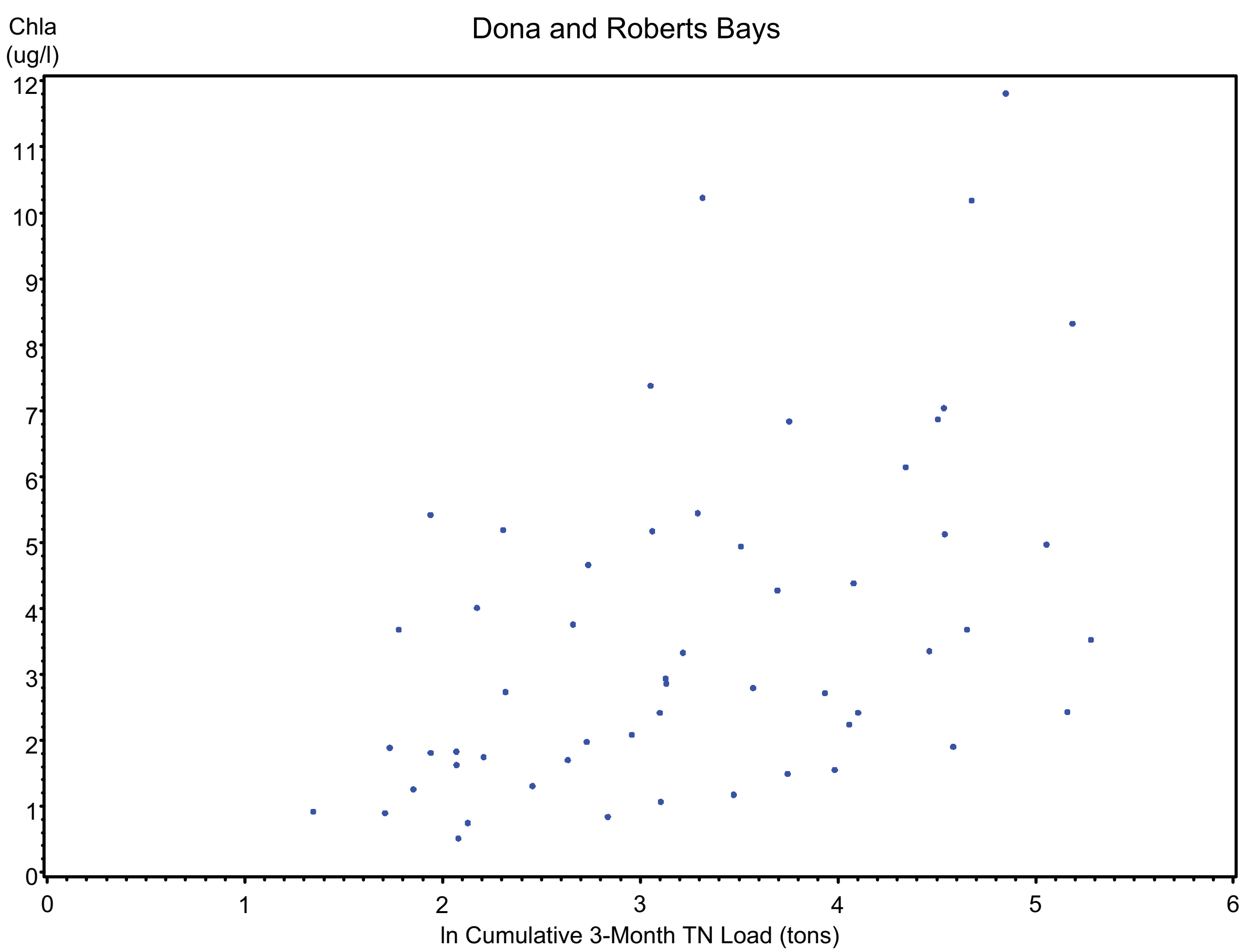
Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Cumulative 2-Month TN Load (tons)


Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
20
40
60
80
100
120
140
160
180
200
220
Cumulative 3-Month TN Load (tons)

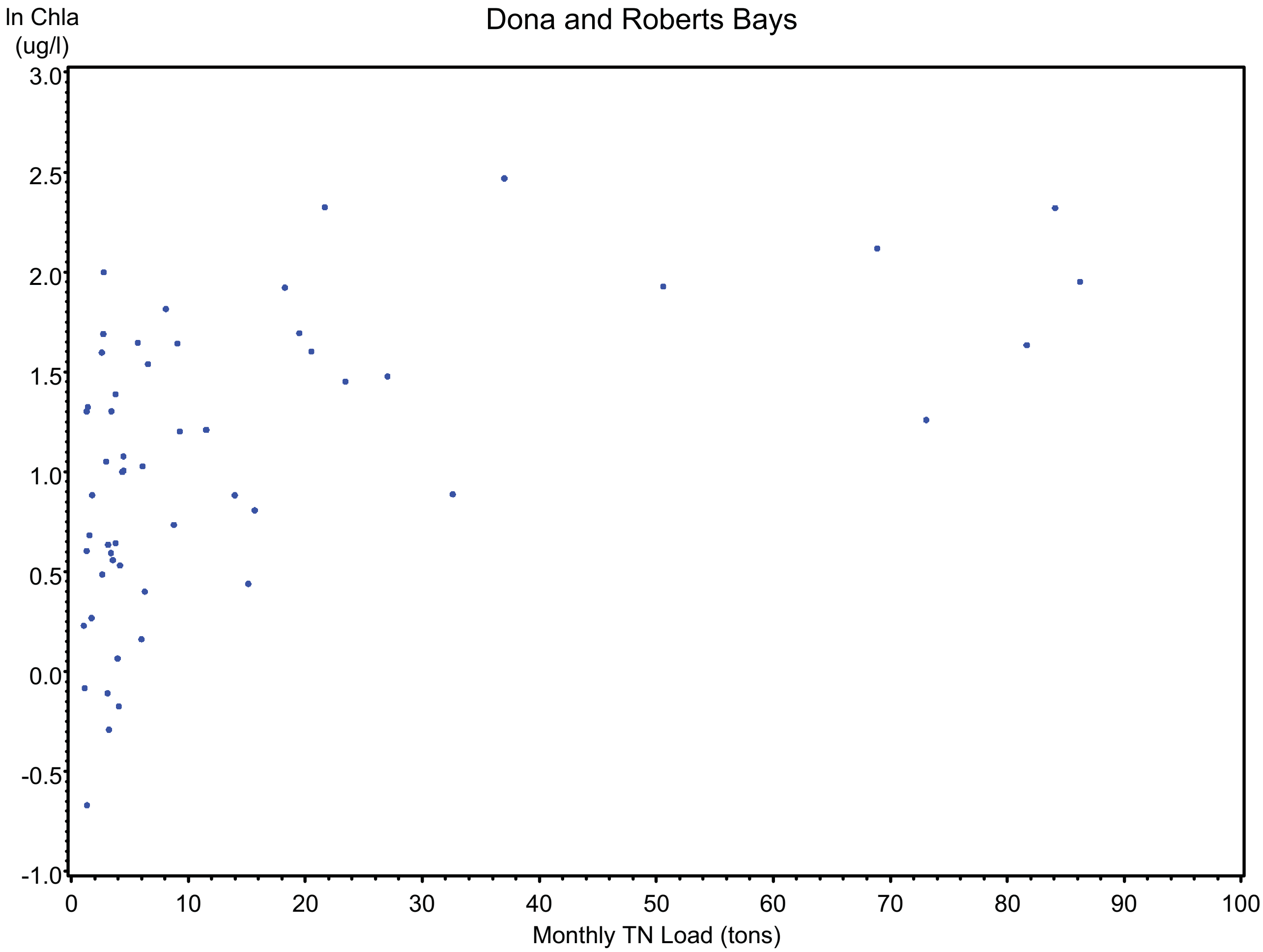

Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
1
2
3
4
5
ln Monthly TN Load (tons)

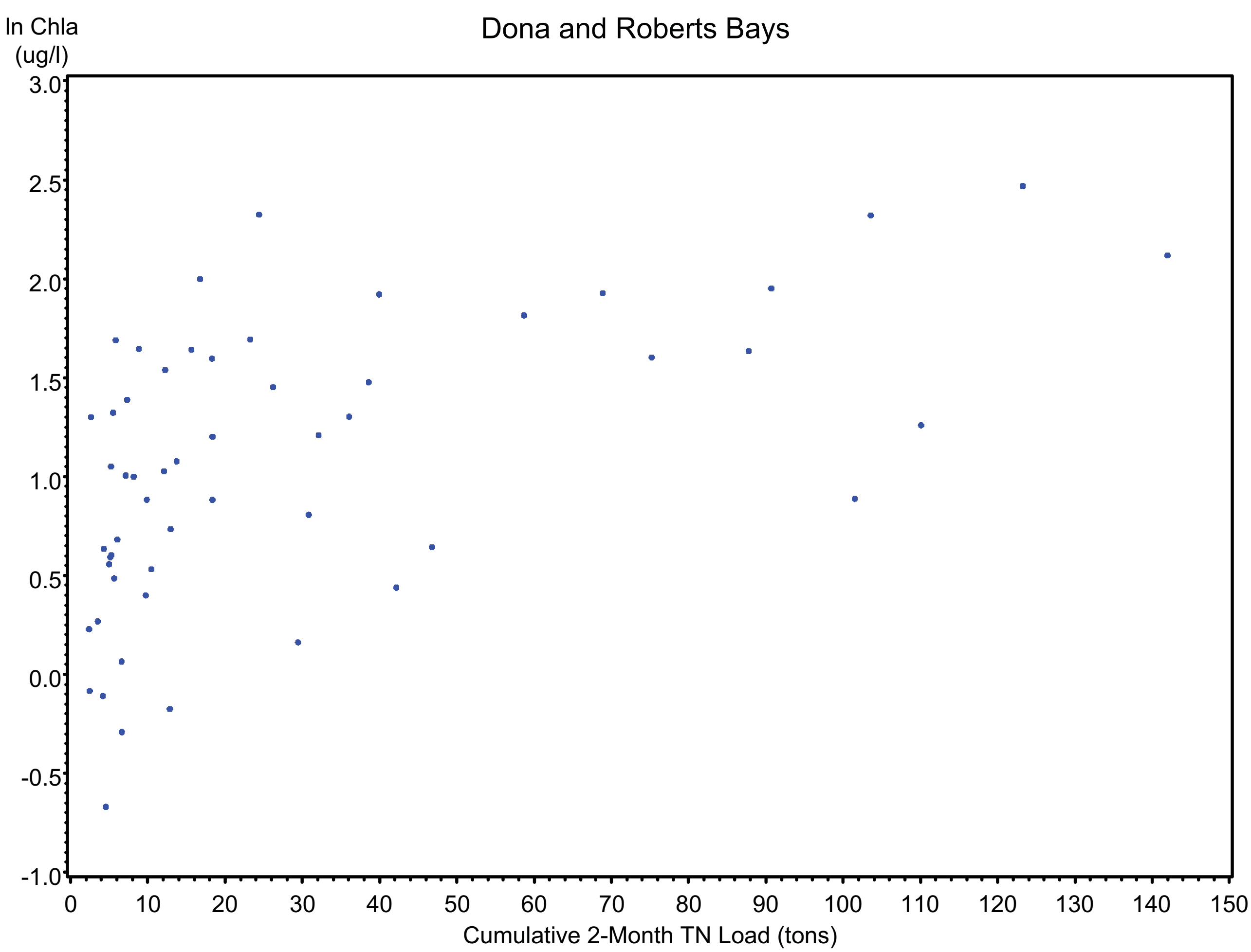


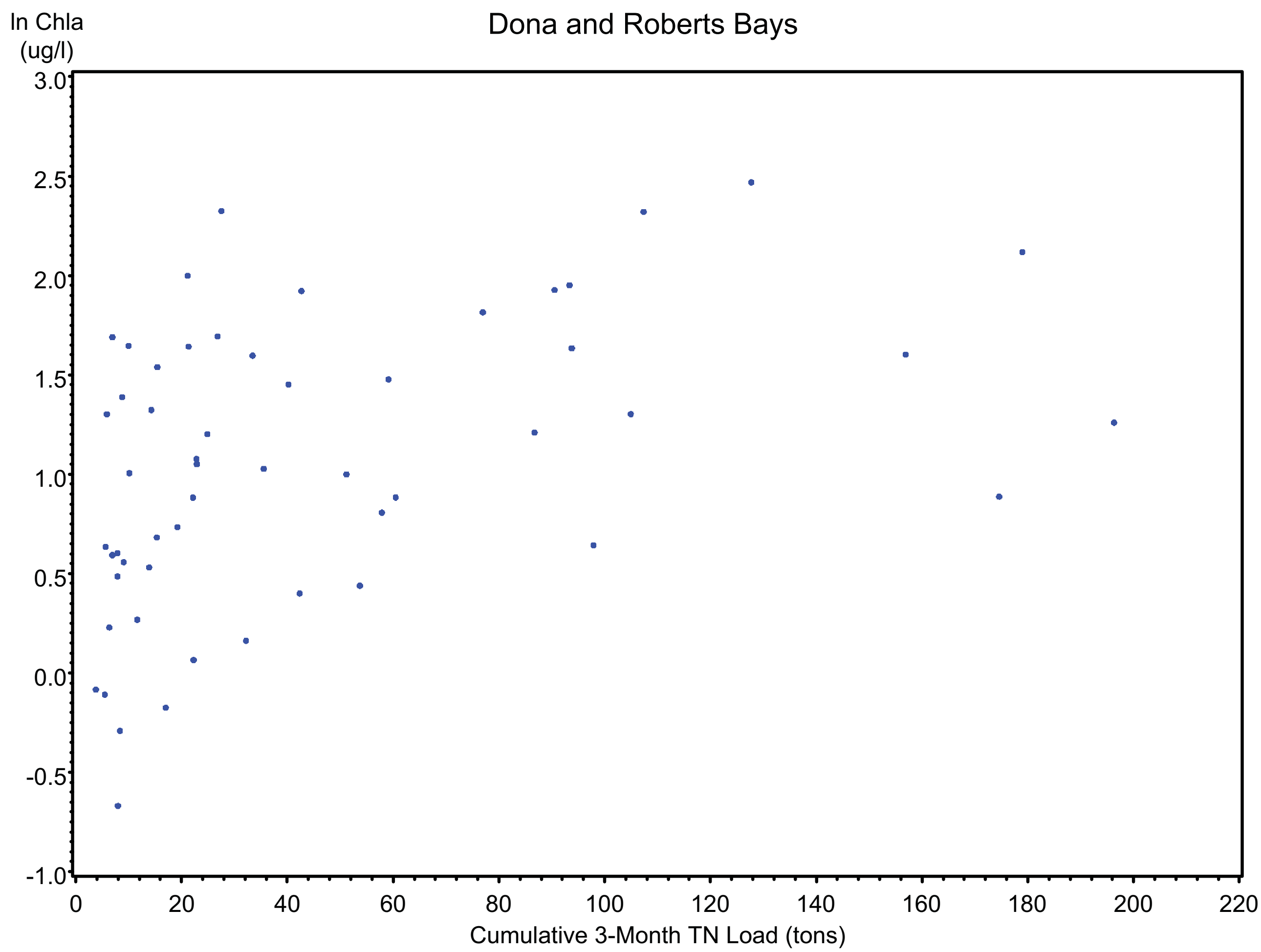
Chla
(ug/l)
Dona and Roberts Bays
0
1
2
3
4
5
6
7
8
9
10
11
12
0
1
2
3
4
5
6
ln Cumulative 2-Month TN Load (tons)



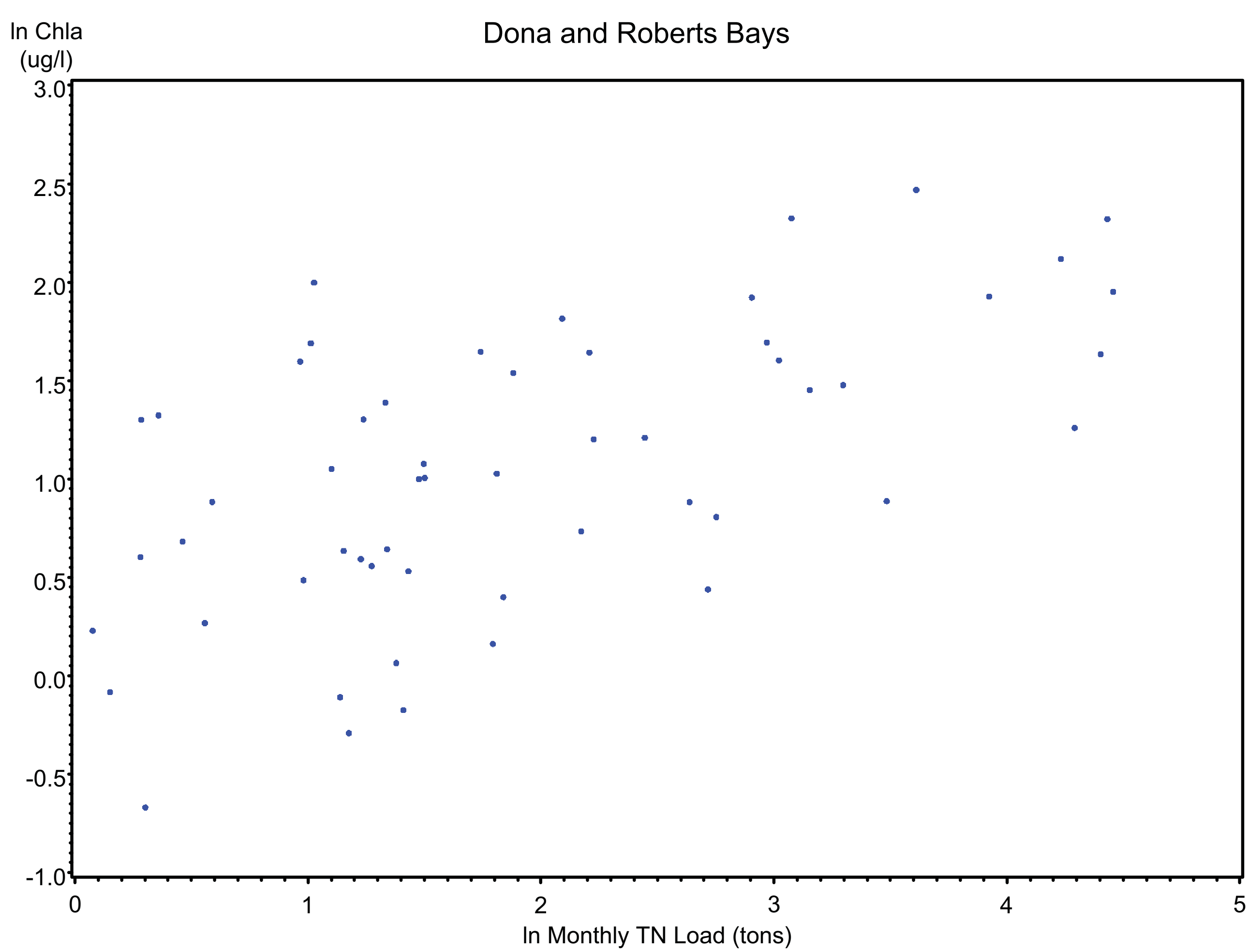
Chla
(ug/l)
Dona and Roberts Bays
0
1
2
3
4
5
6
7
8
9
10
11
12
0
1
2
3
4
5
6
ln Cumulative 3-Month TN Load (tons)


Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
10
20
30
40
50
60
70
80
90
100
Monthly TN Load (tons)

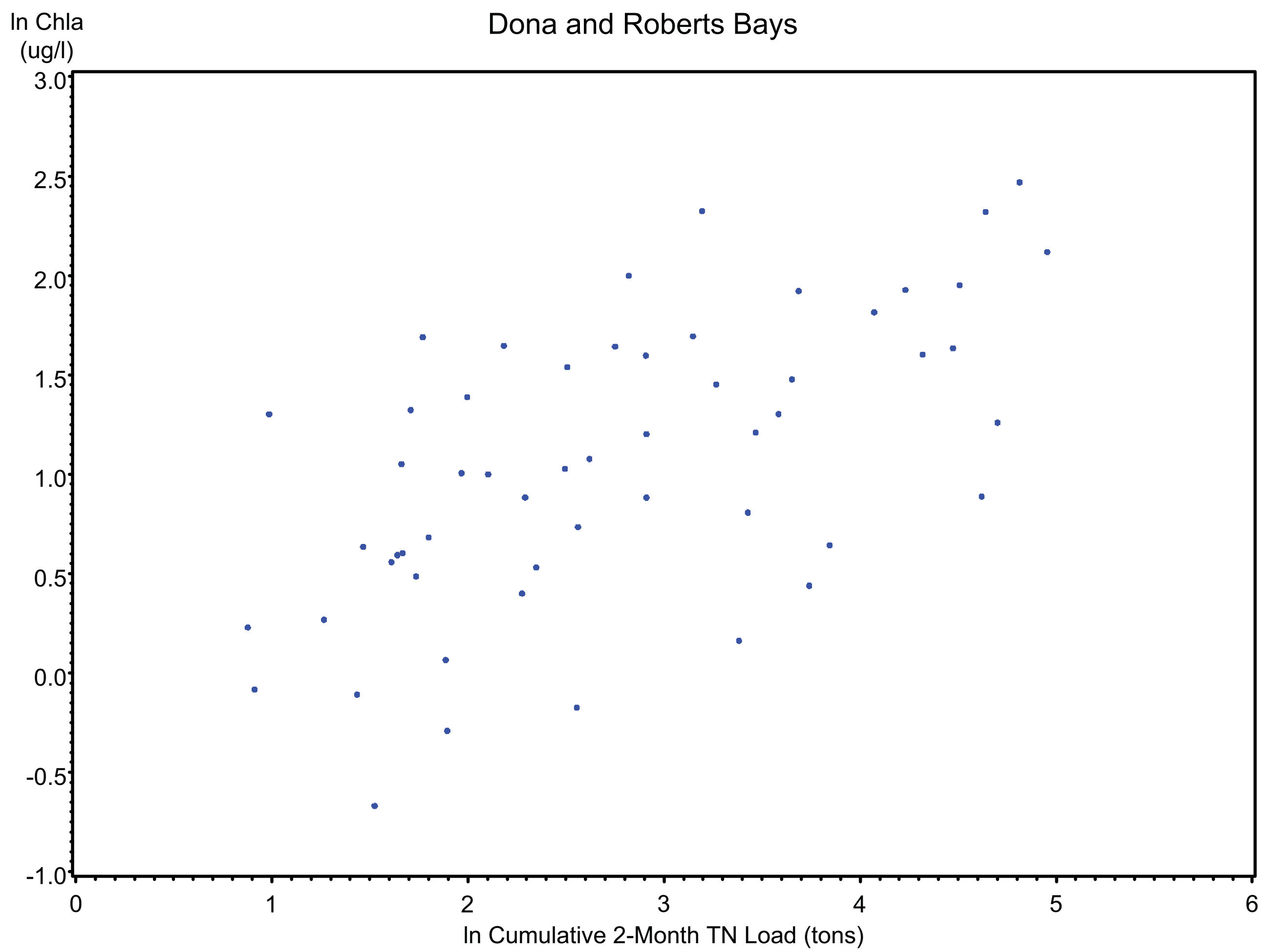

Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Cumulative 2-Month TN Load (tons)



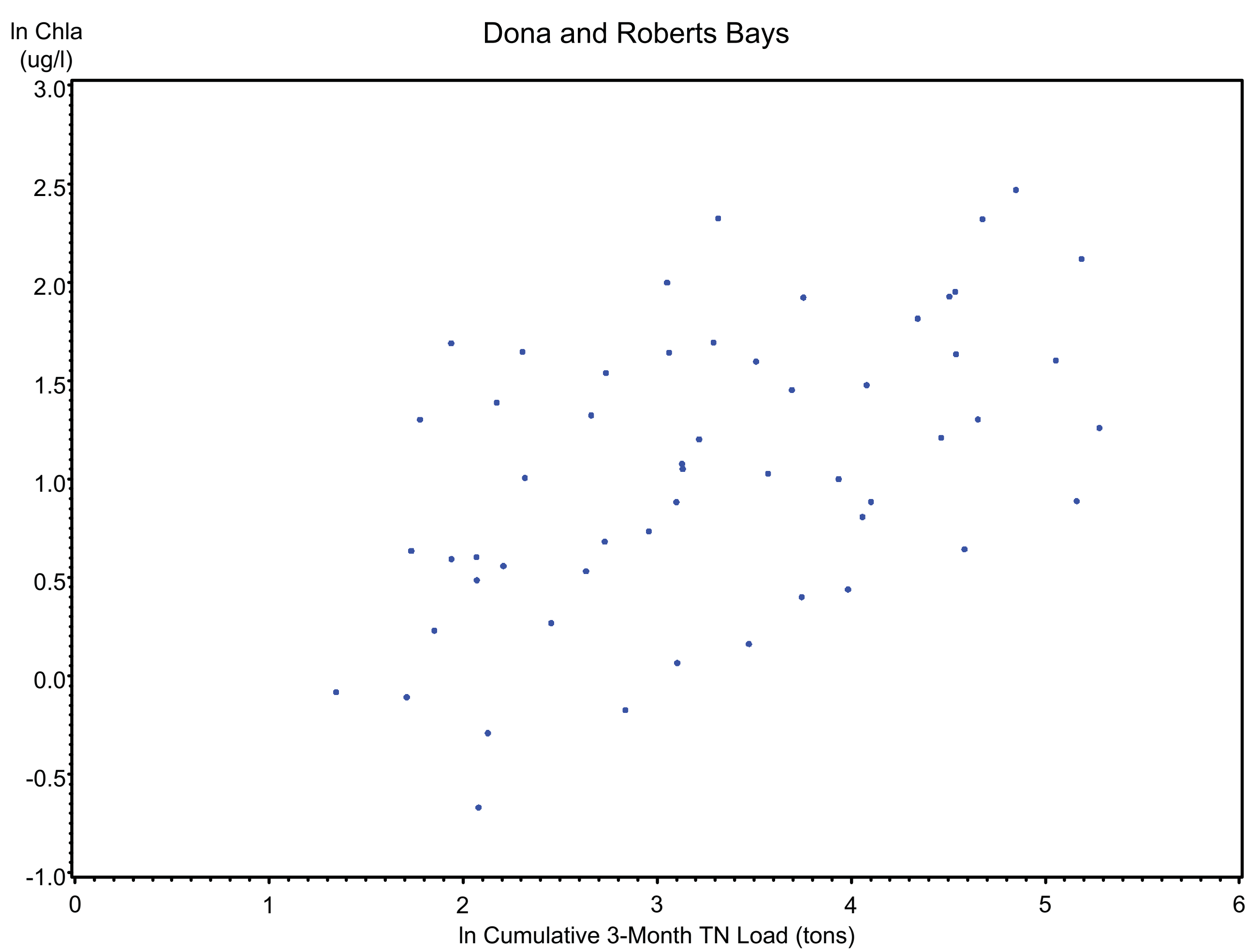
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
20
40
60
80
100
120
140
160
180
200
220
Cumulative 3-Month TN Load (tons)



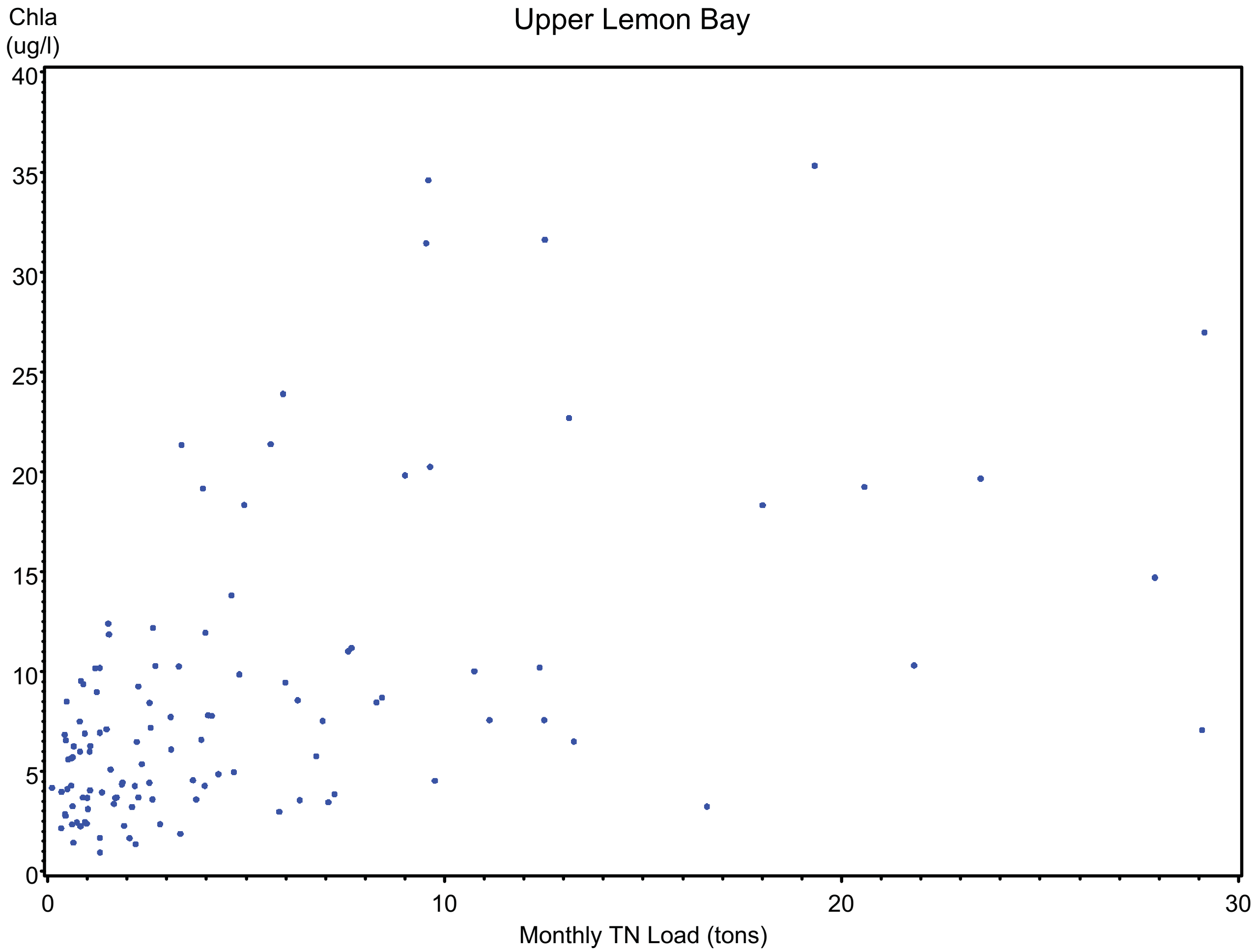
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
ln Monthly TN Load (tons)

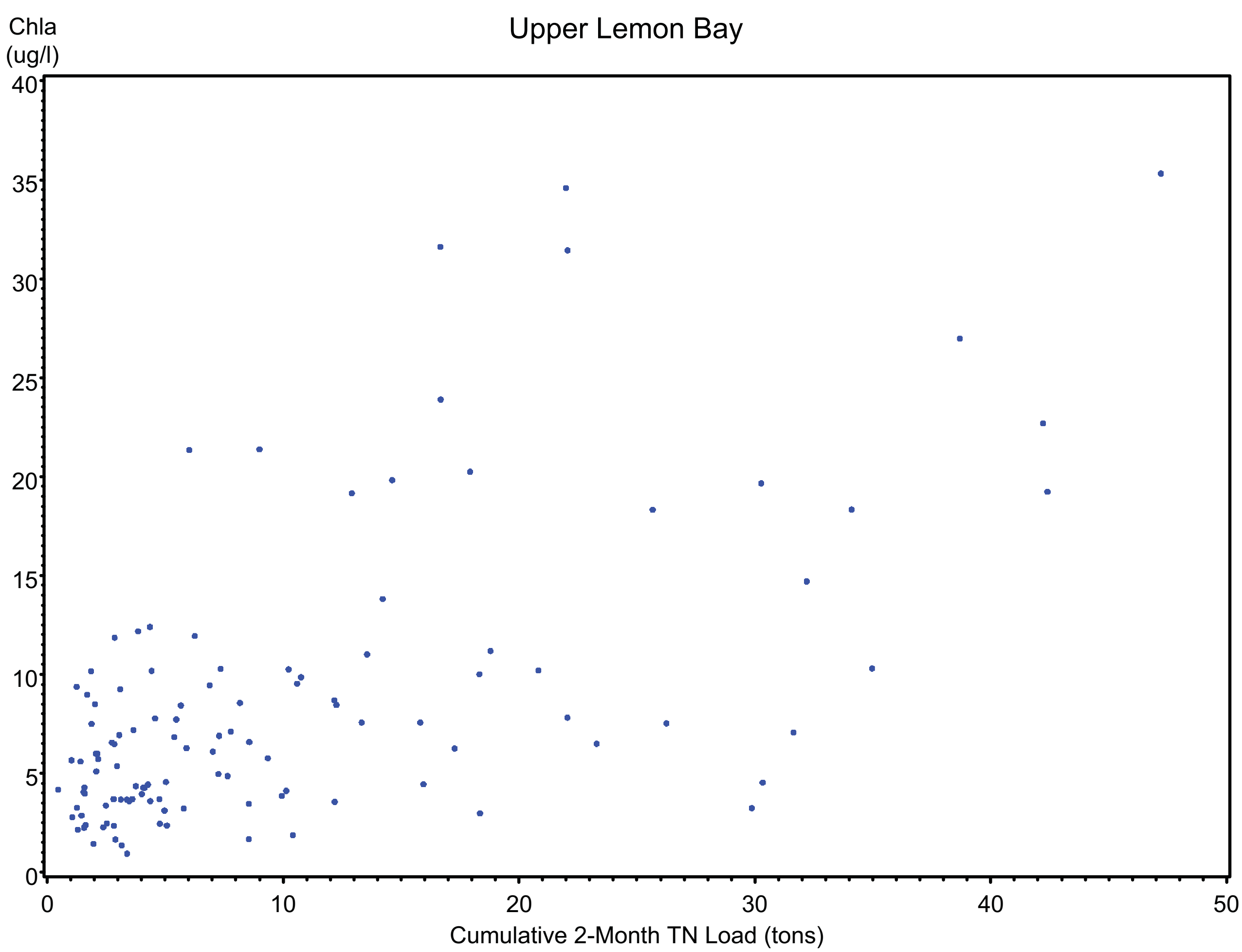


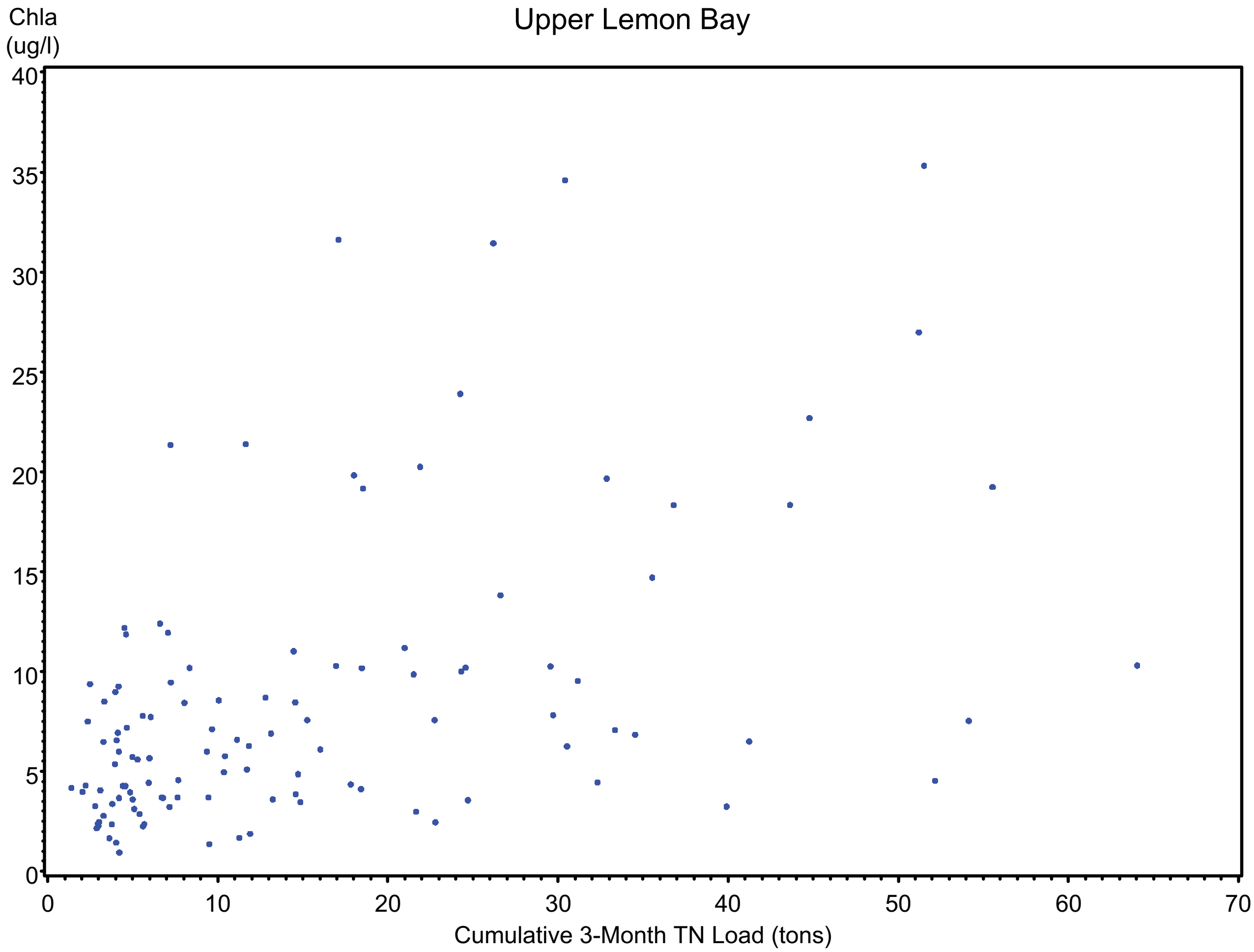
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
6
ln Cumulative 2-Month TN Load (tons)

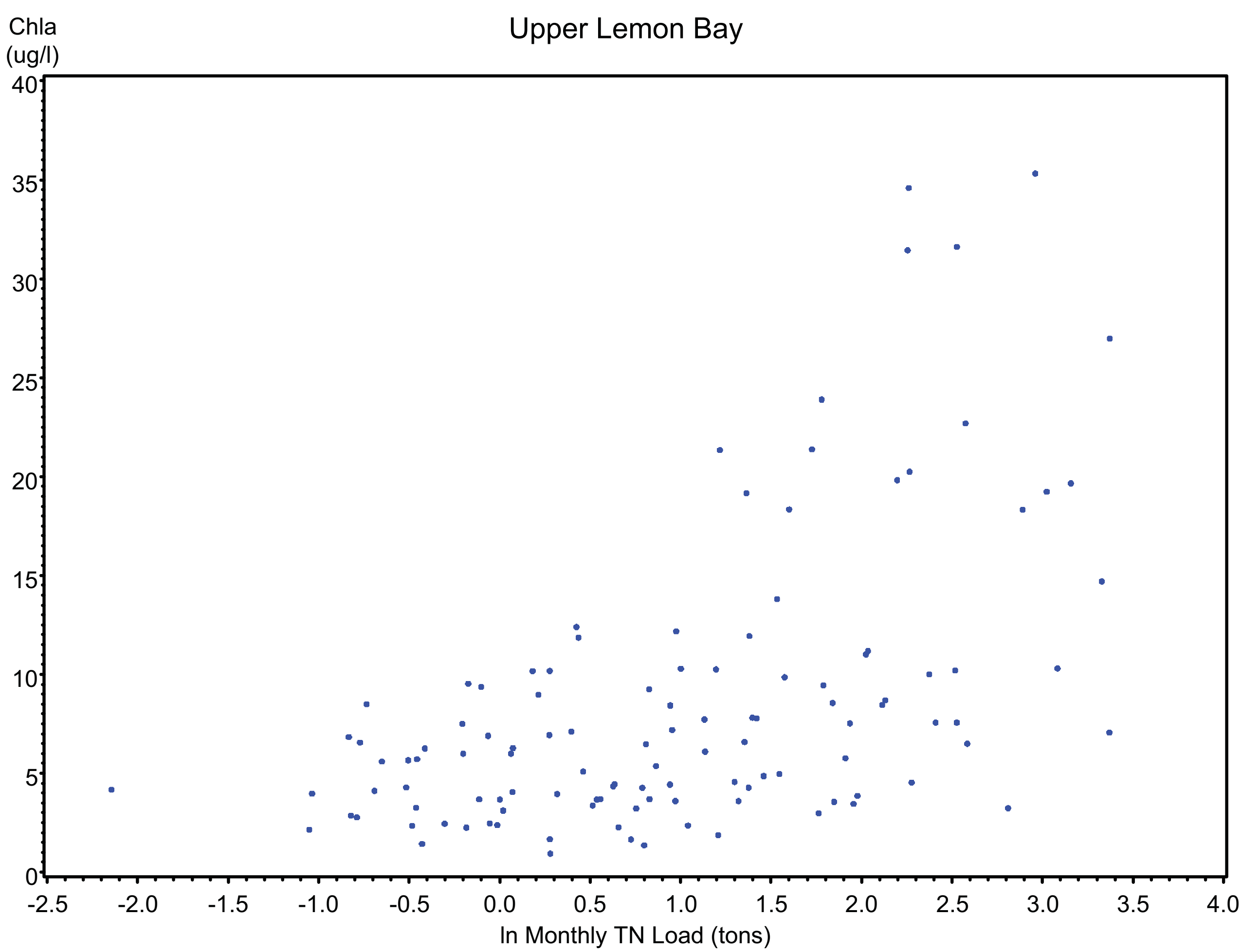


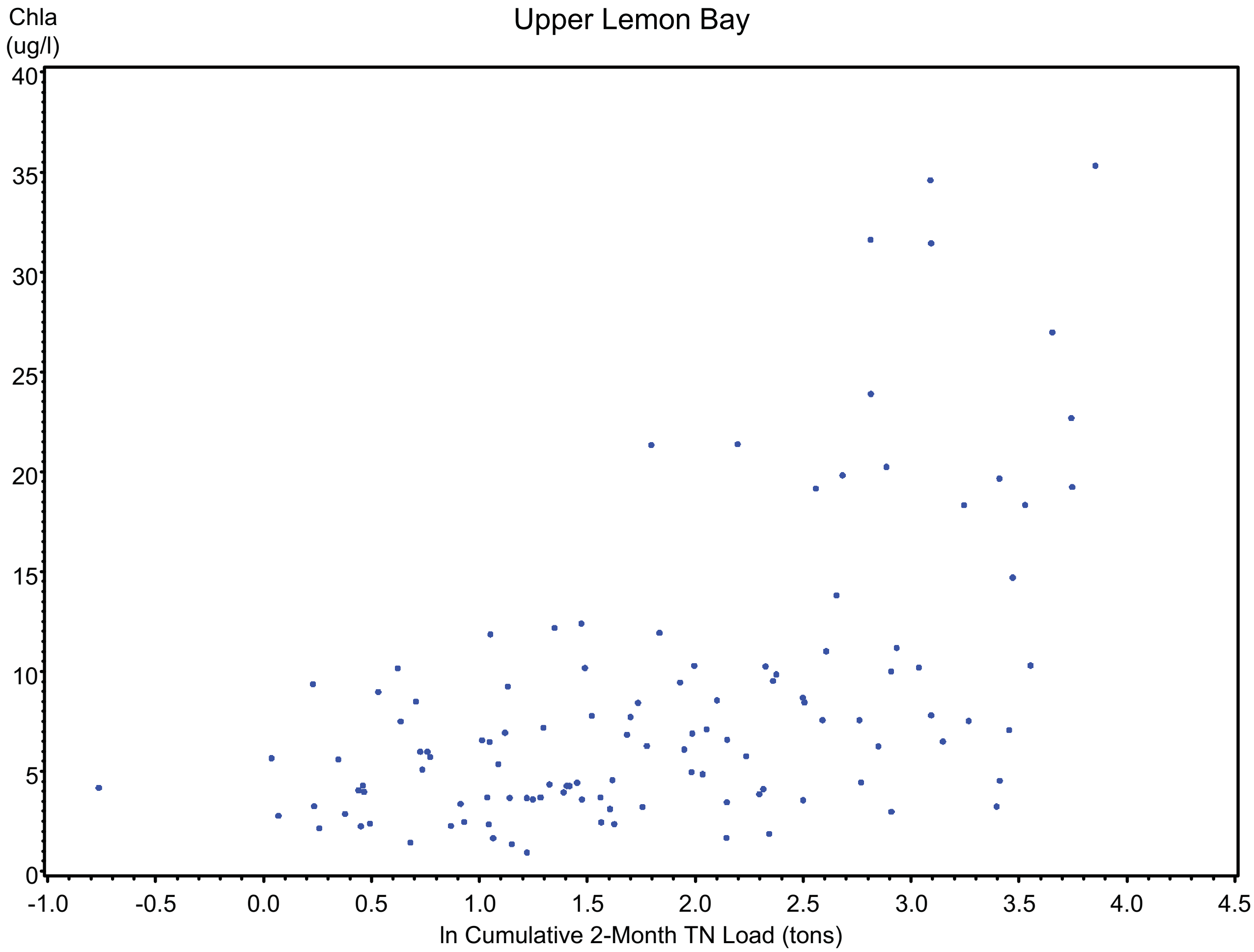
Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
6
ln Cumulative 3-Month TN Load (tons)

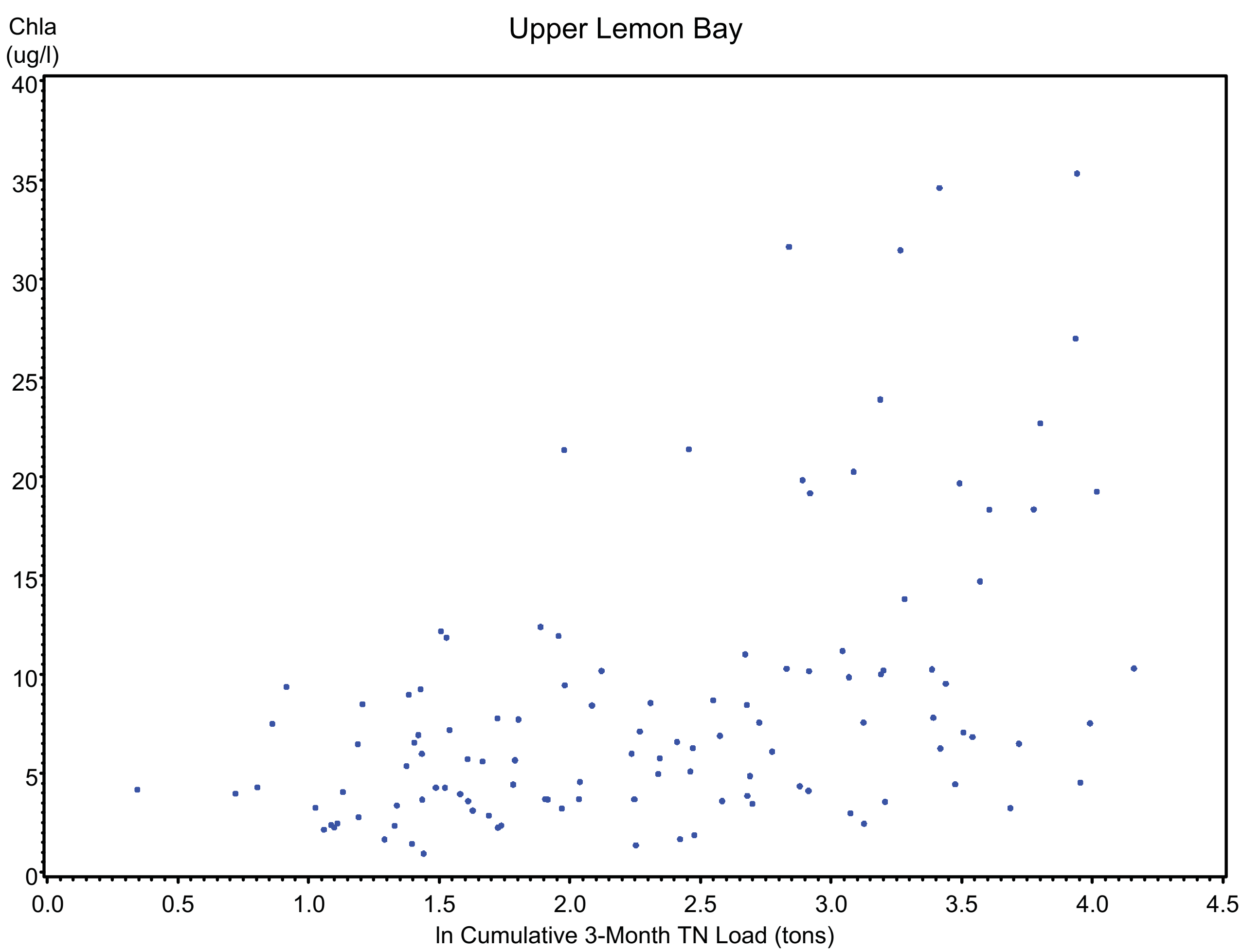

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
10
20
30
Monthly TN Load (tons)

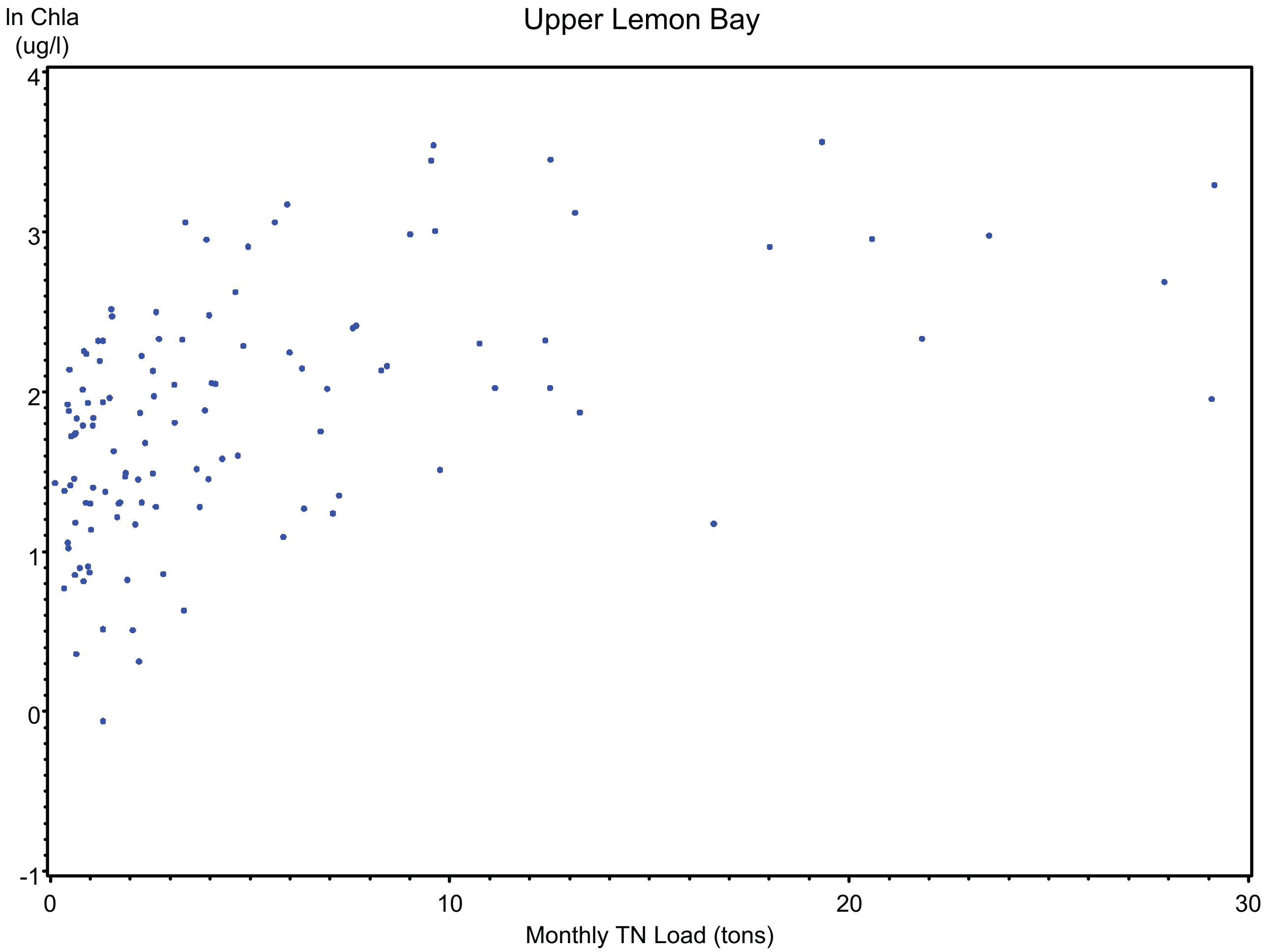

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
Cumulative 2-Month TN Load (tons)

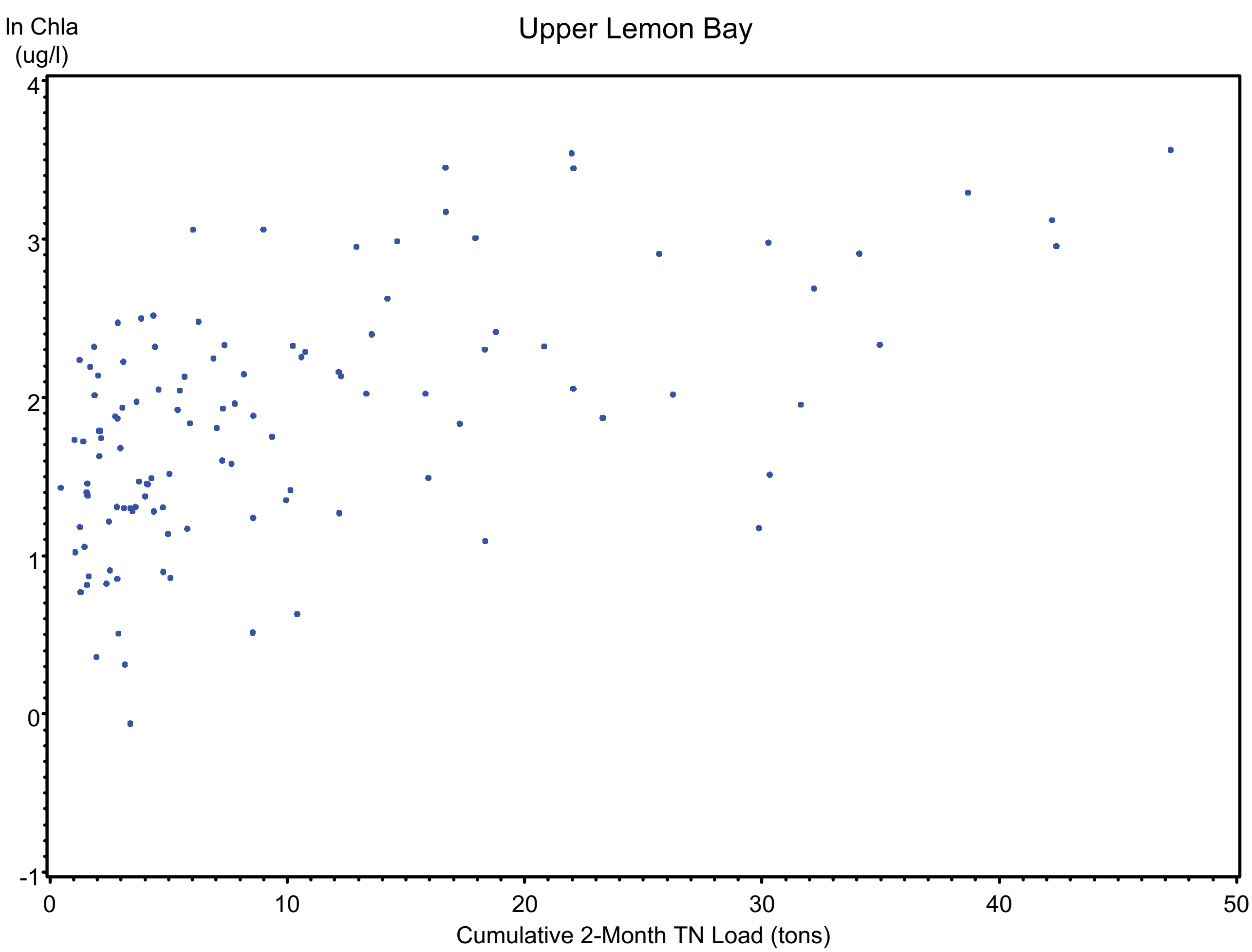

Upper Lemon Bay
Chla (ug/l)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
Cumulative 3-Month TN Load (tons)

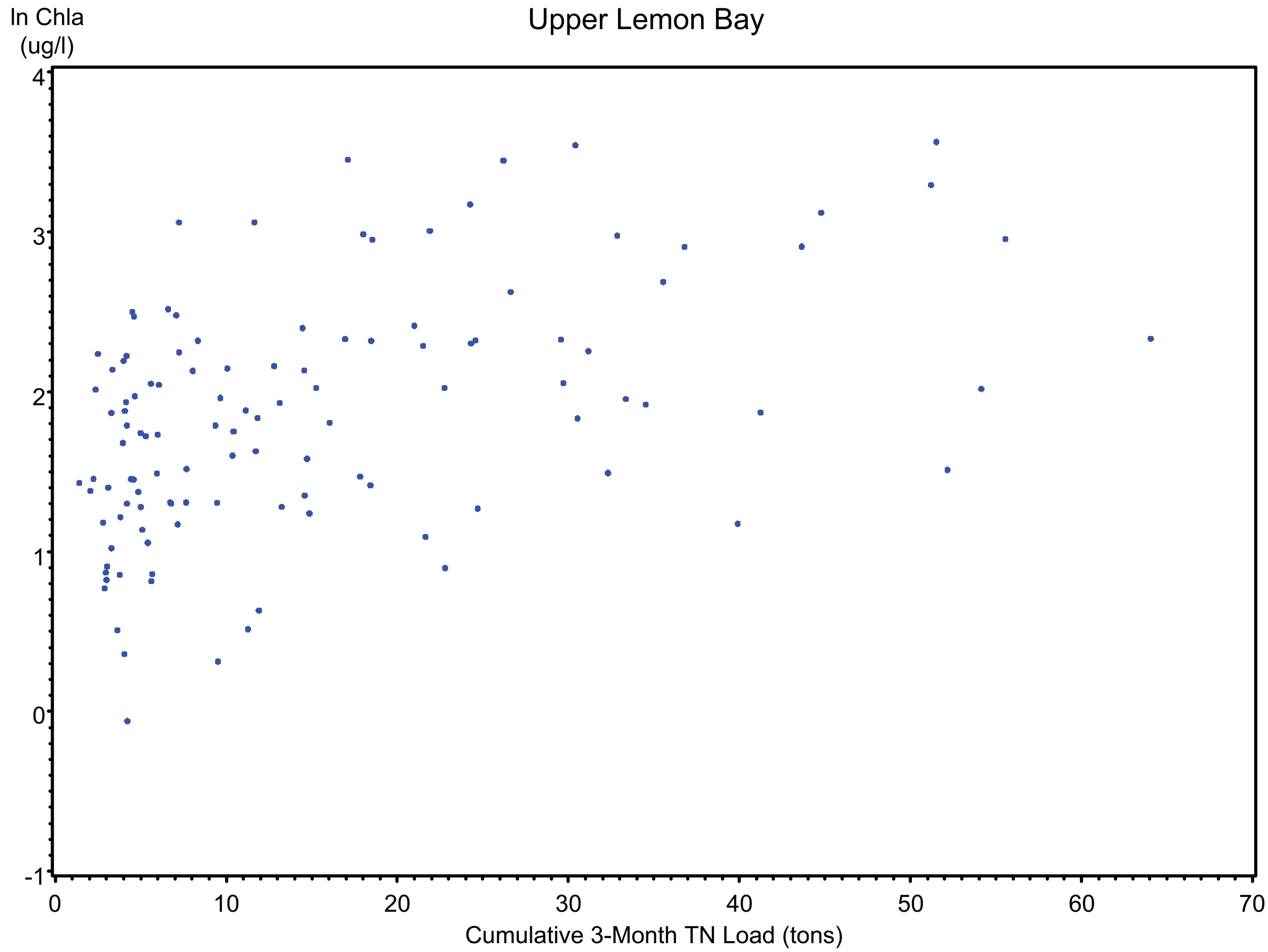

Upper Lemon Bay
Chla (ug/l)
40
35
30
25
20
15
10
5
0
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ln Monthly TN Load (tons)

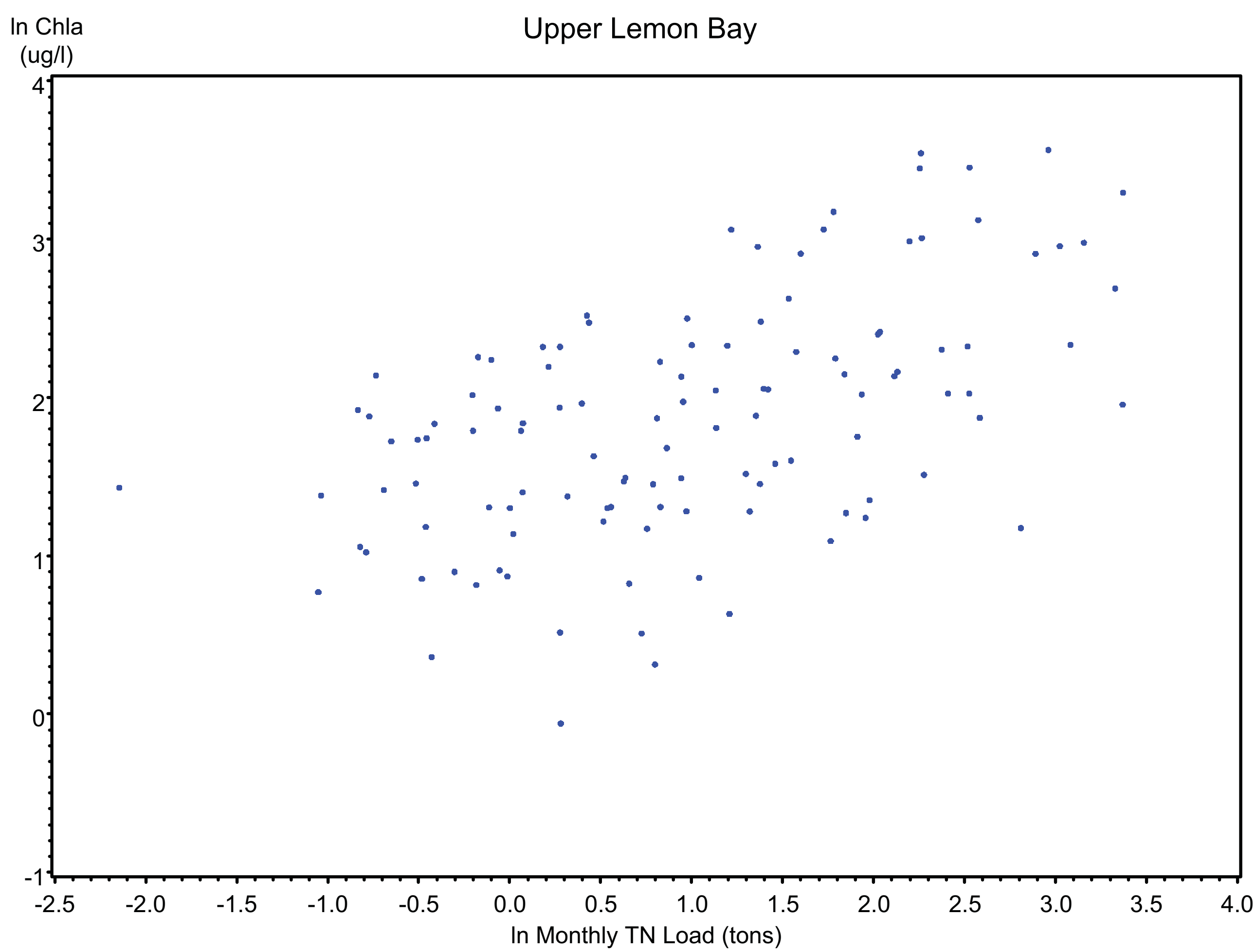

Upper Lemon Bay
Chla (ug/l)
0
5
10
15
20
25
30
35
40
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Cumulative 2-Month TN Load (tons)

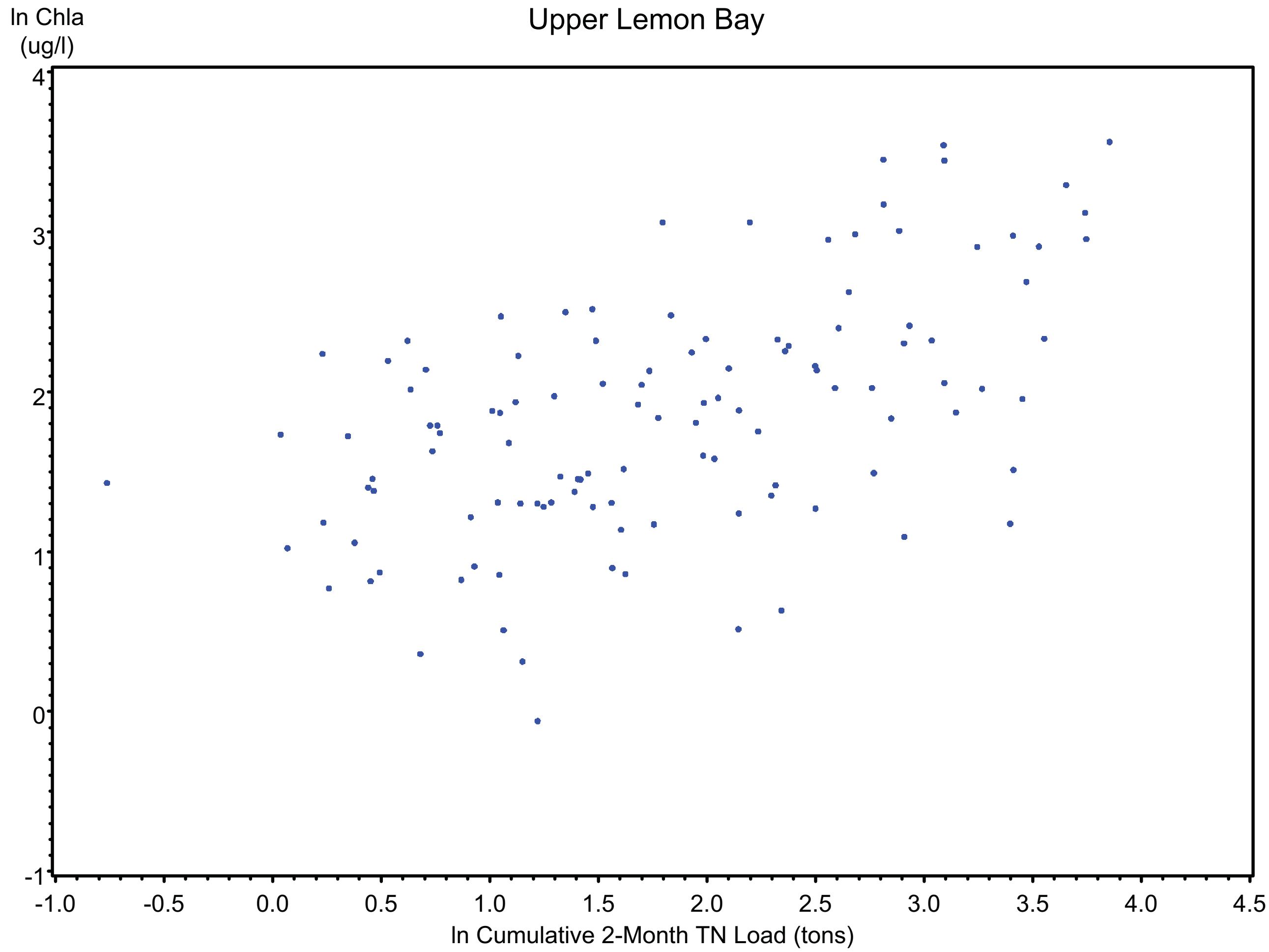

Upper Lemon Bay
Chla (ug/l)
0
5
10
15
20
25
30
35
40
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Cumulative 3-Month TN Load (tons)

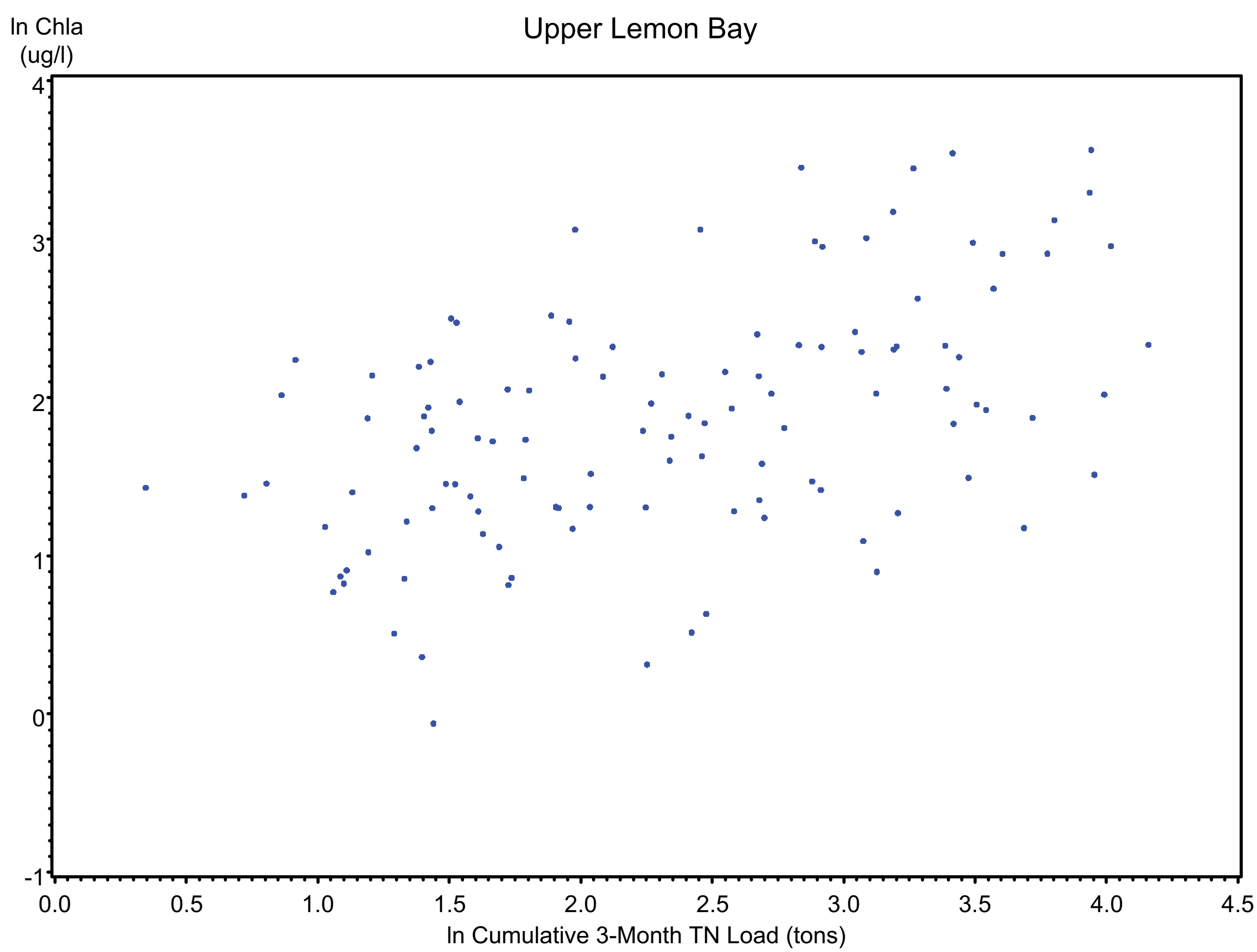

Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
0
10
20
30
Monthly TN Load (tons)

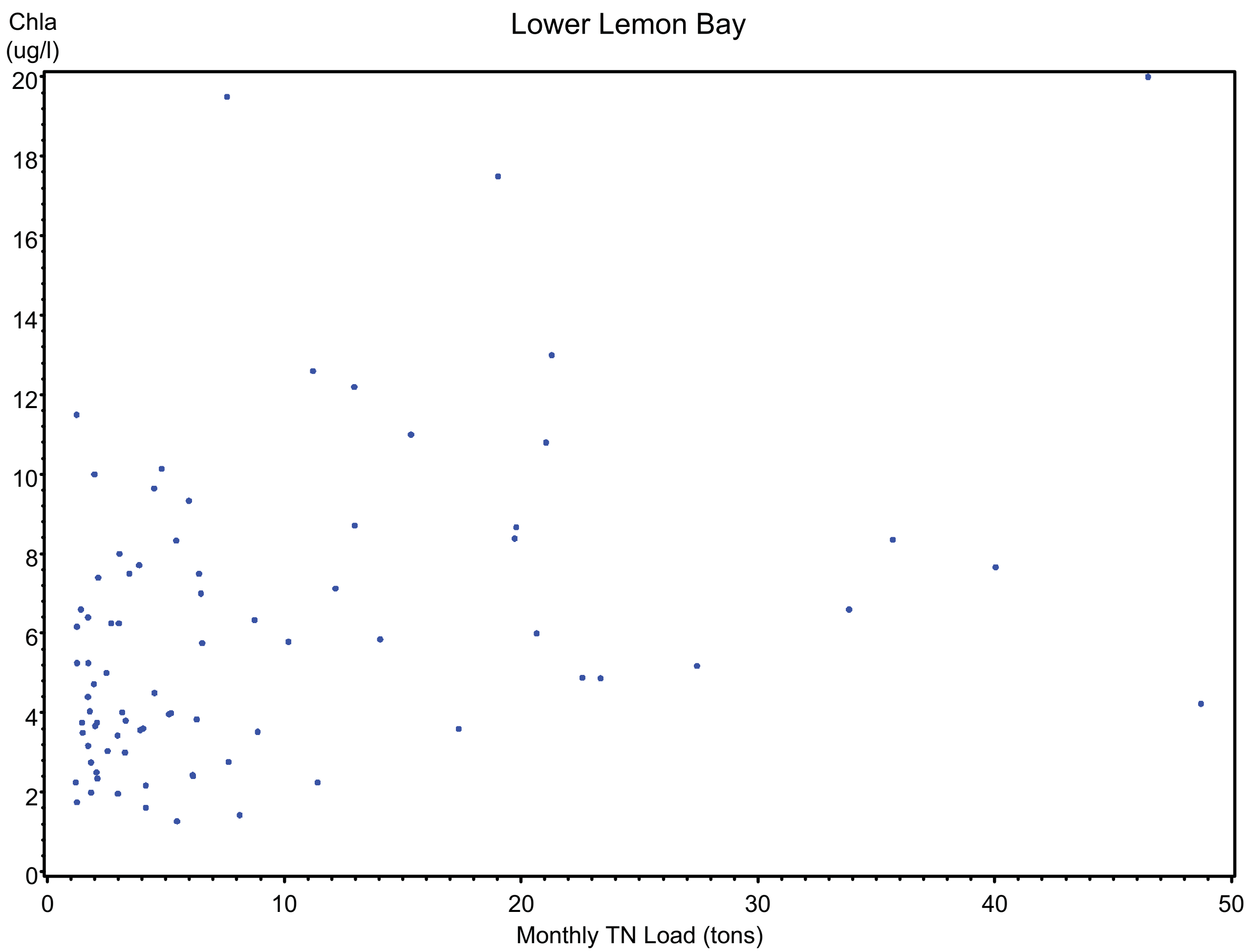

Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
0
10
20
30
40
50
Cumulative 2-Month TN Load (tons)

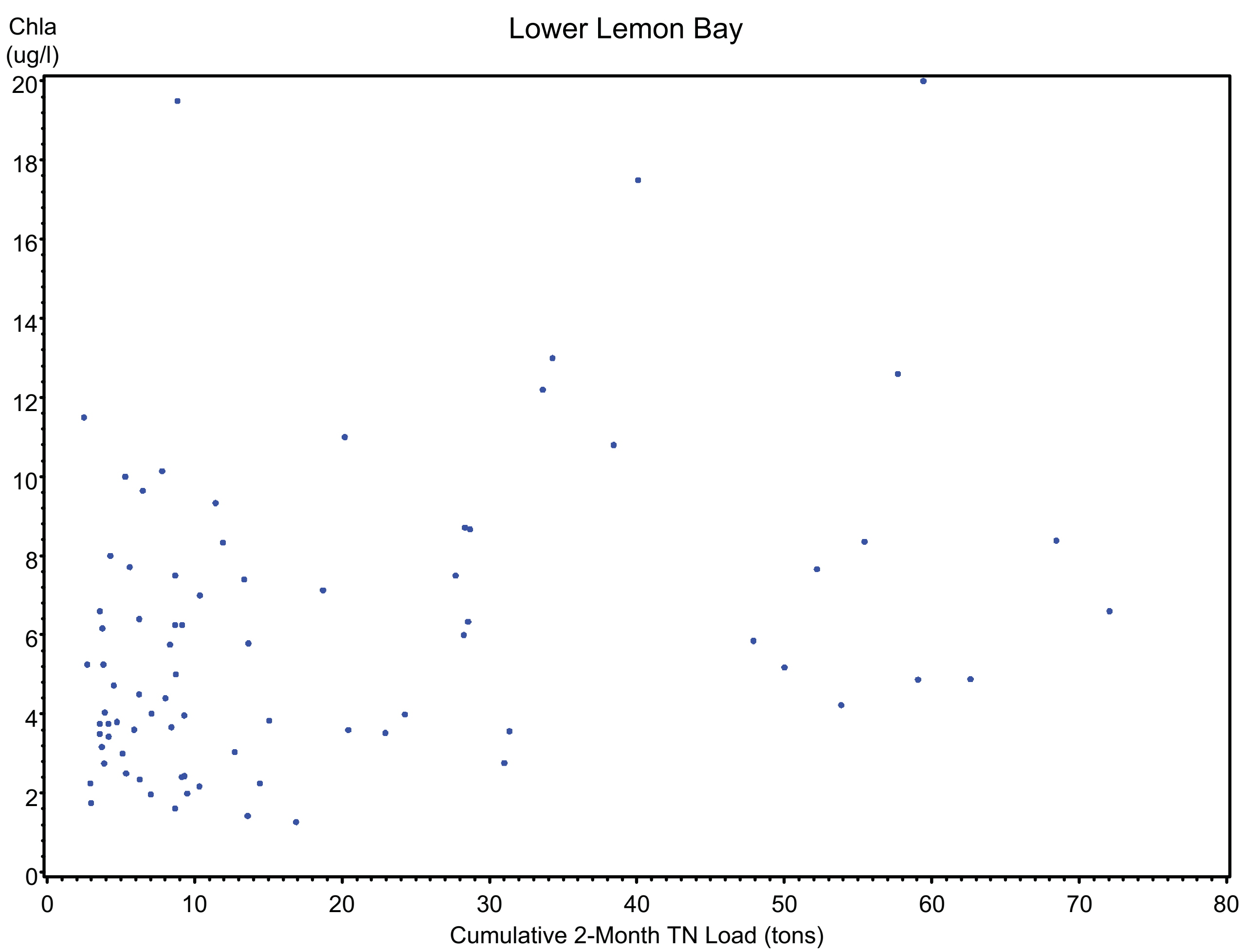

Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
0
10
20
30
40
50
60
70
Cumulative 3-Month TN Load (tons)

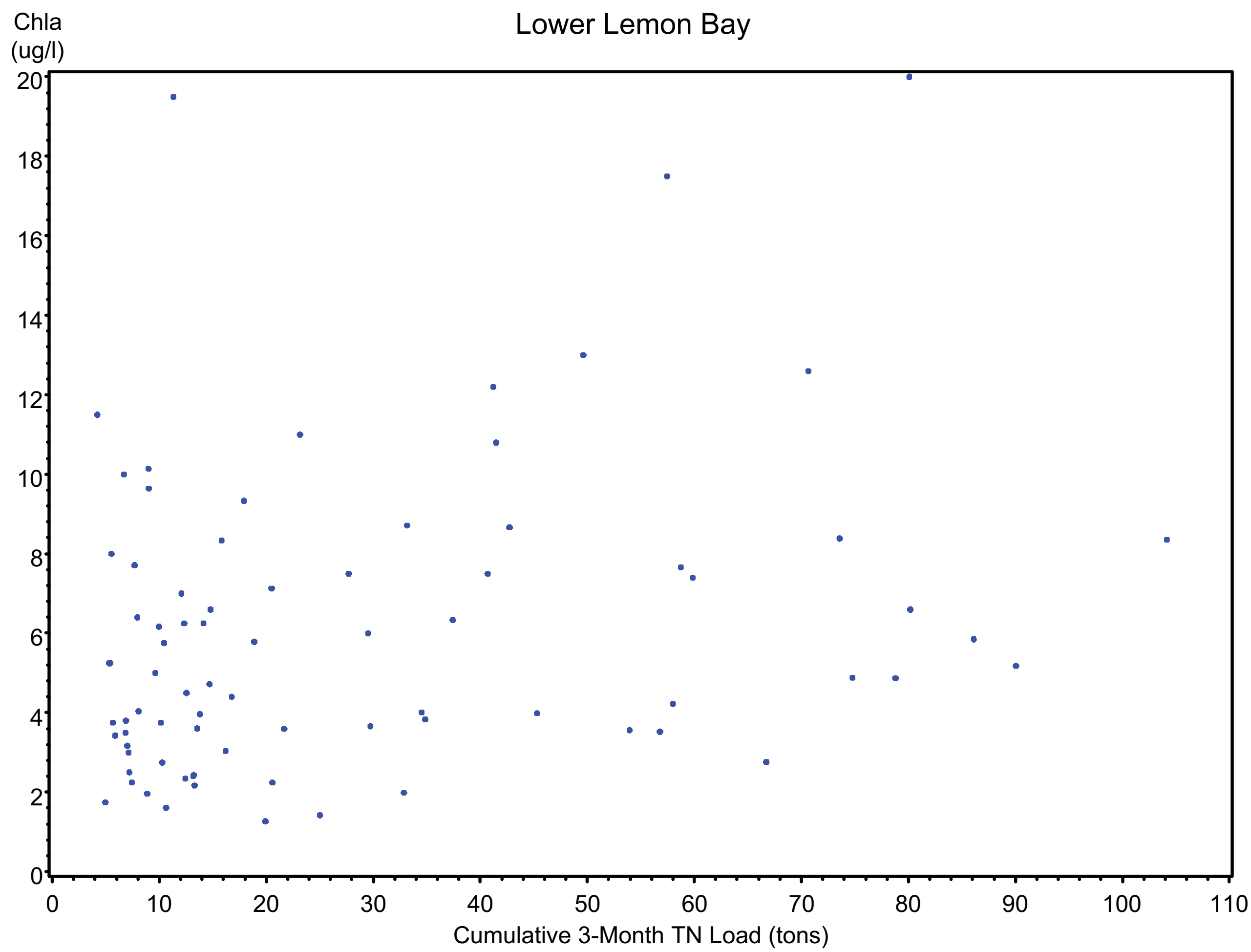

Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
-2.5
-2.0
-1.5
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ln Monthly TN Load (tons)

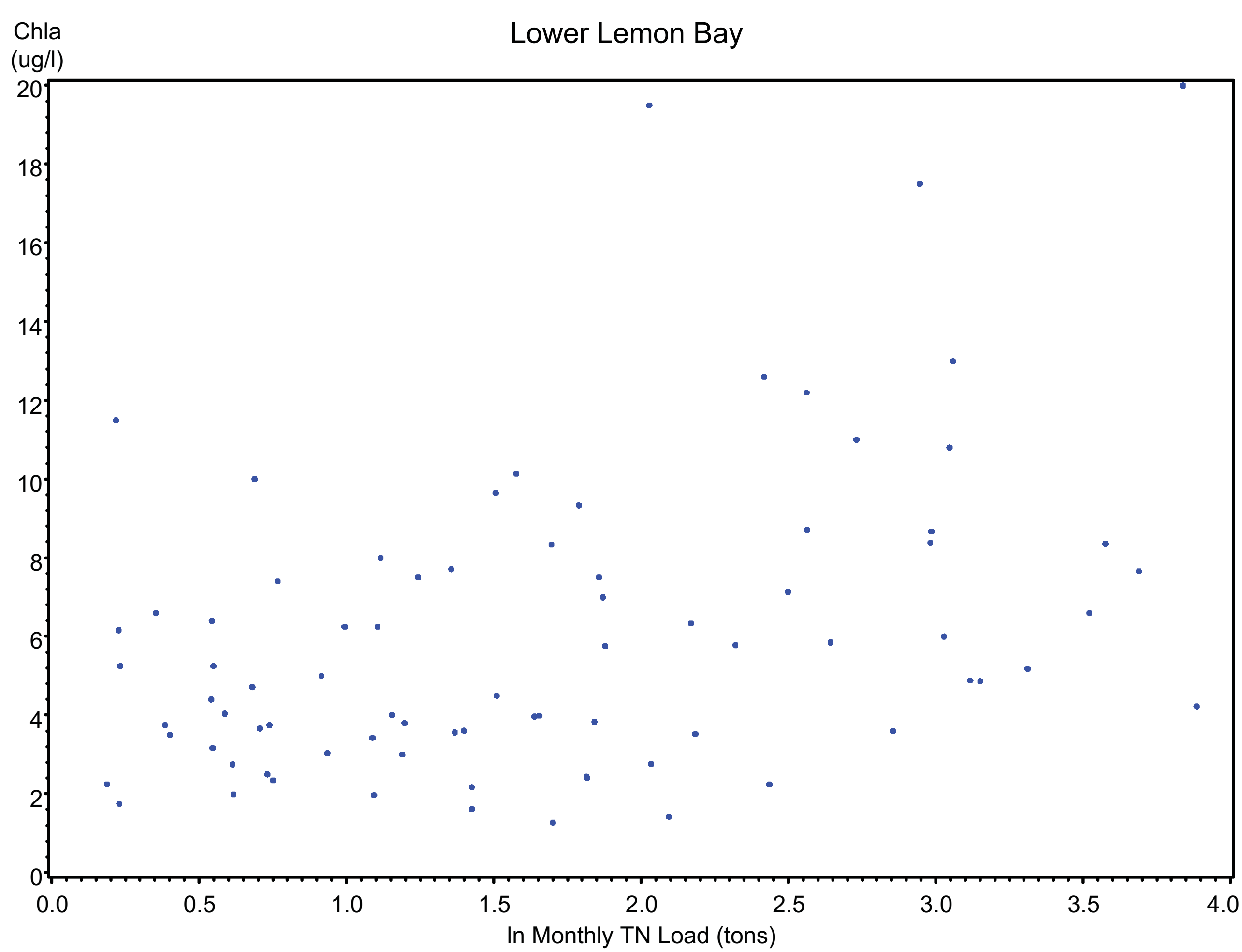

Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
-1.0
-0.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Cumulative 2-Month TN Load (tons)

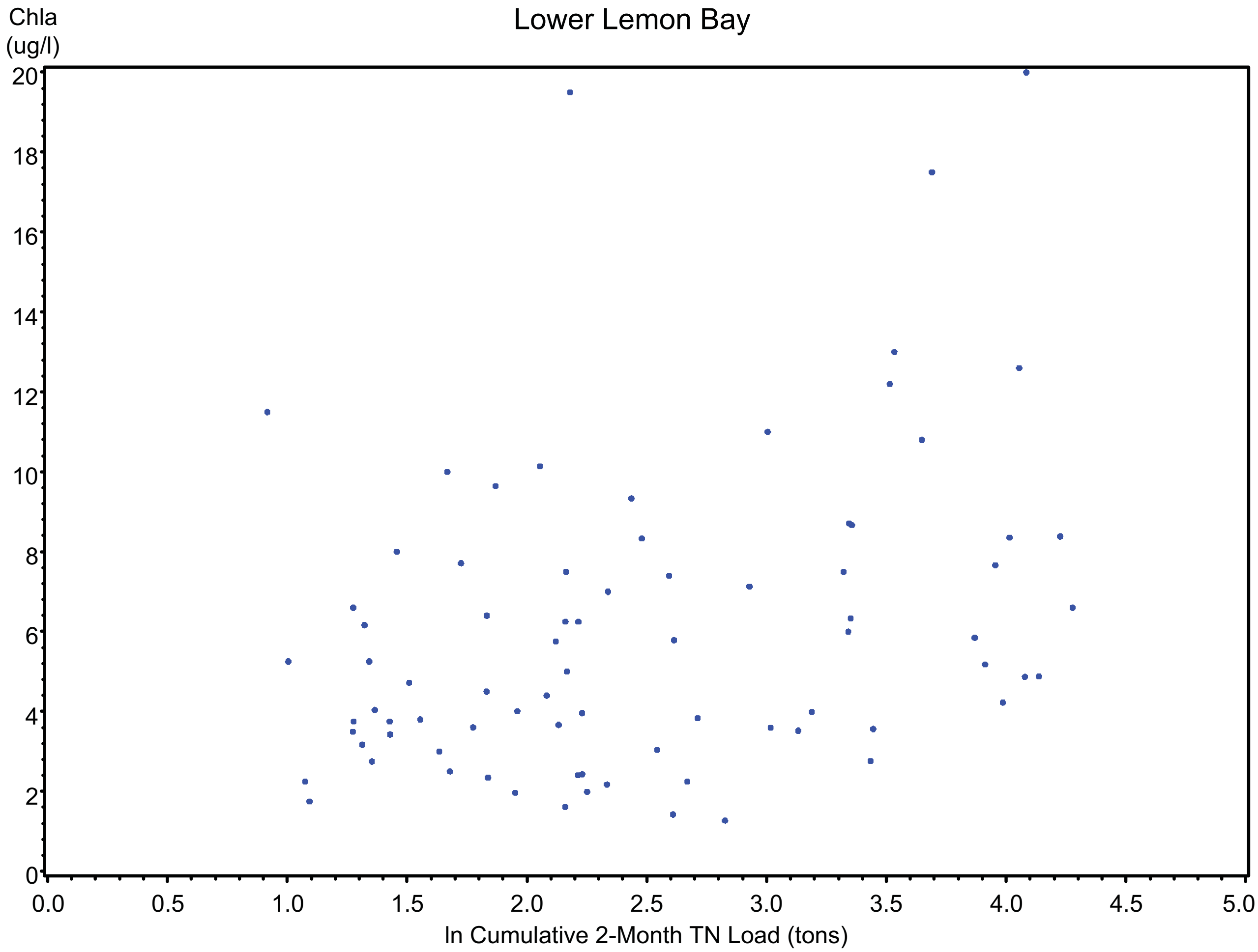

Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Cumulative 3-Month TN Load (tons)

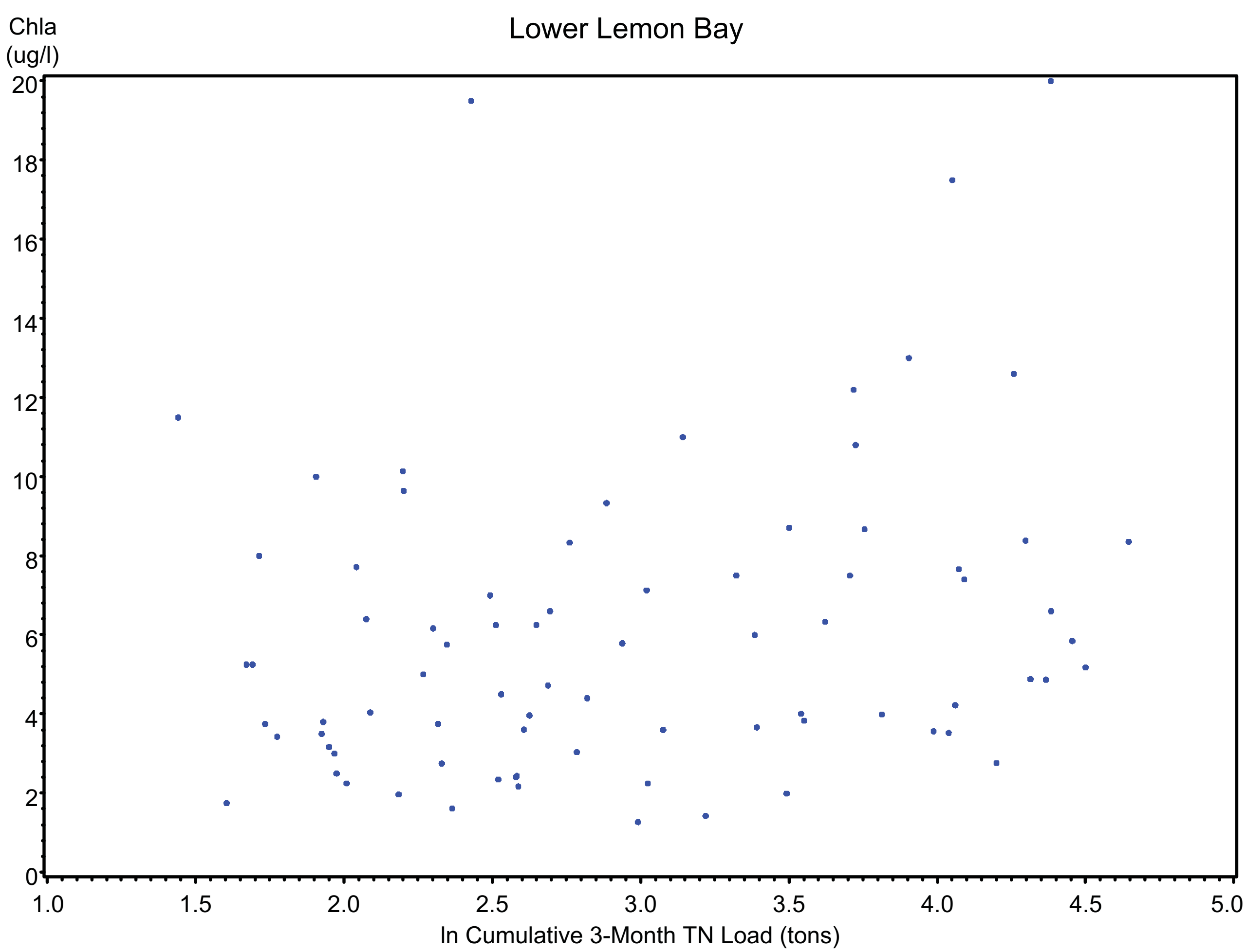

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
10
20
30
40
50
Monthly TN Load (tons)

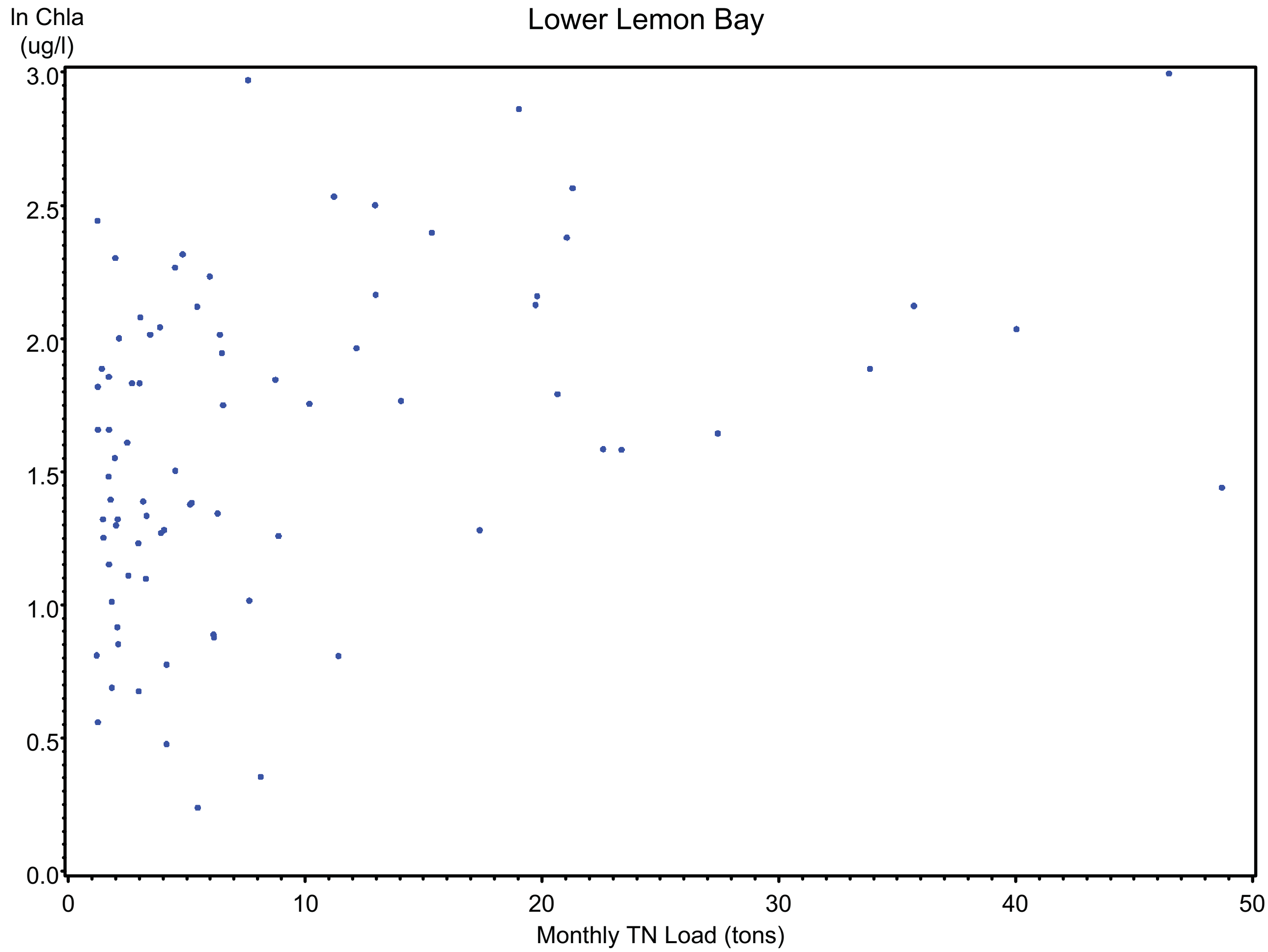

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)

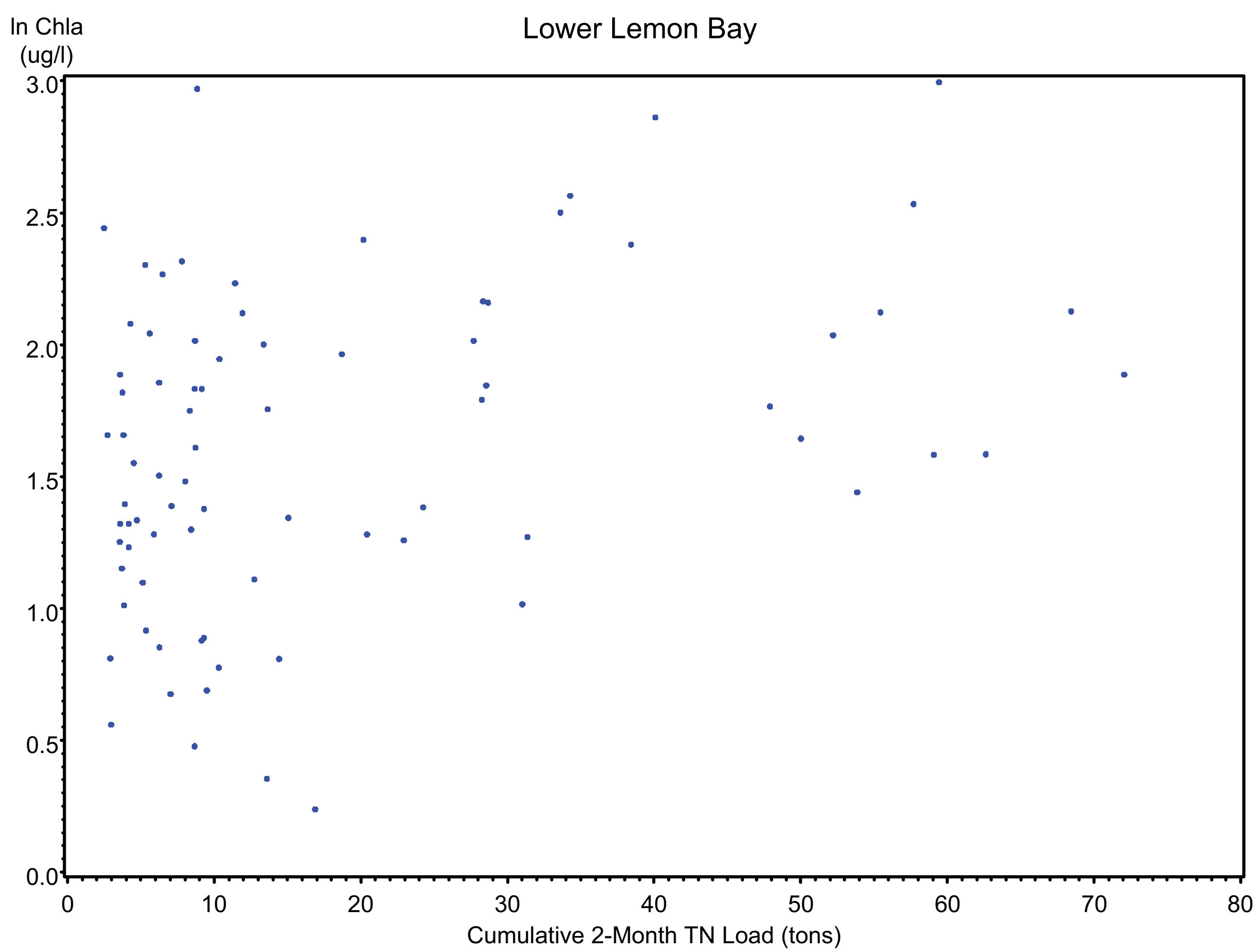

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

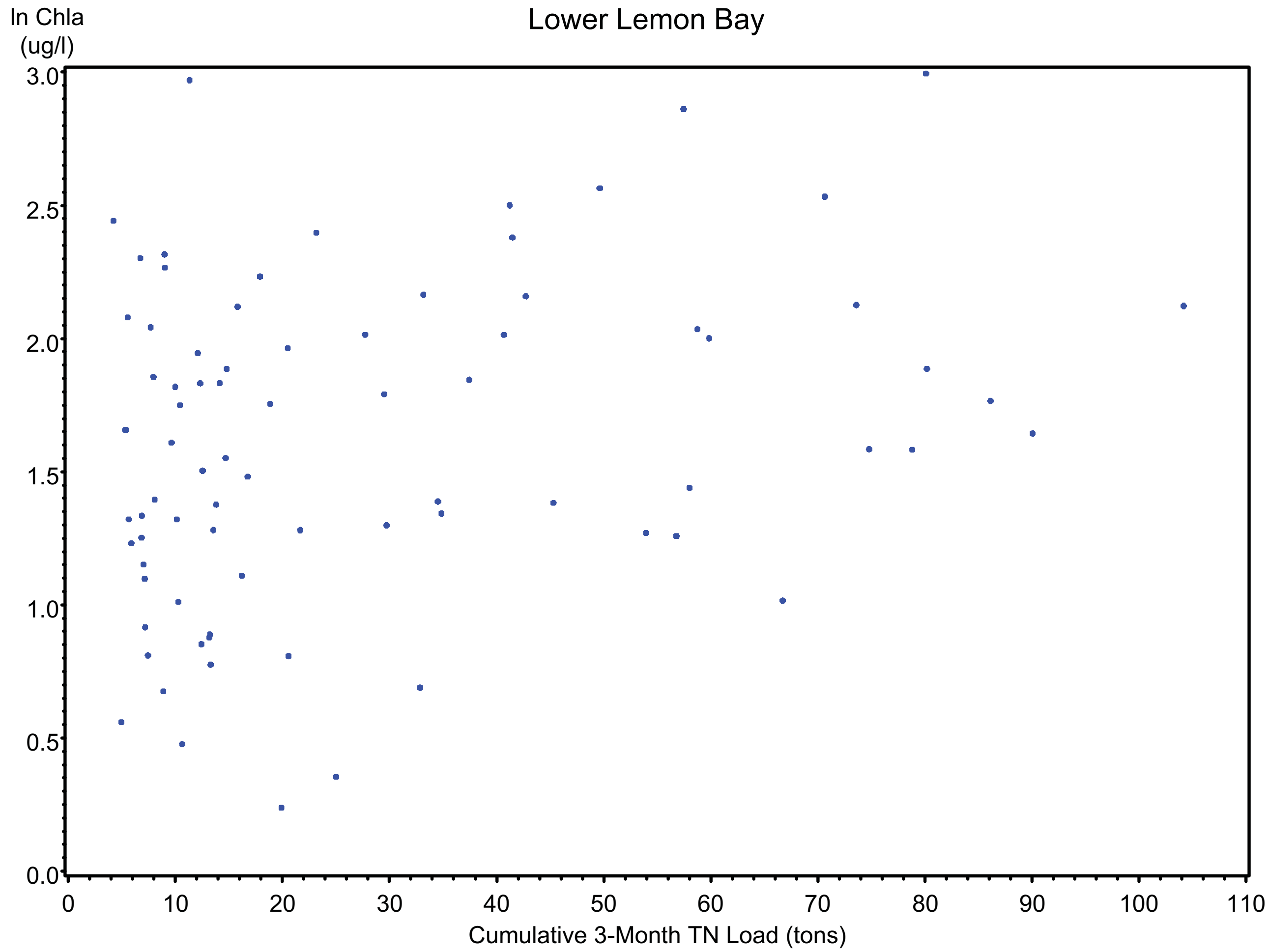

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ln Monthly TN Load (tons)

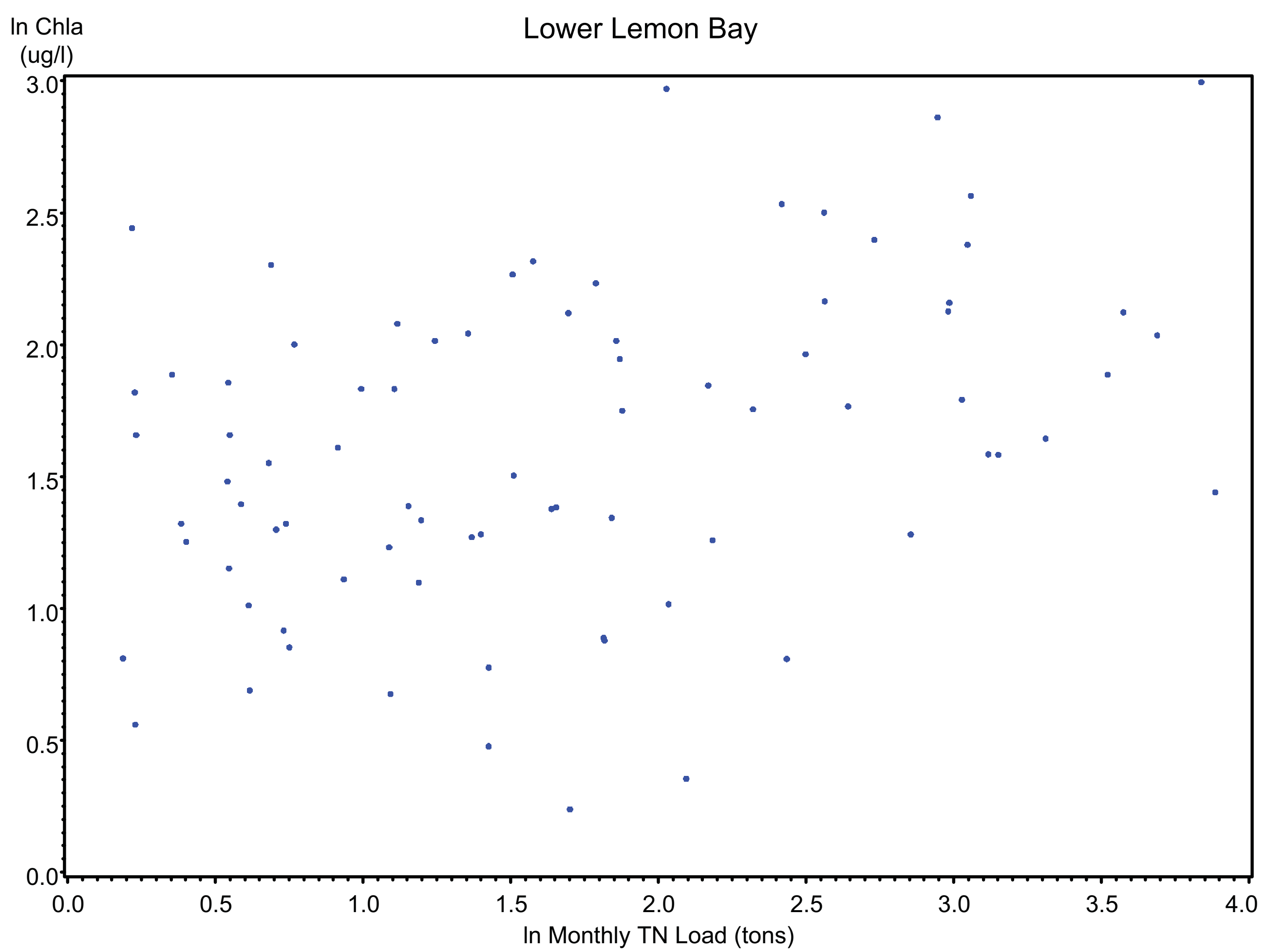

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)

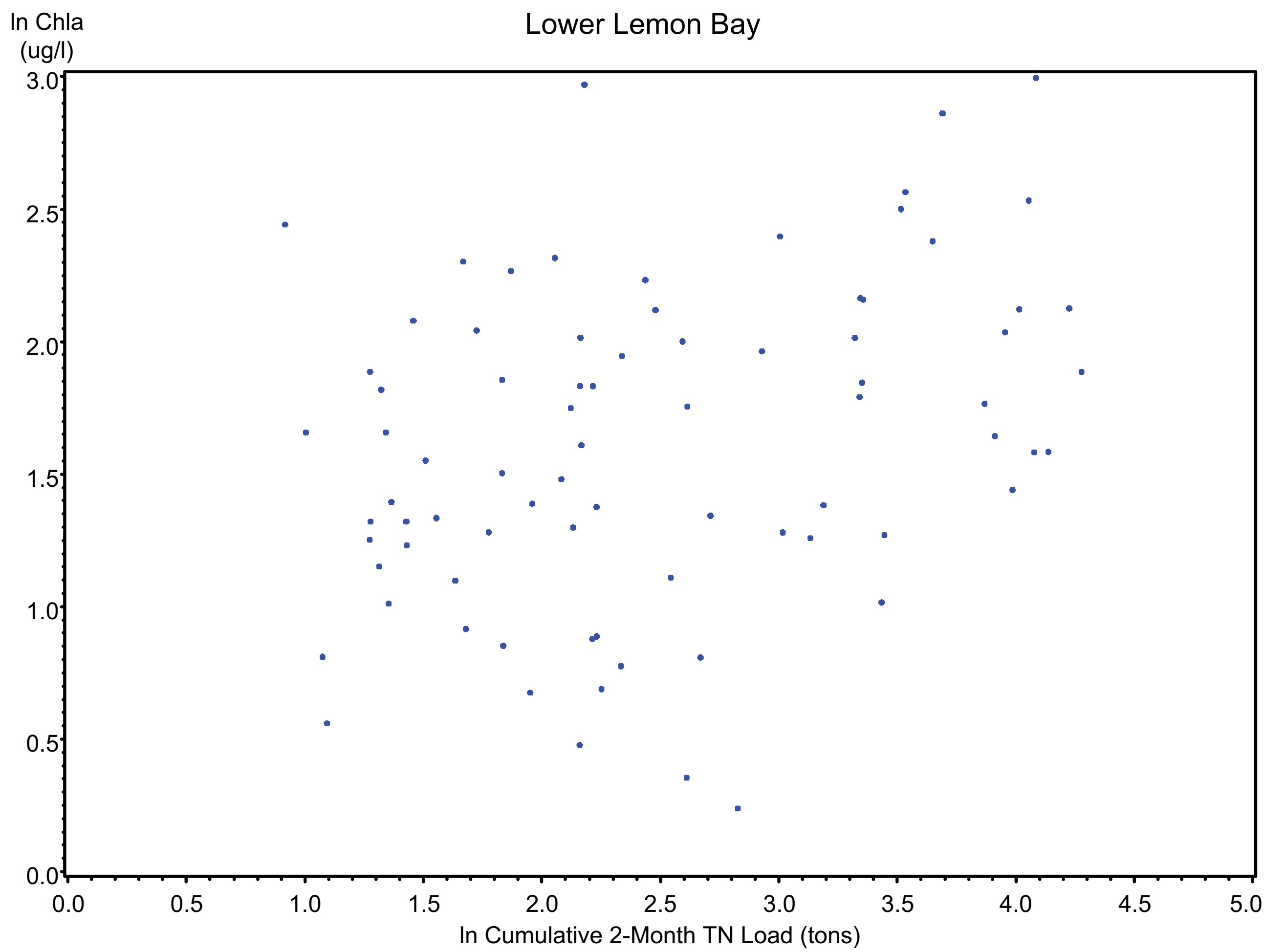

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)


Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
Monthly TN Load (tons)

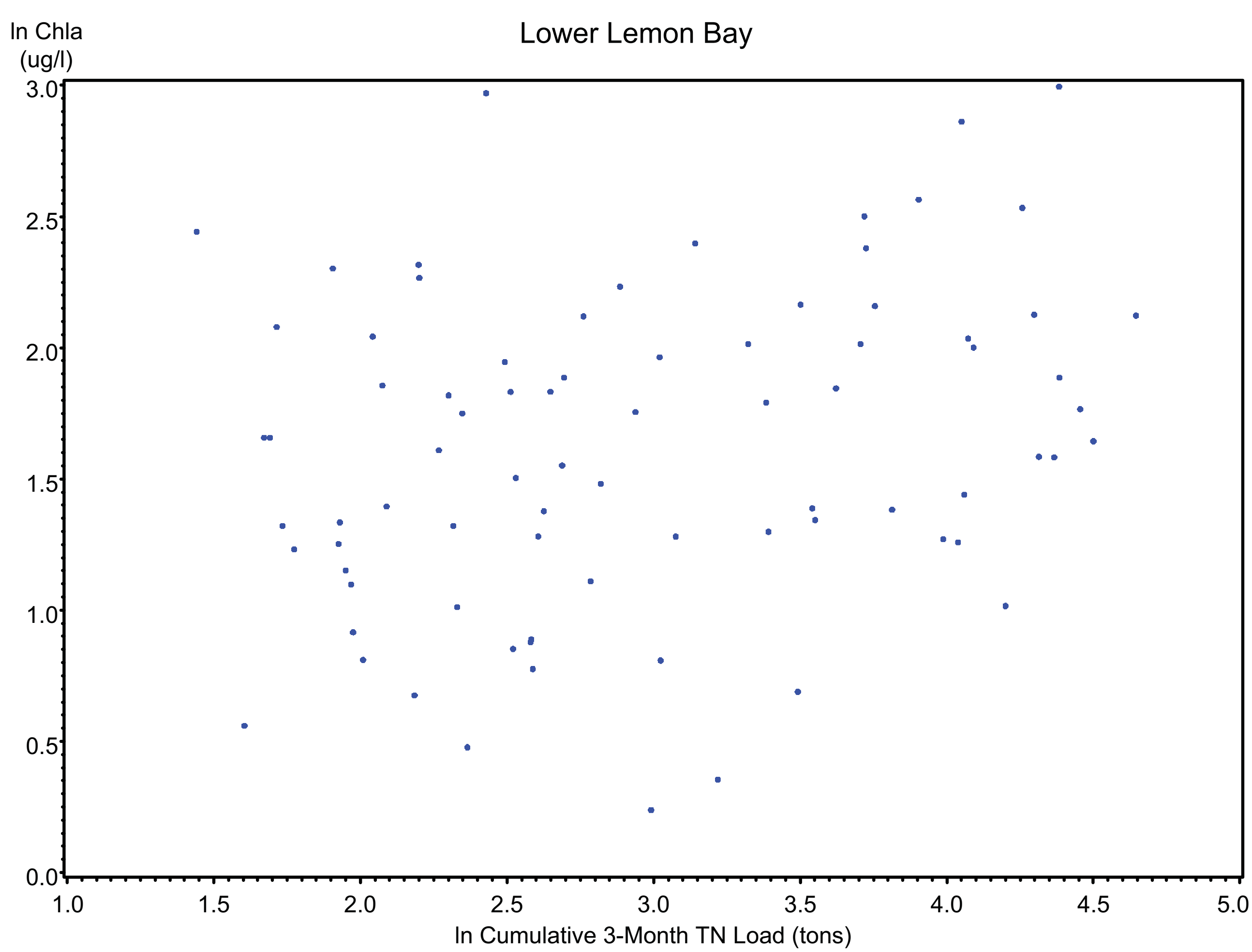

Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)


ln Chla
(ug/l)
Lower Lemon Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

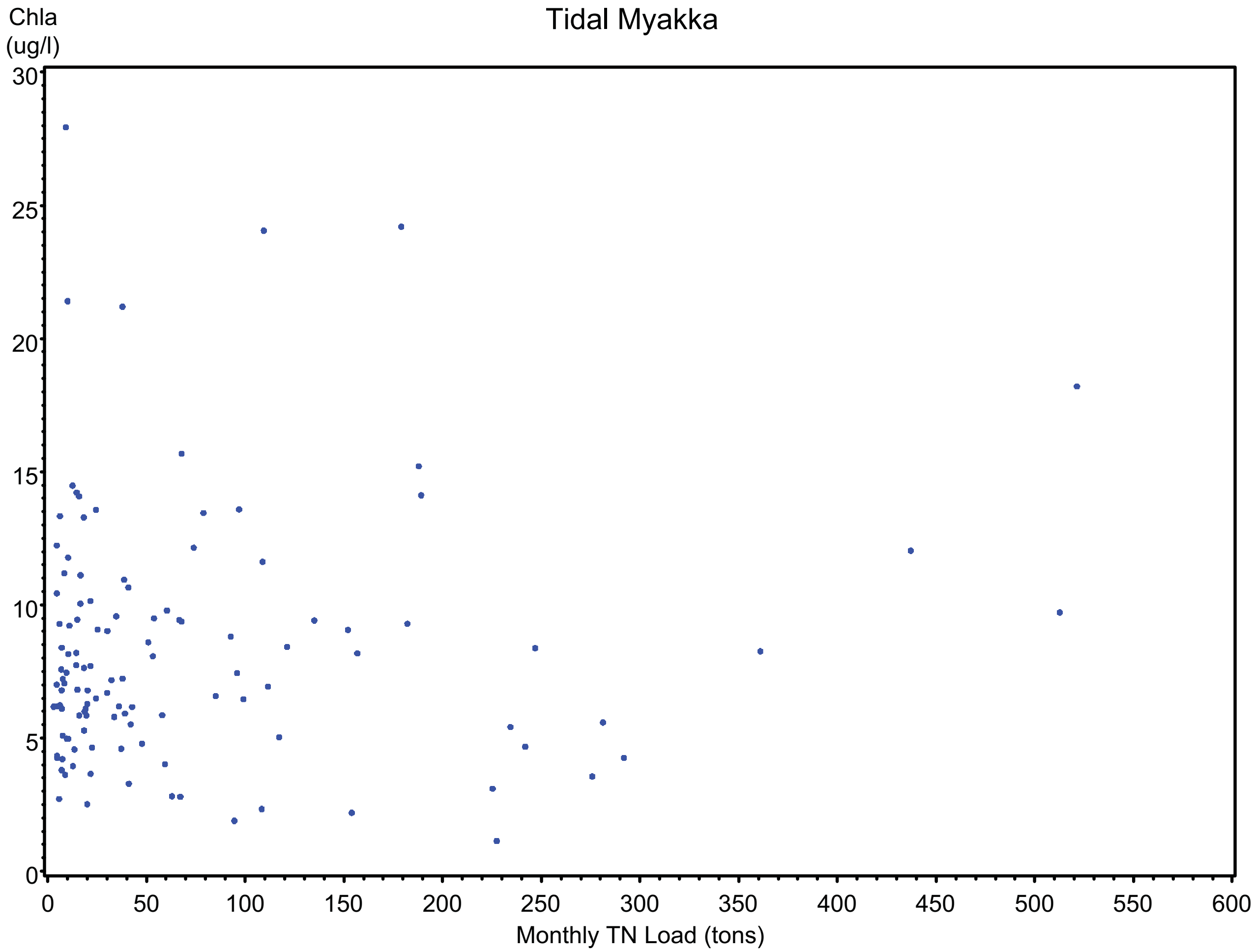

ln Chla
(ug/l)
Lower Lemon Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
ln Monthly TN Load (tons)

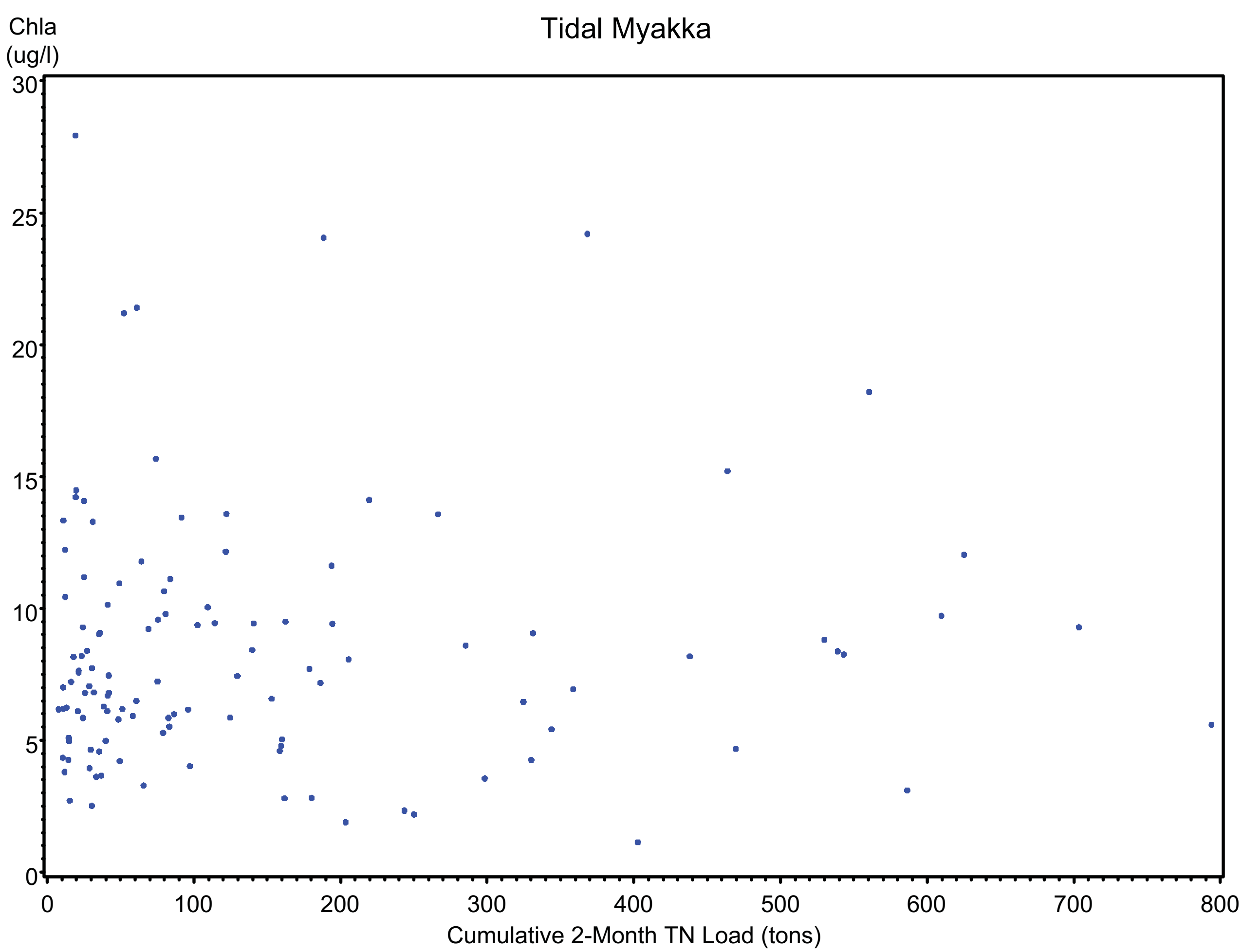


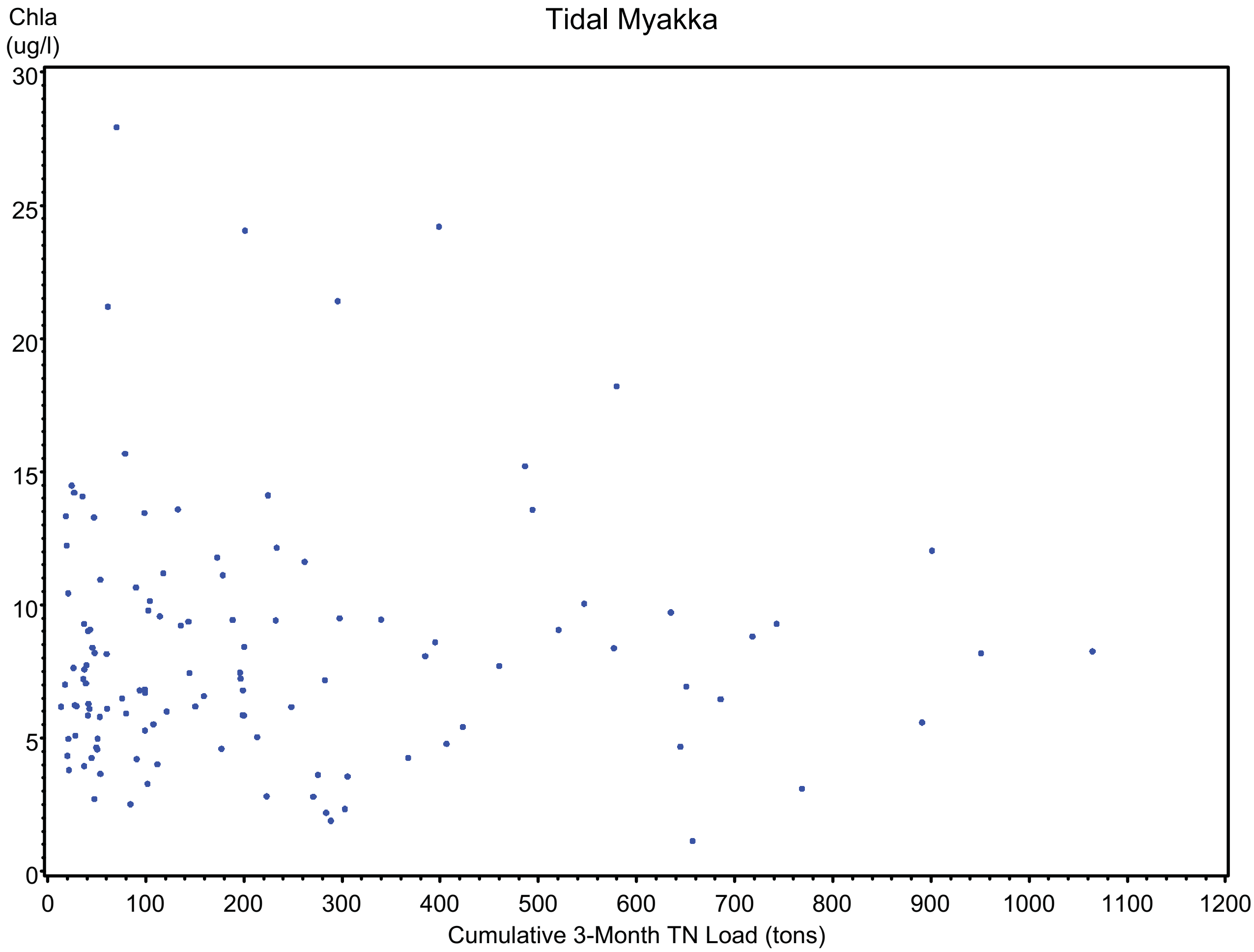
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
ln Cumulative 2-Month TN Load (tons)



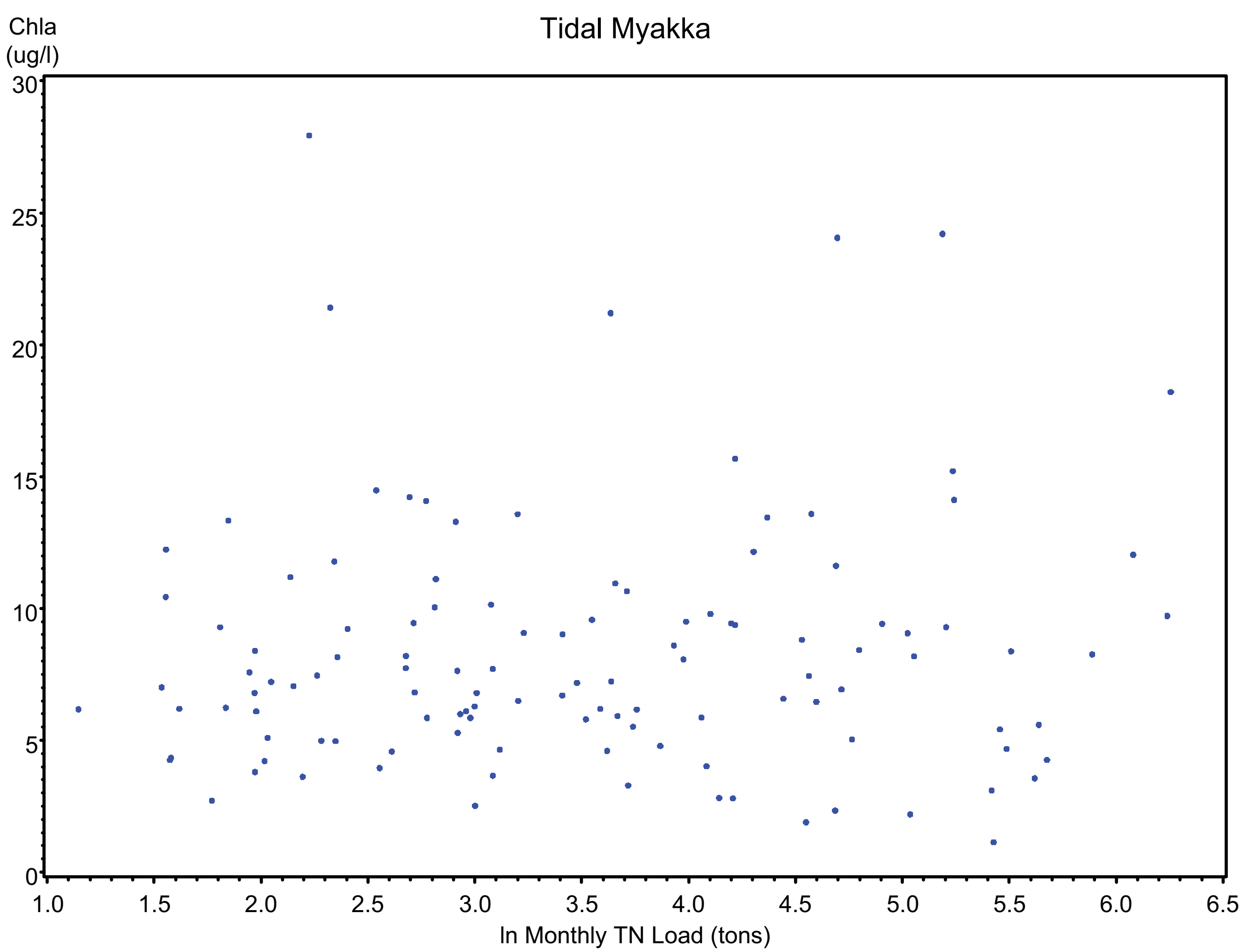
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
ln Cumulative 3-Month TN Load (tons)


Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
0 50 100 150 200 250 300 350 400 450 500 550 600
Monthly TN Load (tons)

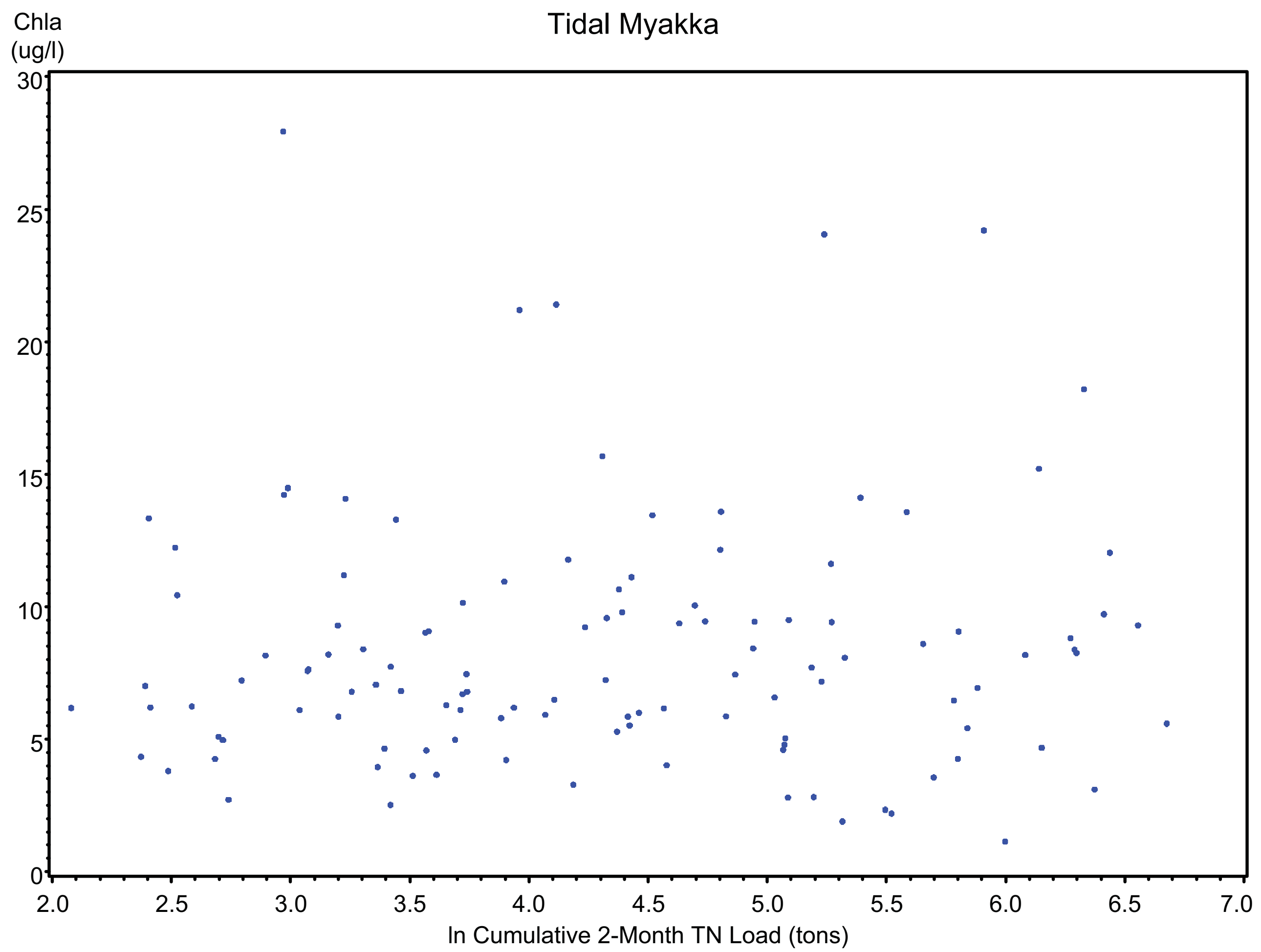

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
0 100 200 300 400 500 600 700 800
Cumulative 2-Month TN Load (tons)

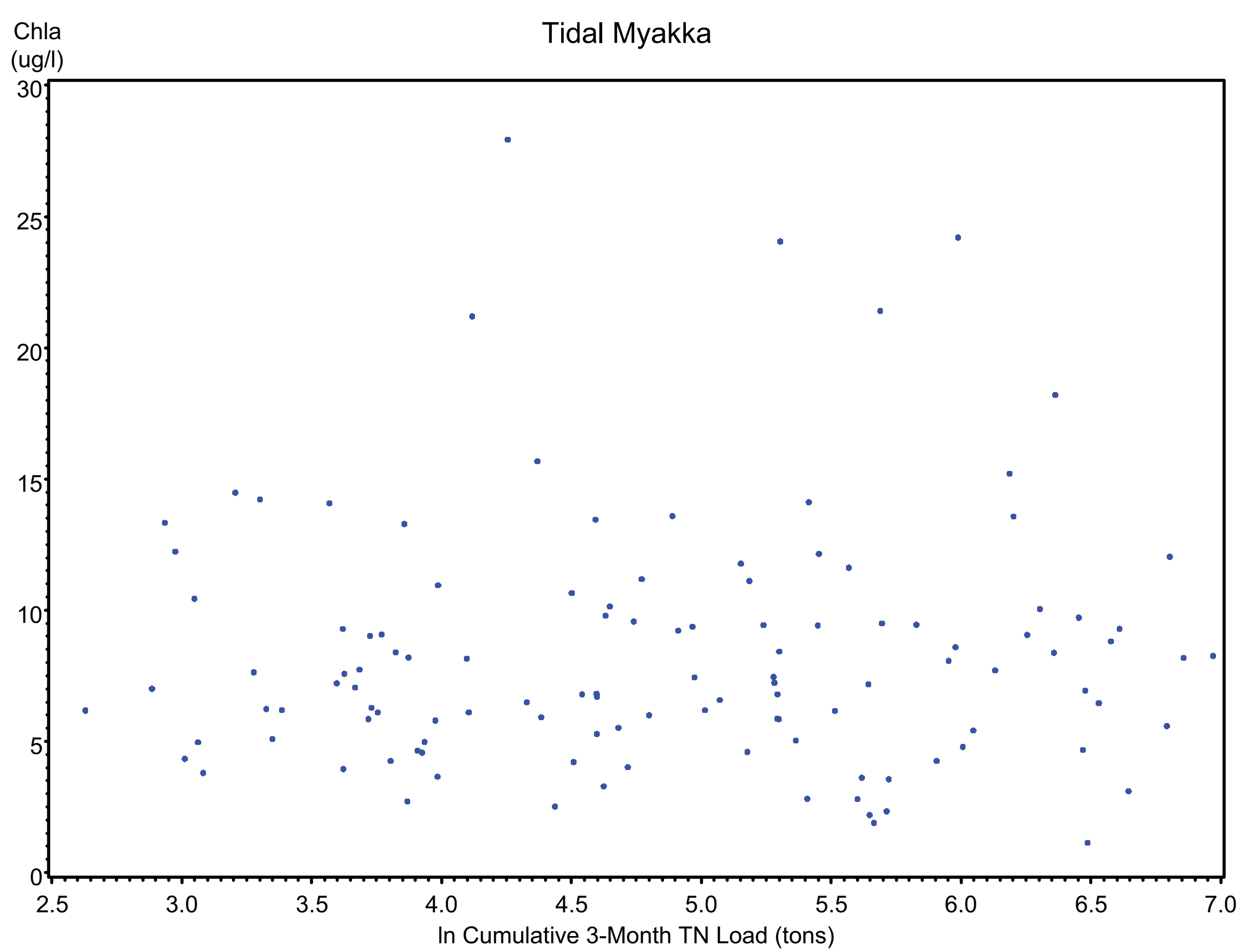


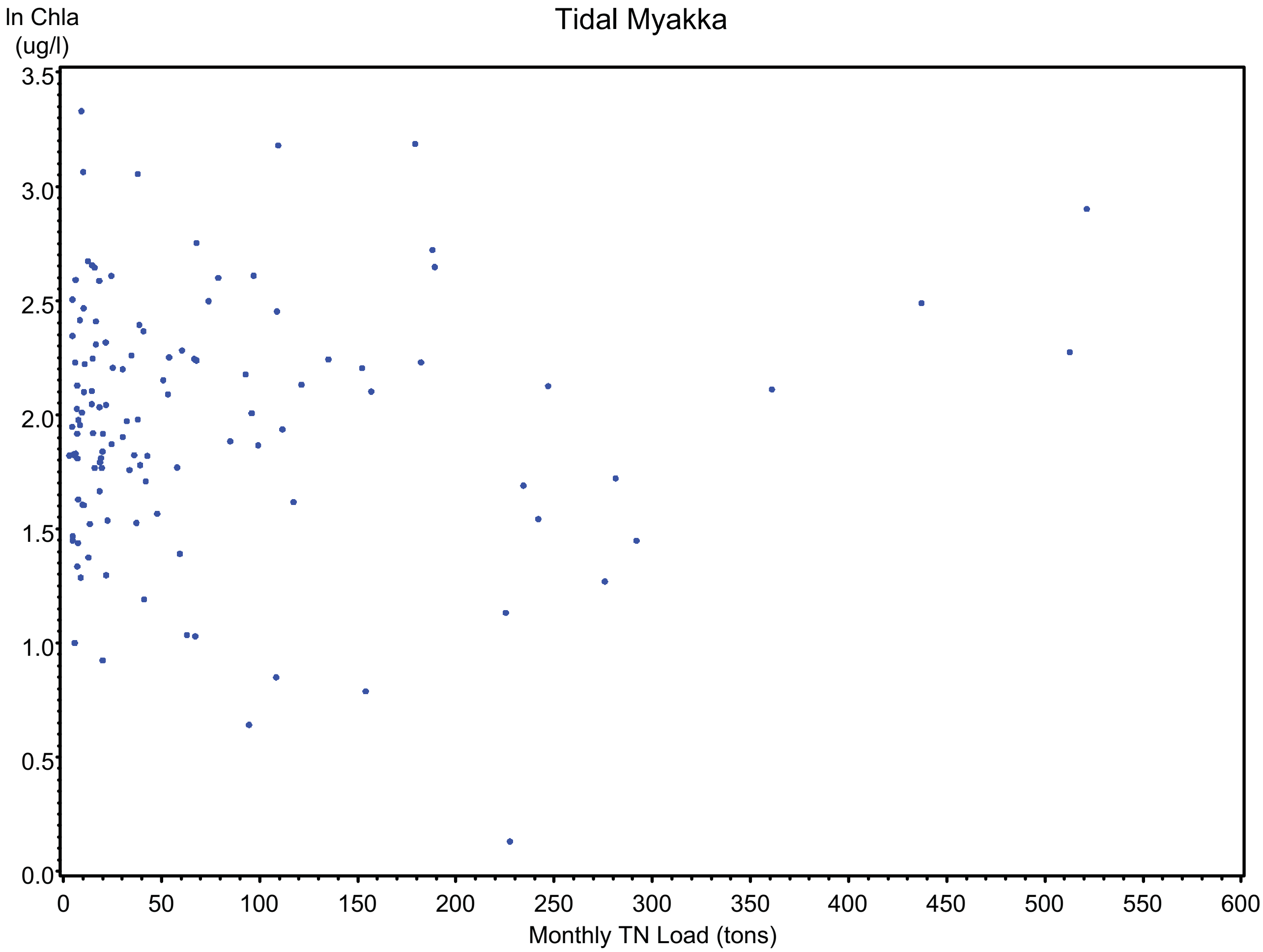
Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Cumulative 3-Month TN Load (tons)

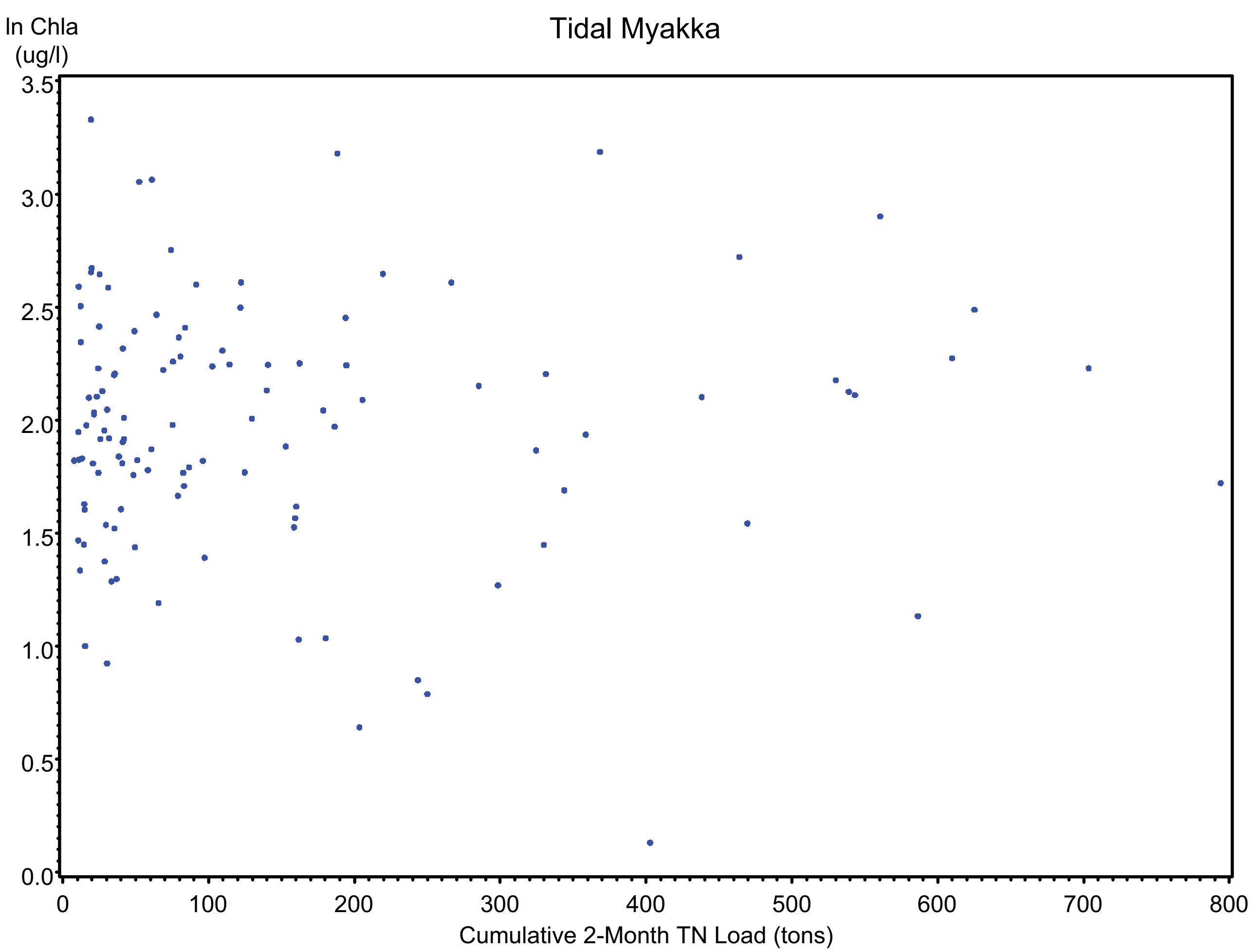


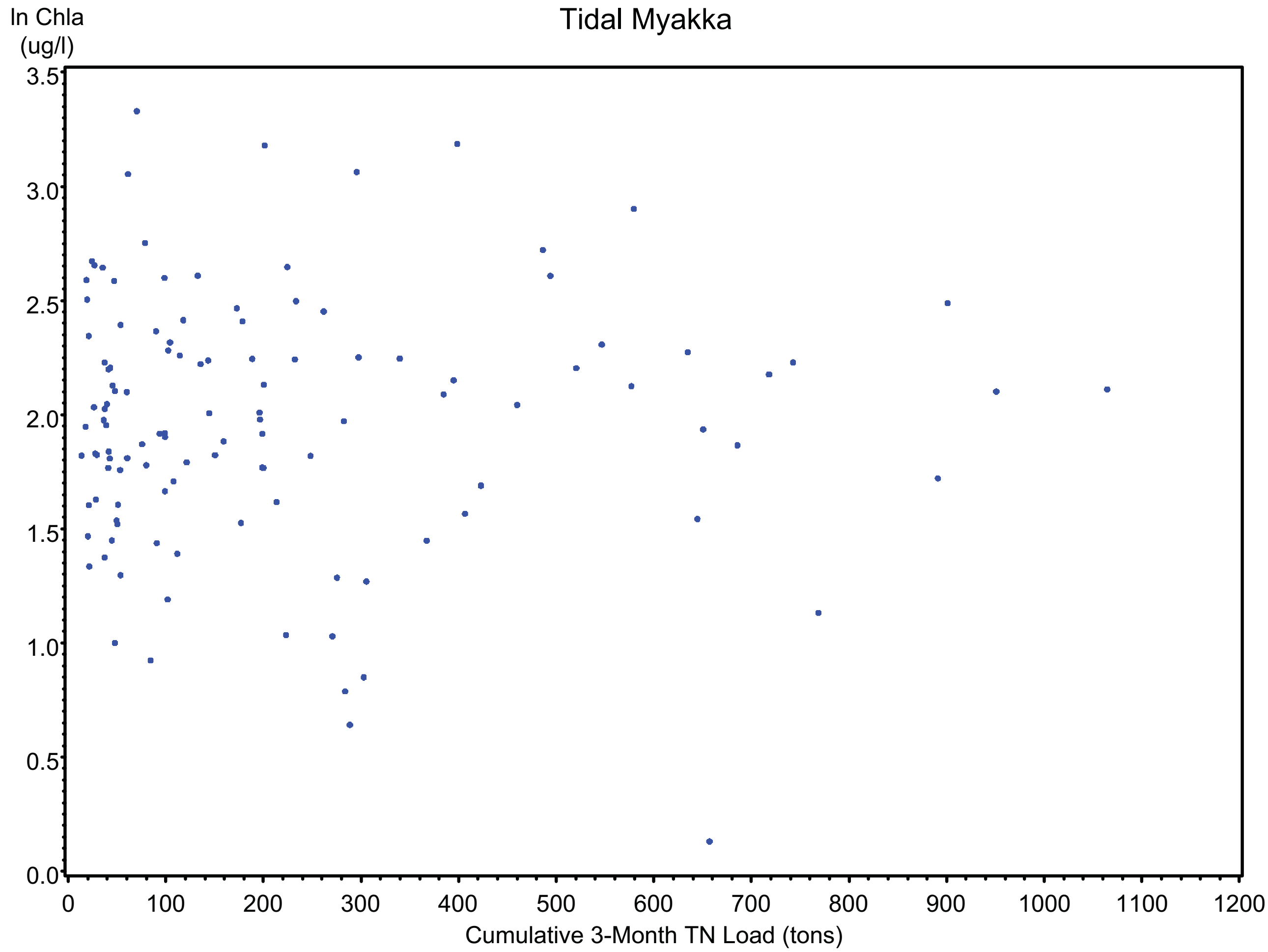
Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
ln Monthly TN Load (tons)

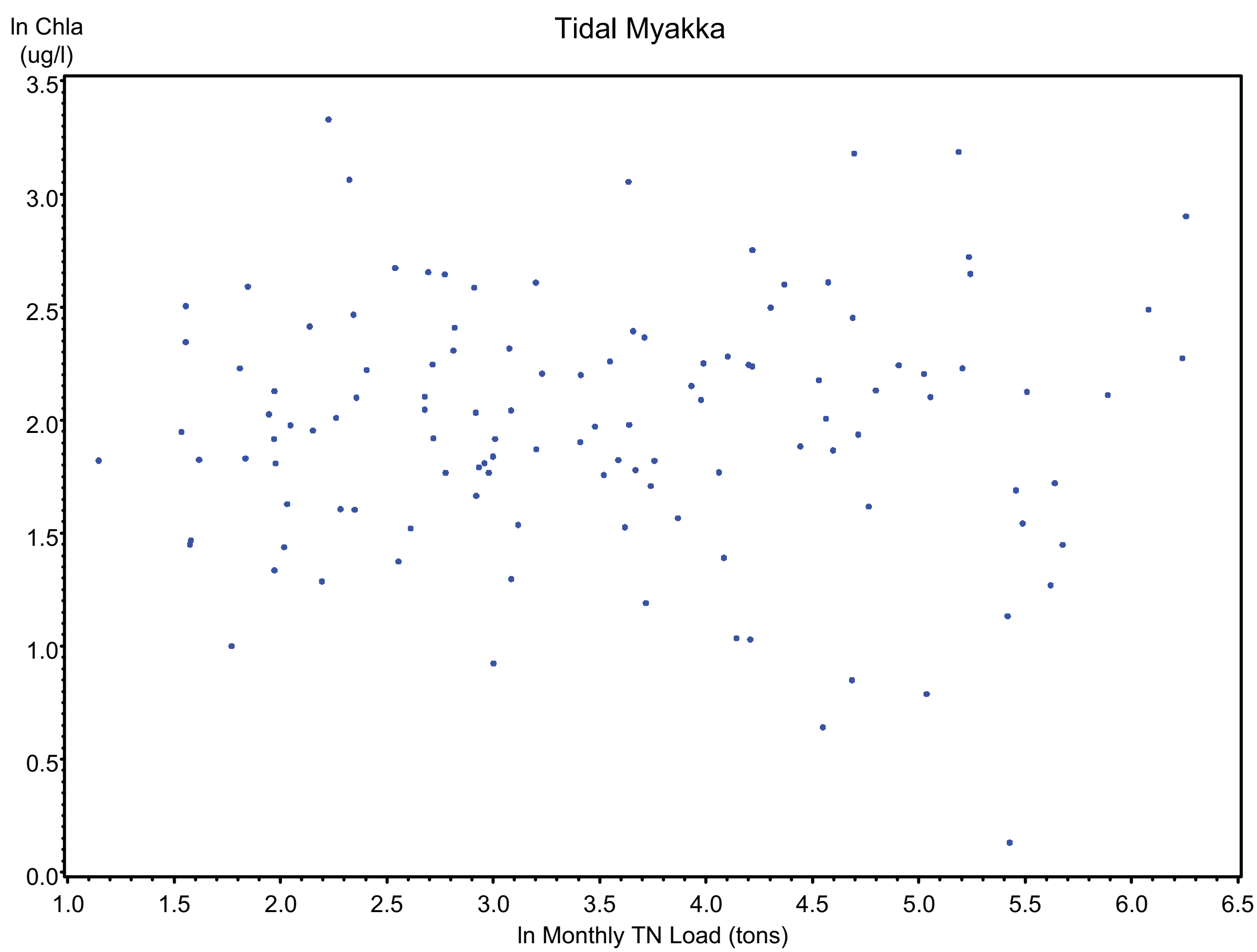

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
ln Cumulative 2-Month TN Load (tons)

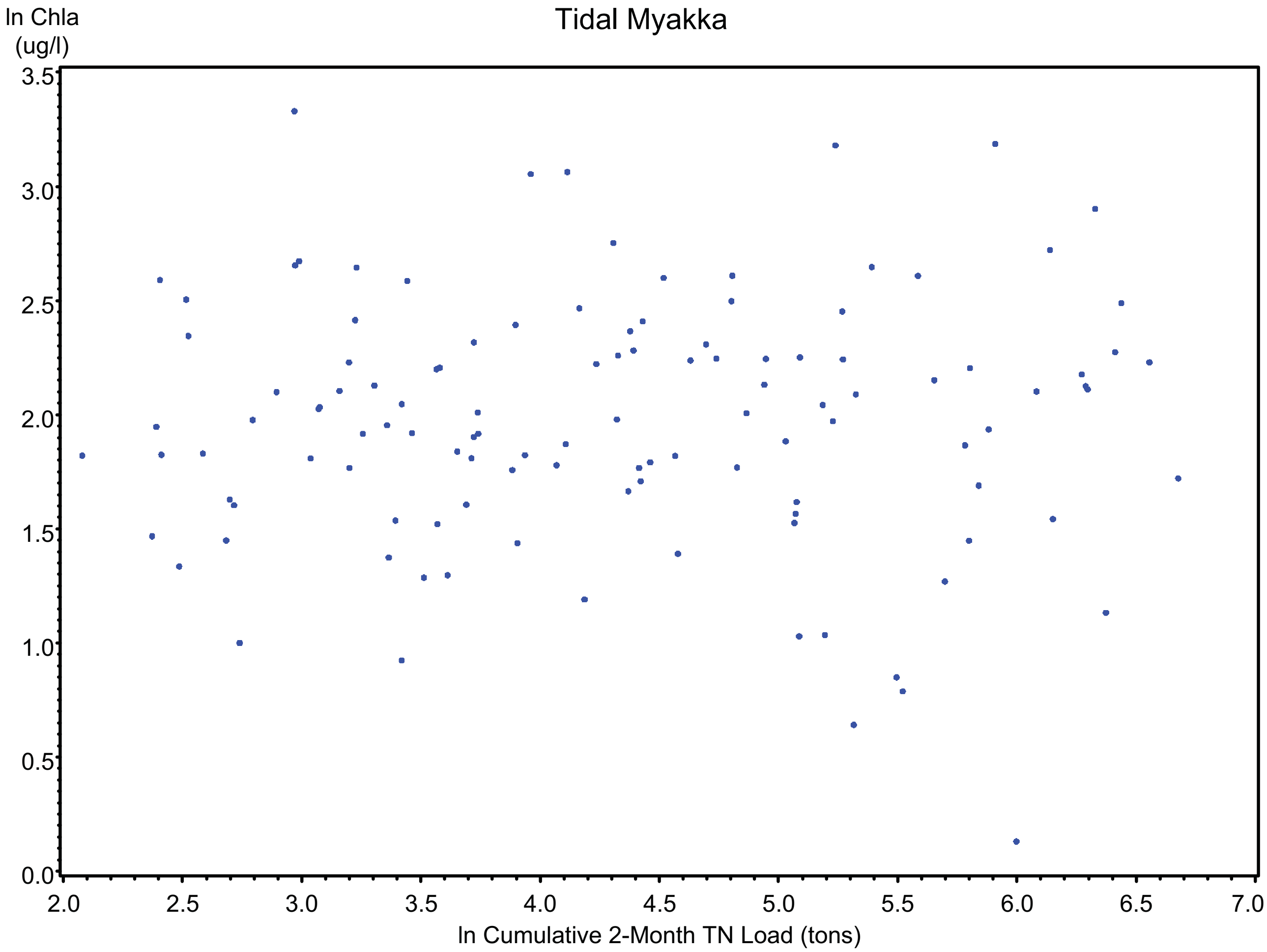

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
ln Cumulative 3-Month TN Load (tons)

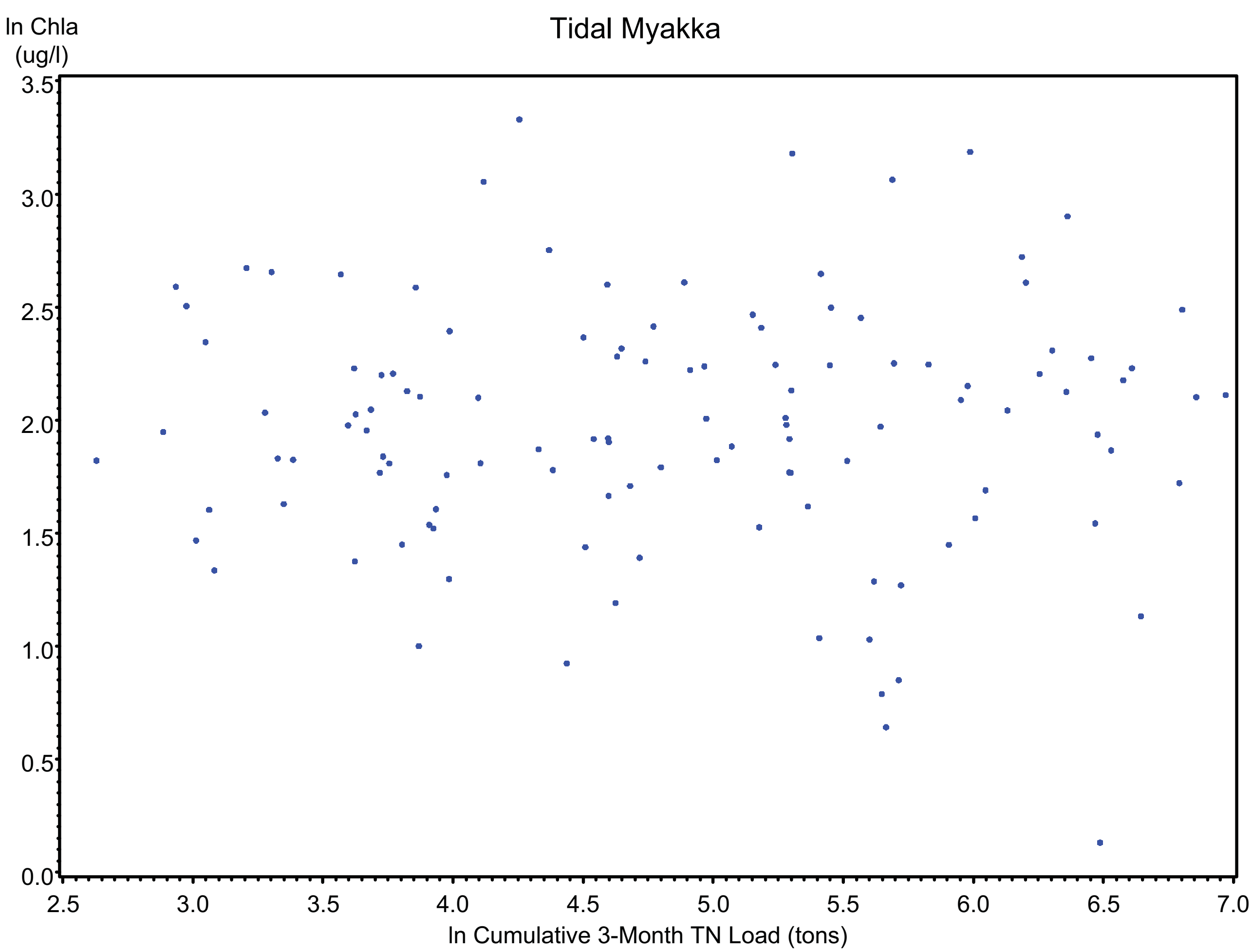

Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 50 100 150 200 250 300 350 400 450 500 550 600
Monthly TN Load (tons)

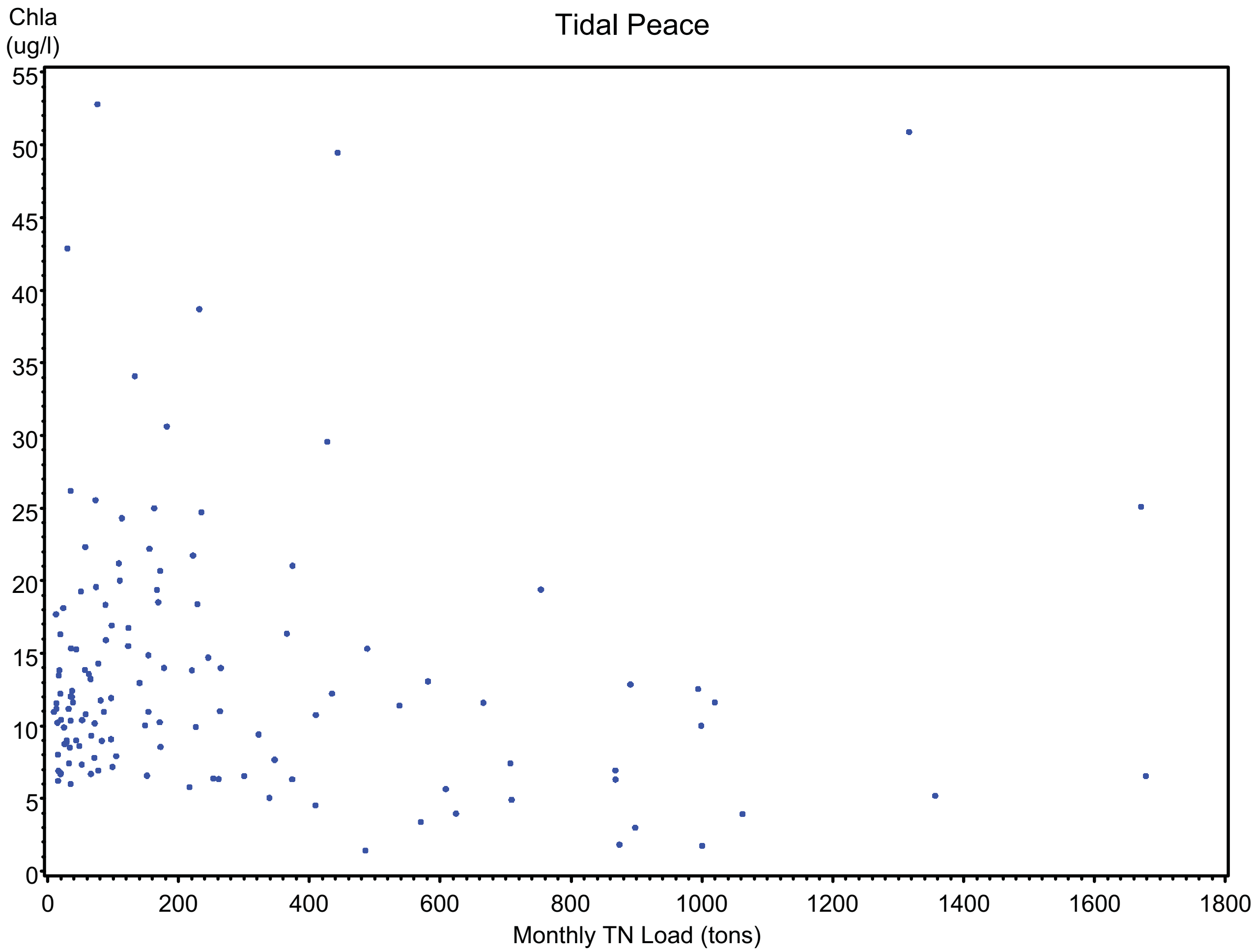

Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 100 200 300 400 500 600 700 800
Cumulative 2-Month TN Load (tons)

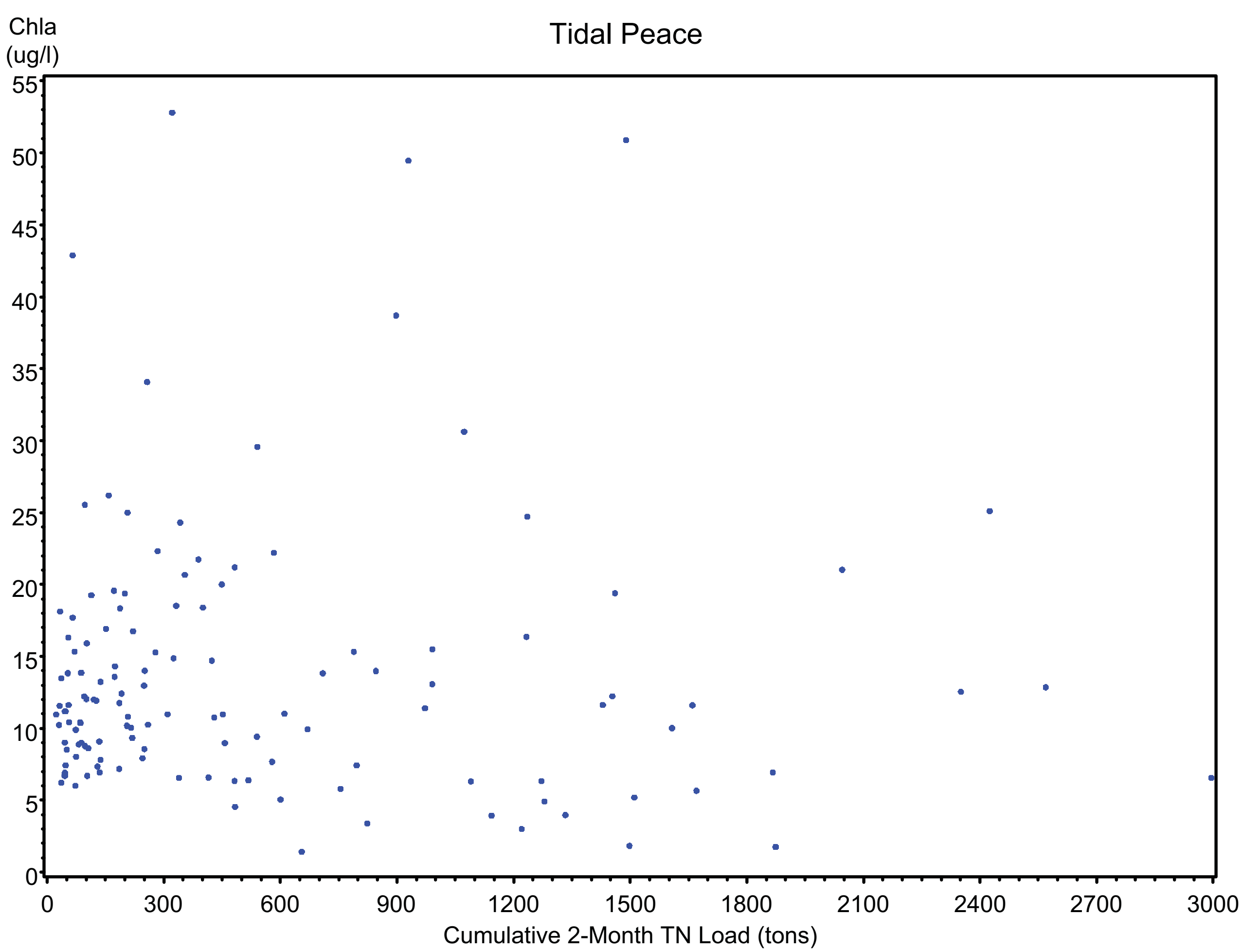

Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 100 200 300 400 500 600 700 800 900 1000 1100 1200
Cumulative 3-Month TN Load (tons)

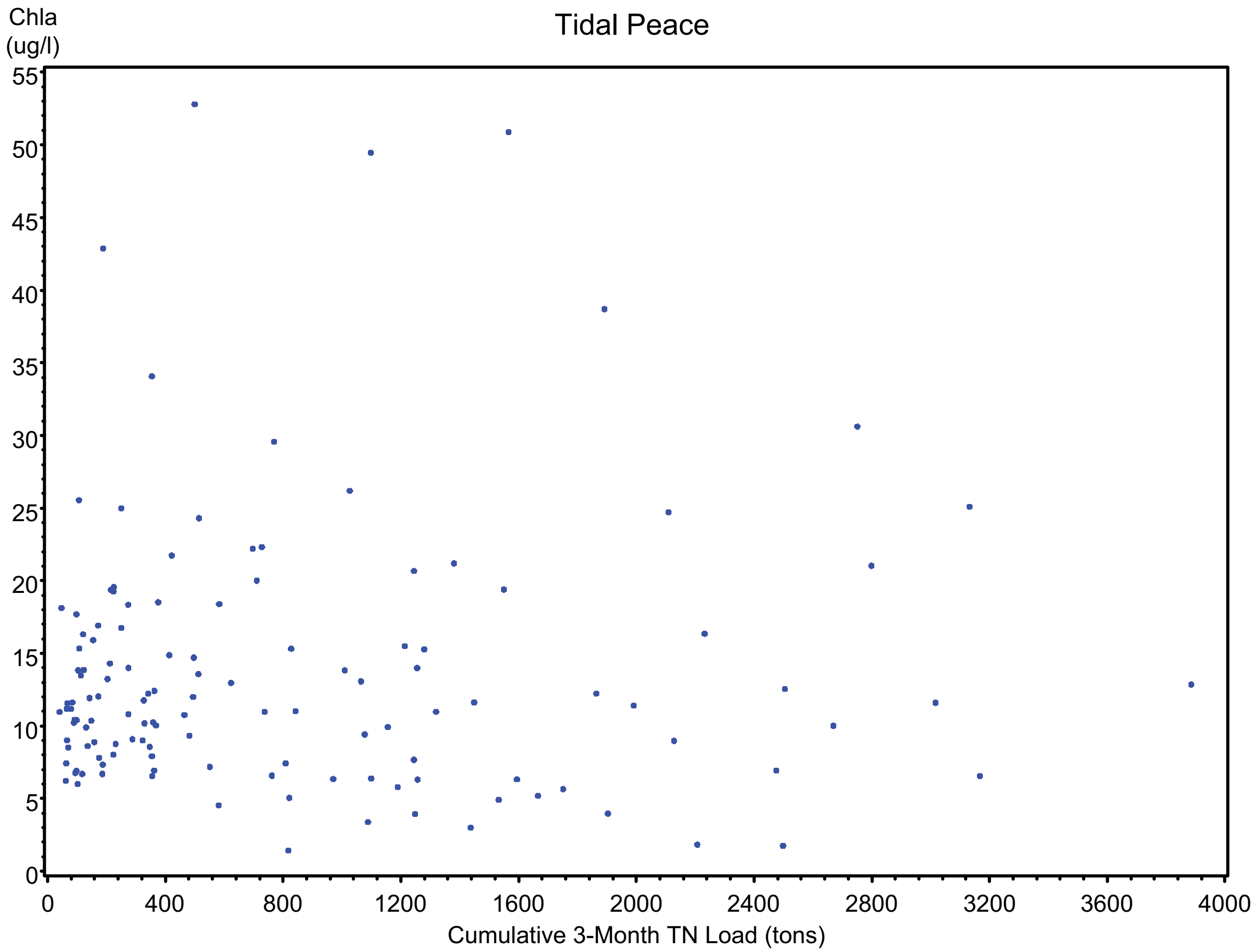

Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5
ln Monthly TN Load (tons)


Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
ln Cumulative 2-Month TN Load (tons)

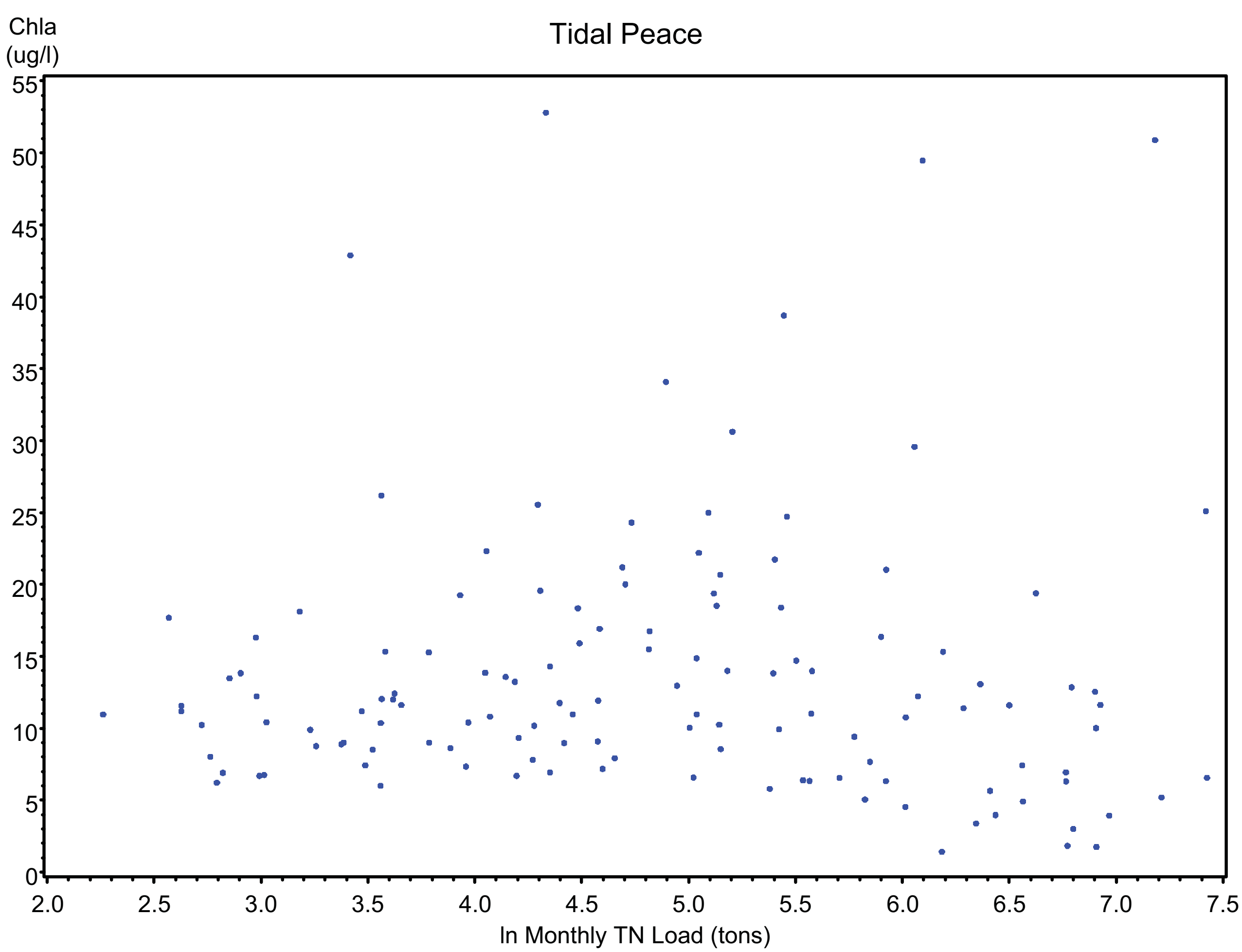

Tidal Myakka
ln Chla (ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
ln Cumulative 3-Month TN Load (tons)


Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
200
400
600
800
1000
1200
1400
1600
1800
Monthly TN Load (tons)

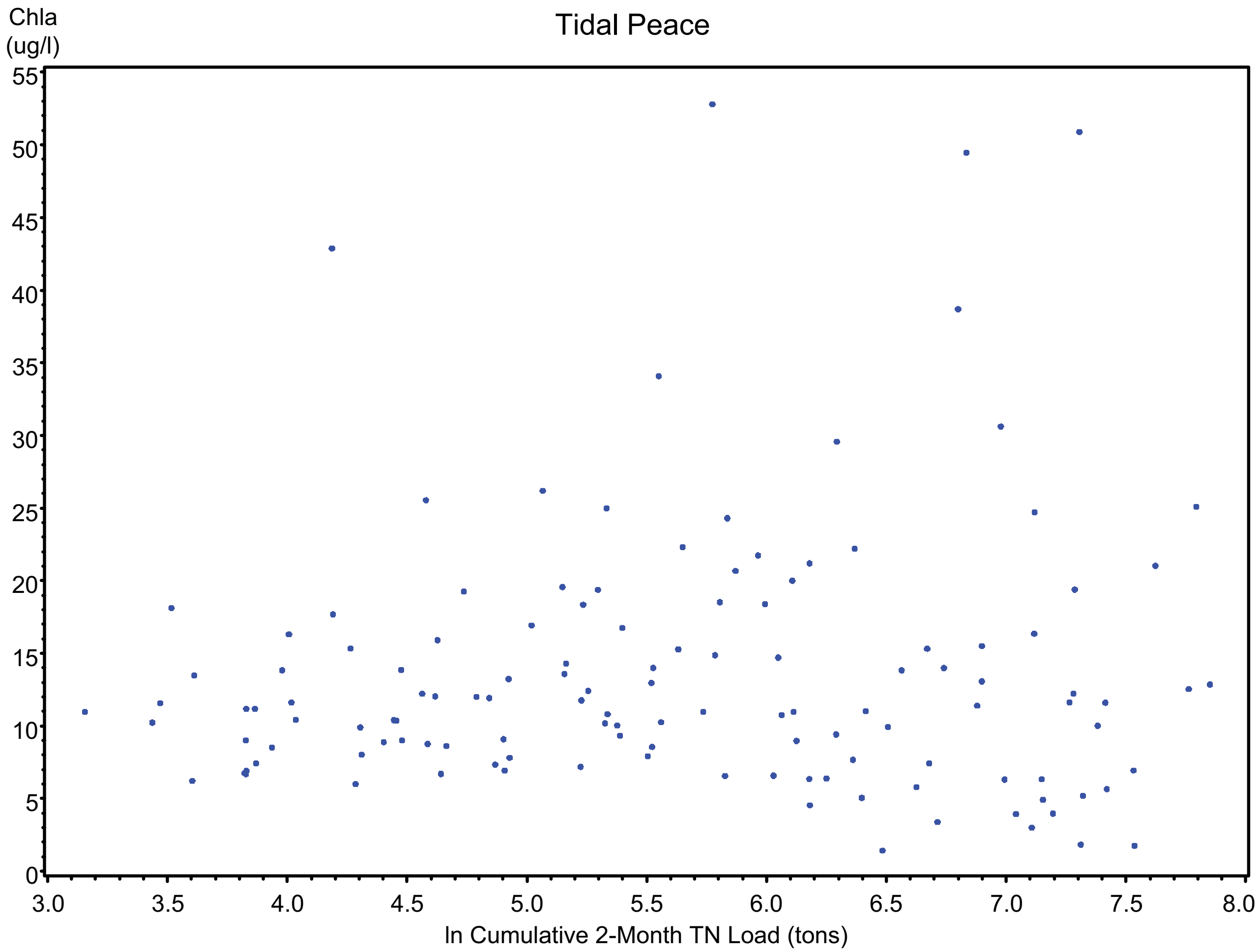

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
300
600
900
1200
1500
1800
2100
2400
2700
3000
Cumulative 2-Month TN Load (tons)

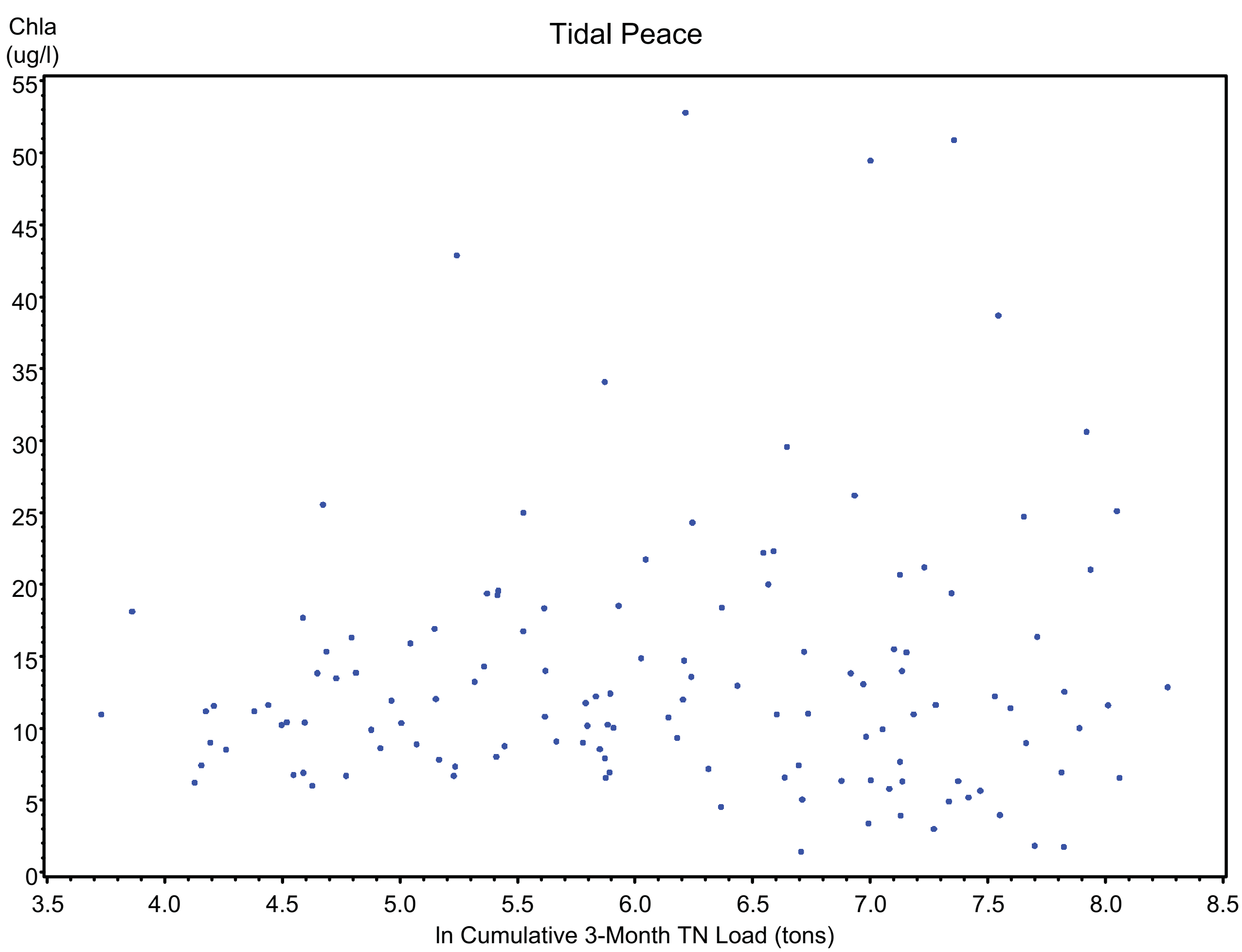


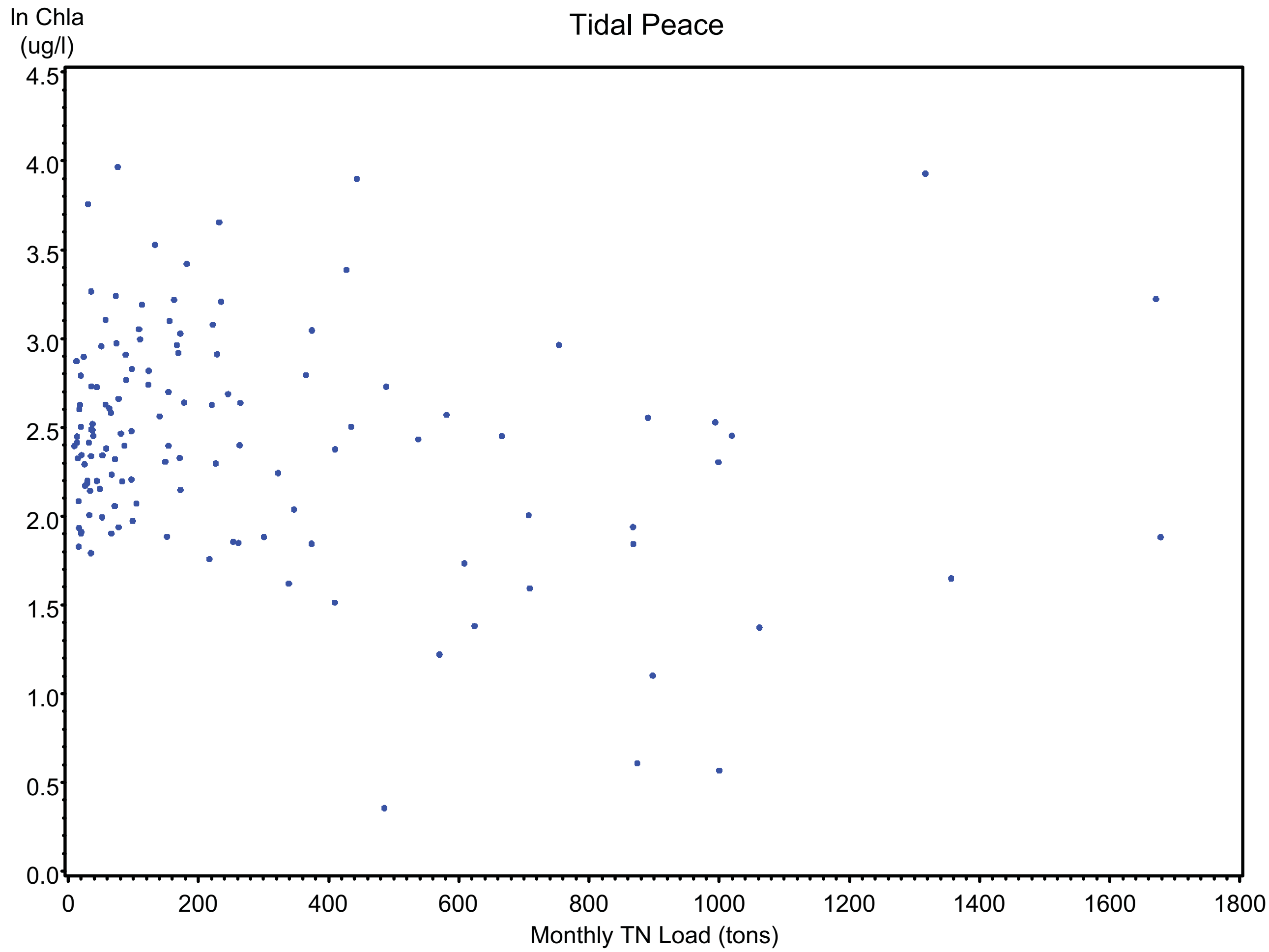
Chla
(ug/l)
Tidal Peace
0
5
10
15
20
25
30
35
40
45
50
55
0
400
800
1200
1600
2000
2400
2800
3200
3600
4000
Cumulative 3-Month TN Load (tons)

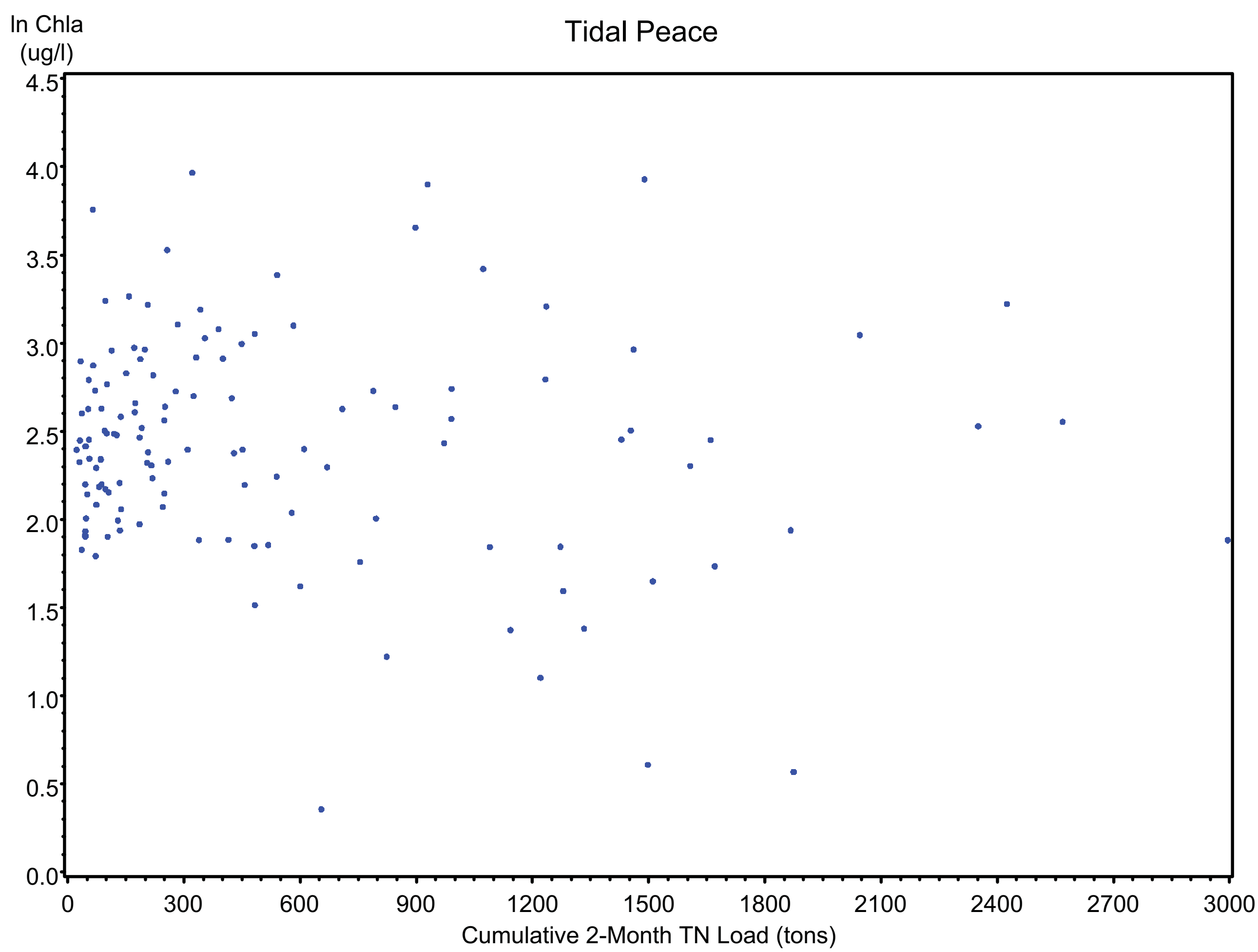


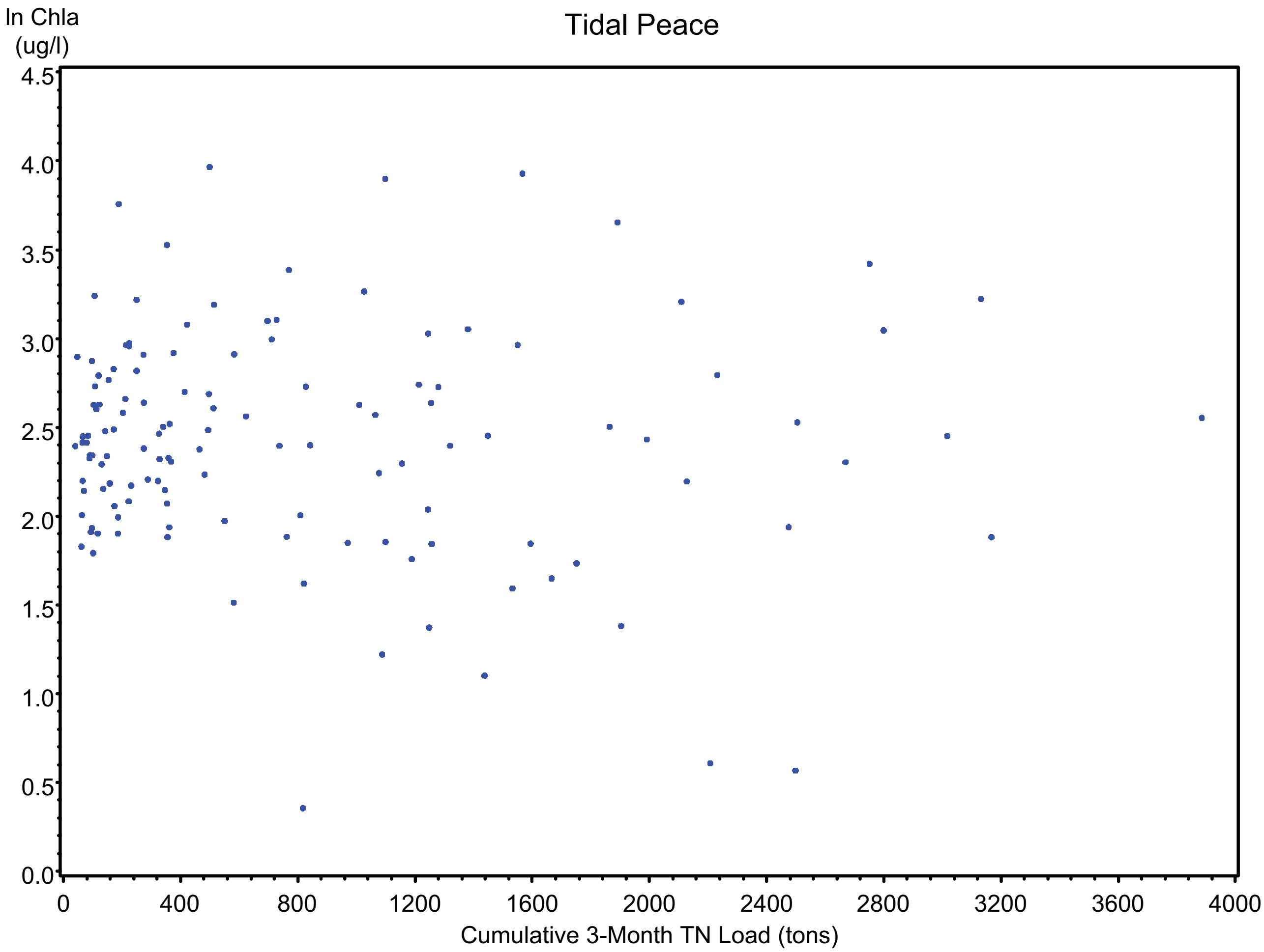
Chla
(ug/l)
Tidal Peace
0
5
10
15
20
25
30
35
40
45
50
55
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
ln Monthly TN Load (tons)

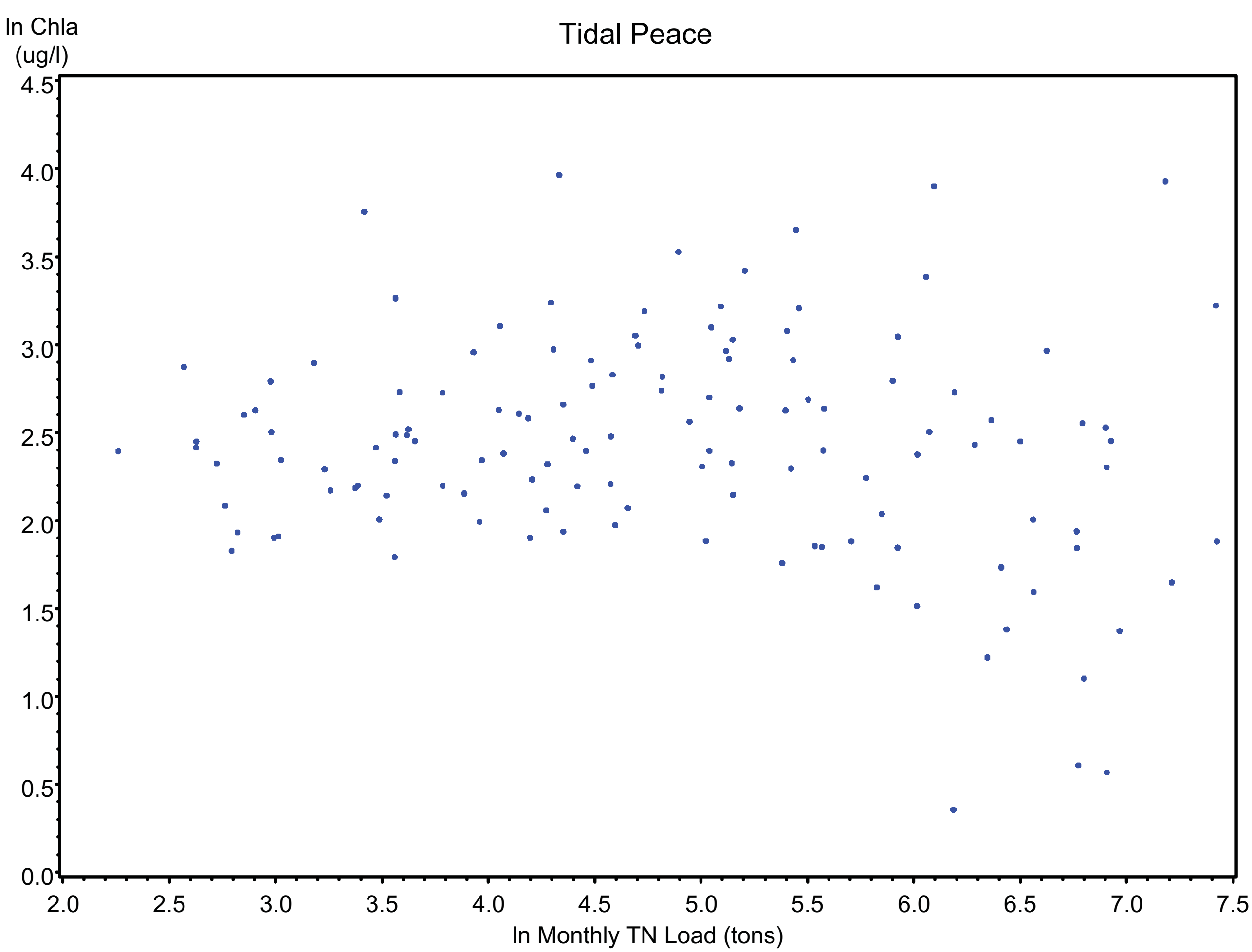

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
ln Cumulative 2-Month TN Load (tons)

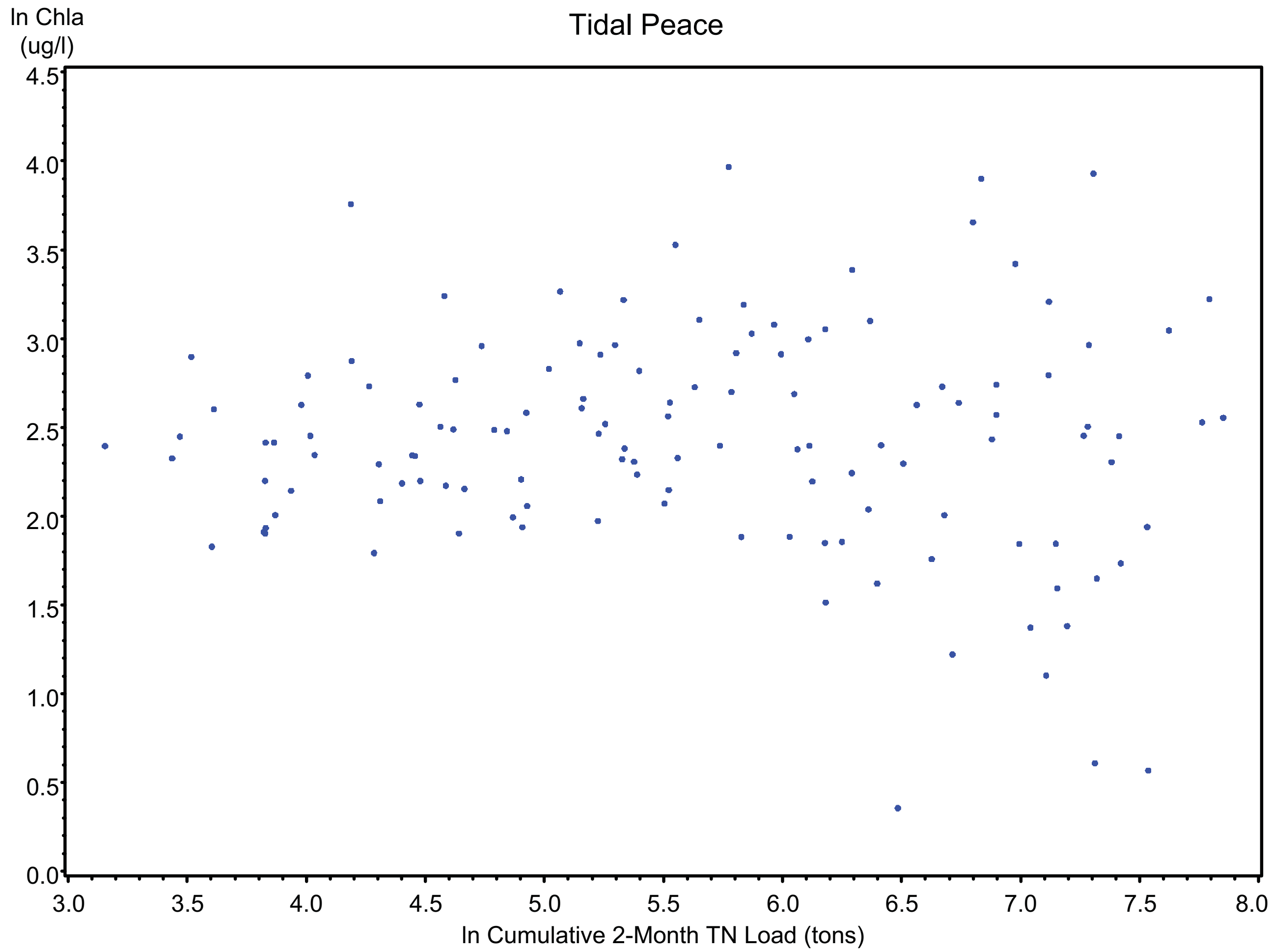

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
ln Cumulative 3-Month TN Load (tons)


ln Chla
(ug/l)
Tidal Peace
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
200
400
600
800
1000
1200
1400
1600
1800
Monthly TN Load (tons)

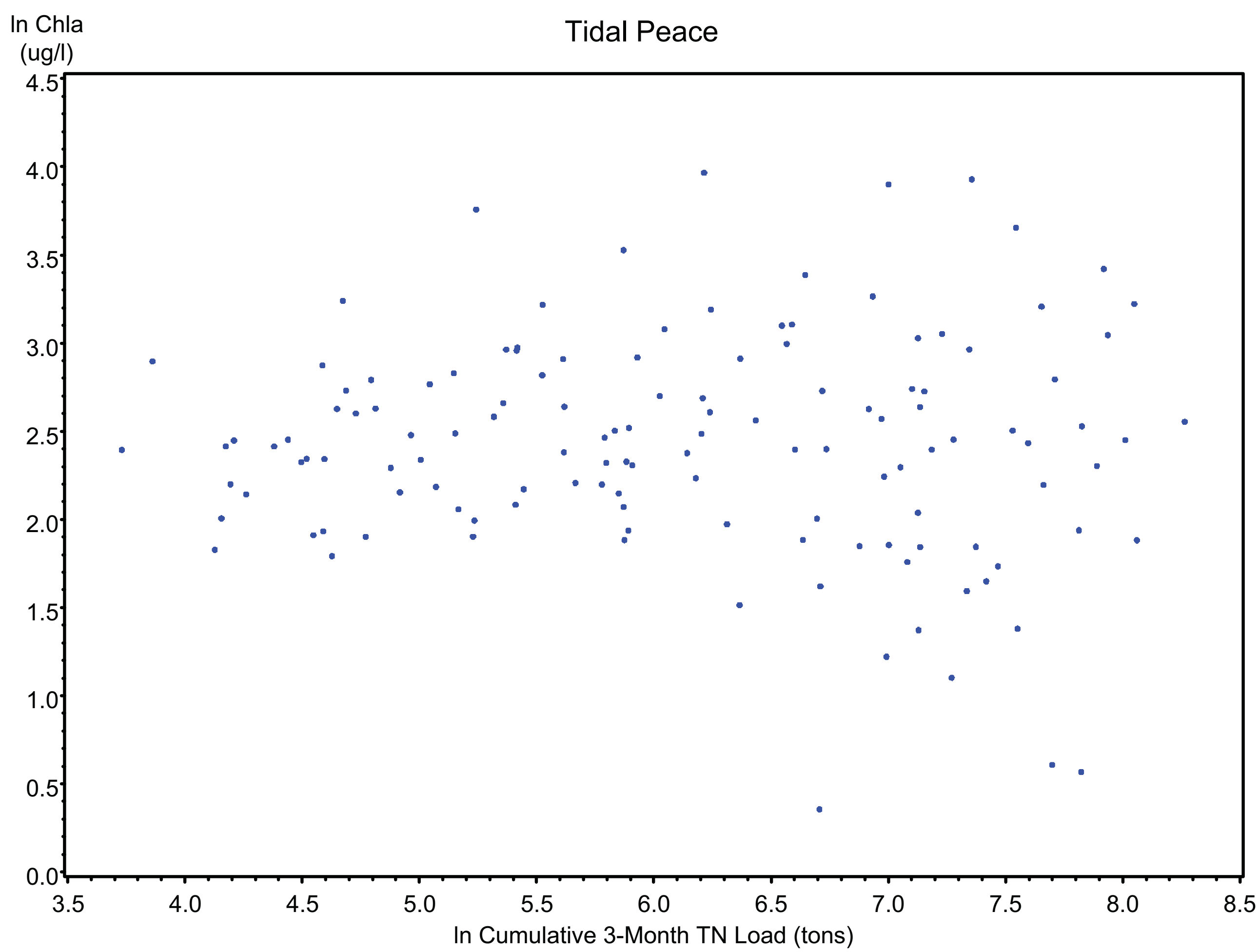

ln Chla
(ug/l)
Tidal Peace
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
300
600
900
1200
1500
1800
2100
2400
2700
3000
Cumulative 2-Month TN Load (tons)


Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
400
800
1200
1600
2000
2400
2800
3200
3600
4000
Cumulative 3-Month TN Load (tons)

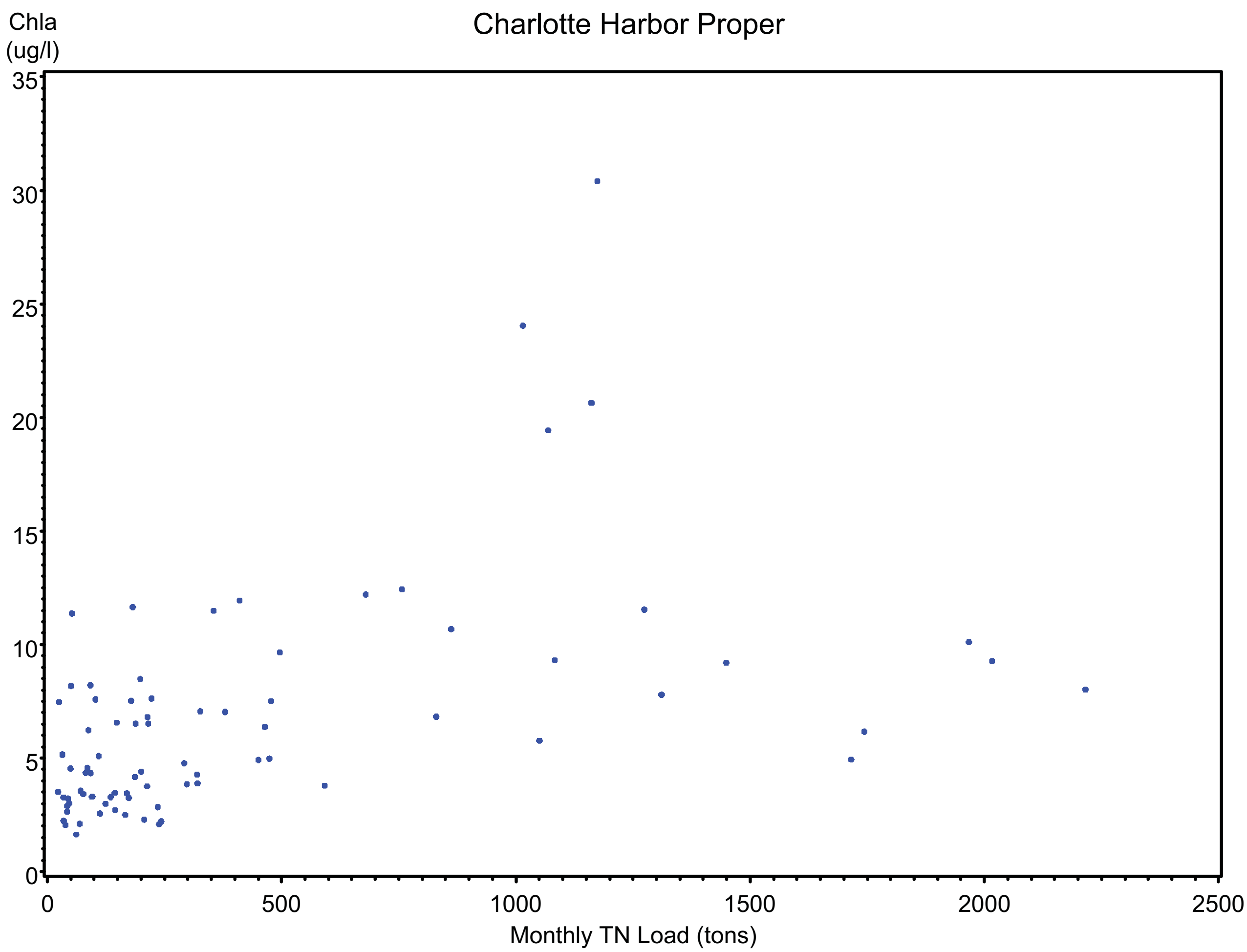

Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
ln Monthly TN Load (tons)

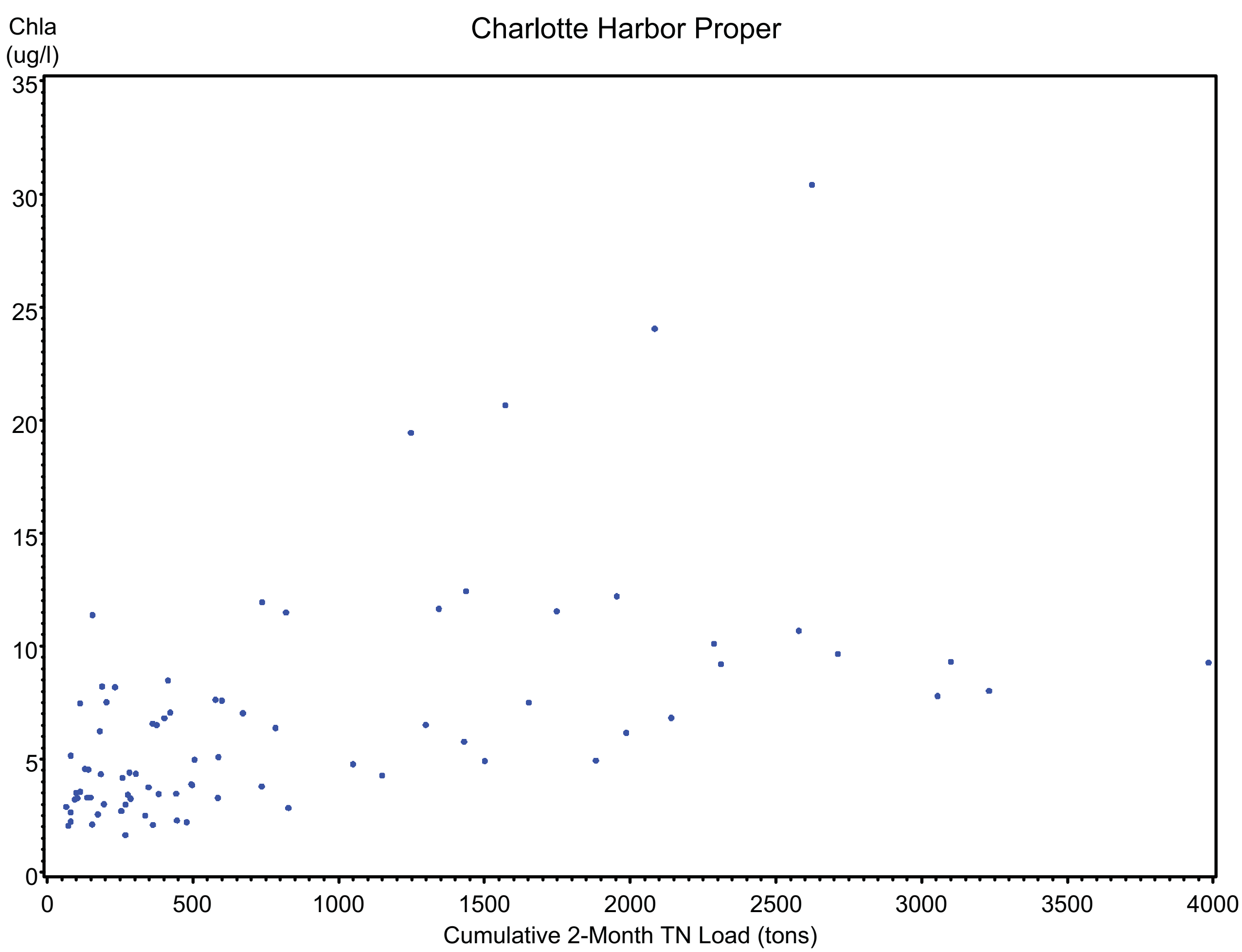


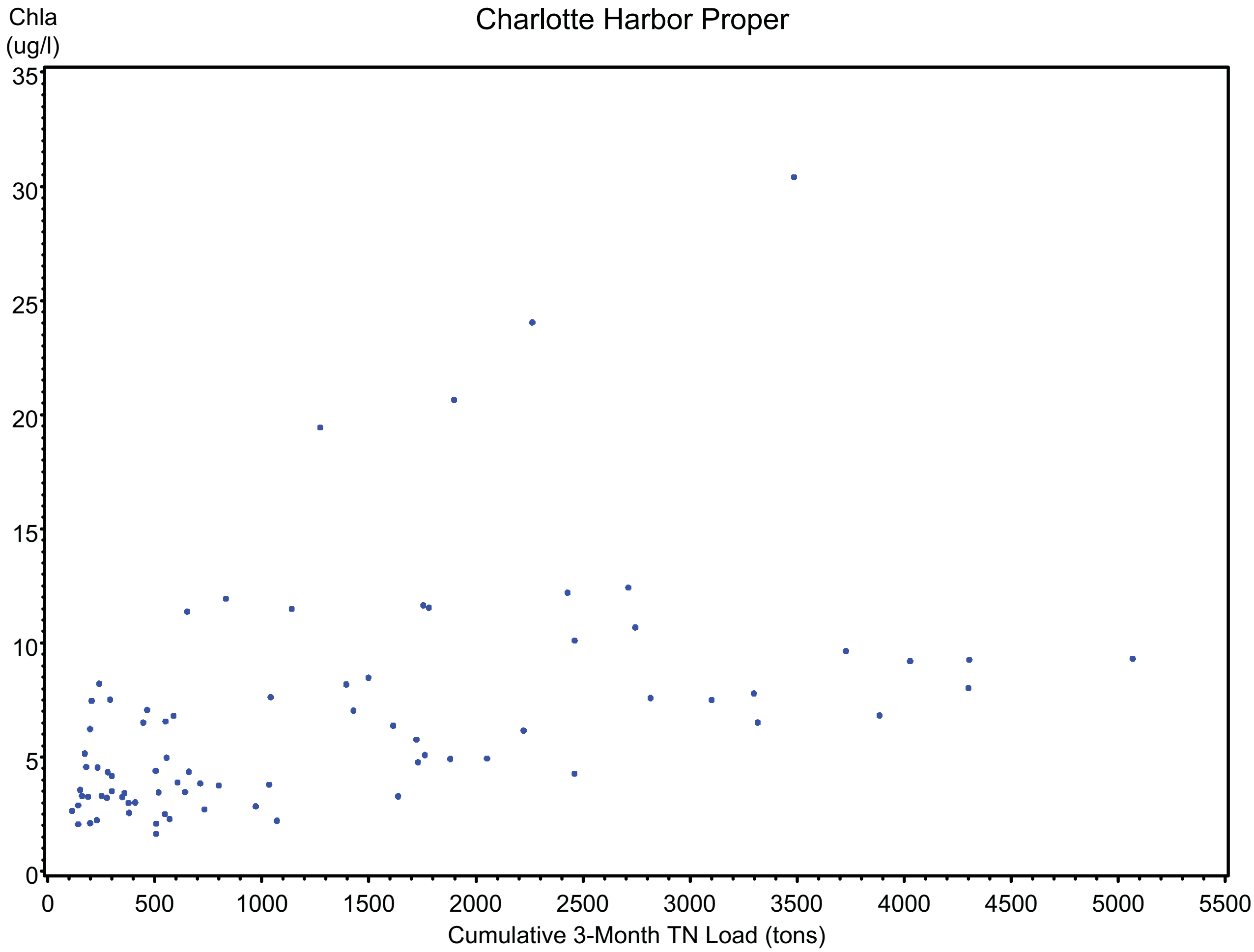
Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
ln Cumulative 2-Month TN Load (tons)

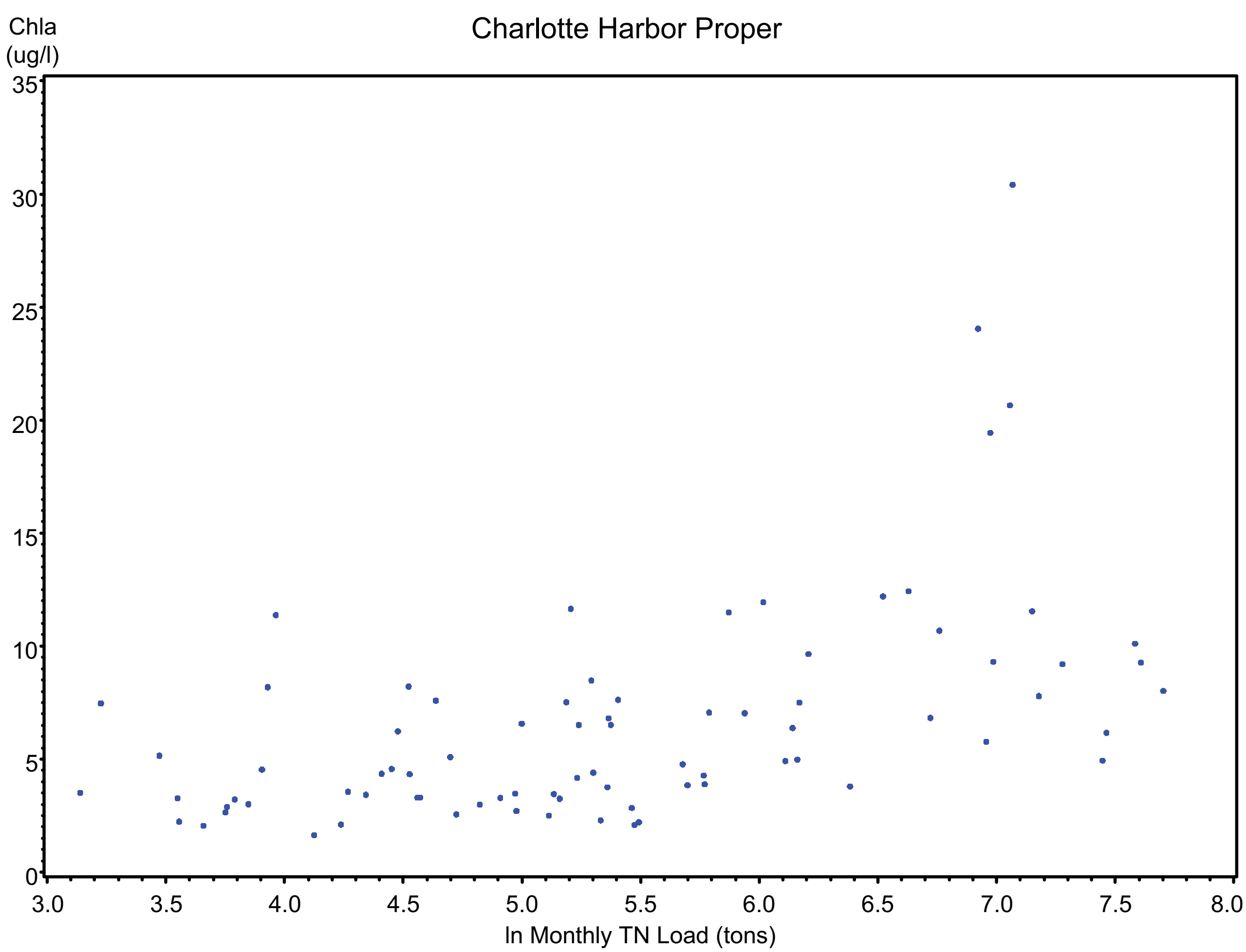


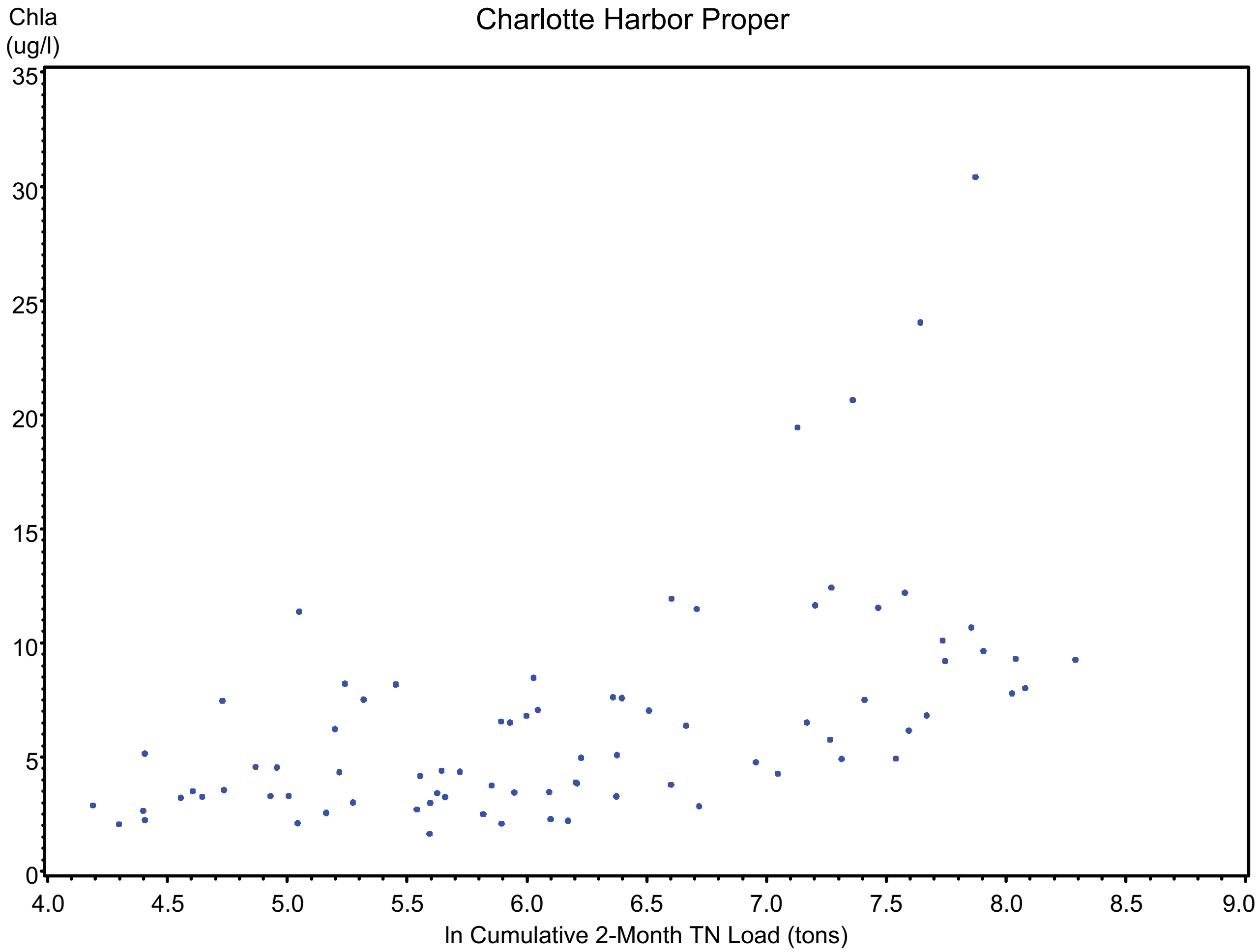
Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
ln Cumulative 3-Month TN Load (tons)


Charlotte Harbor Proper
Chla
(ug/l)
35
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
Monthly TN Load (tons)

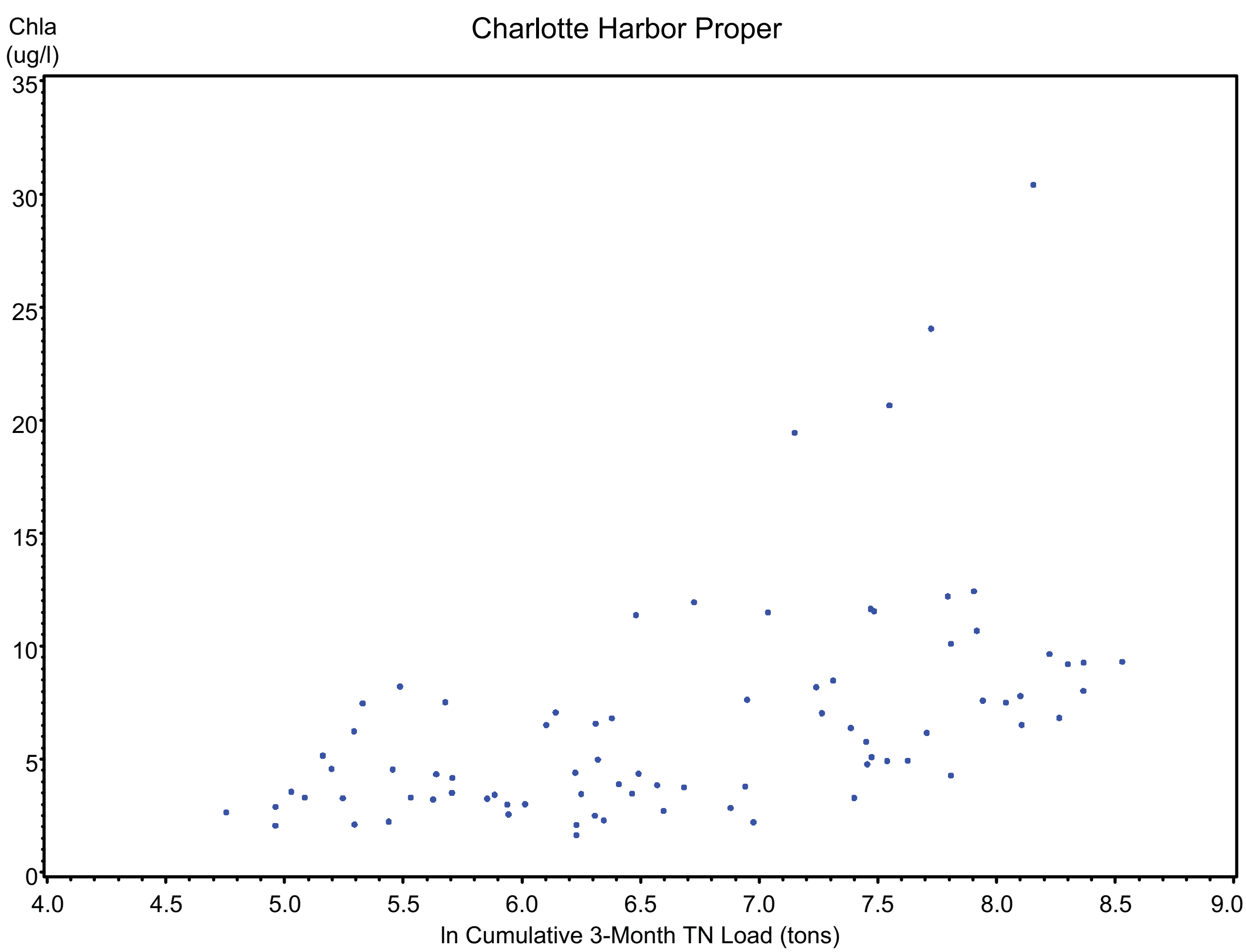

Charlotte Harbor Proper
Chla
(ug/l)
35
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)


Charlotte Harbor Proper
Chla (ug/l)
0
5
10
15
20
25
30
35
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
Cumulative 3-Month TN Load (tons)

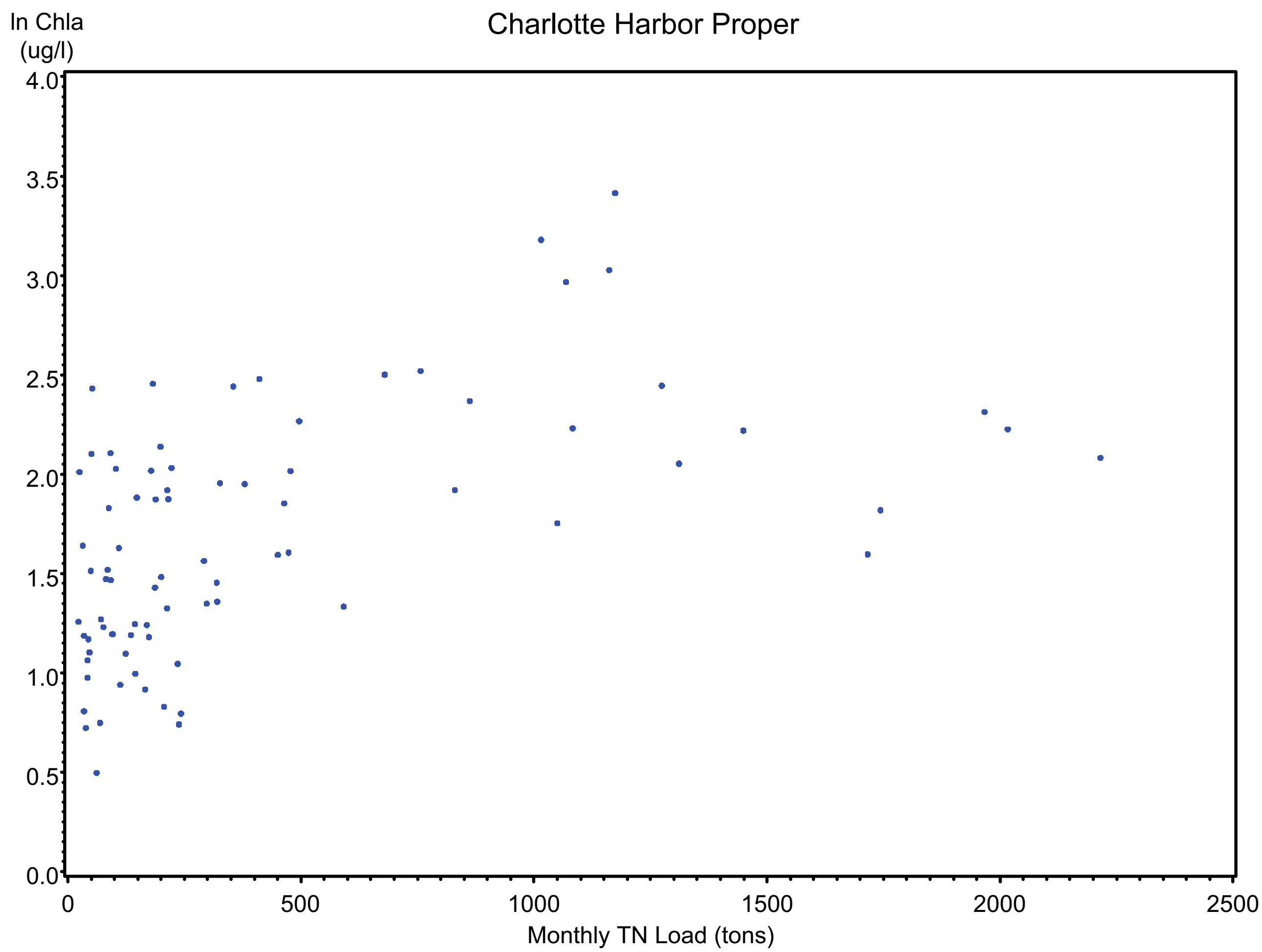

Charlotte Harbor Proper
Chla (ug/l)
0
5
10
15
20
25
30
35
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
ln Monthly TN Load (tons)

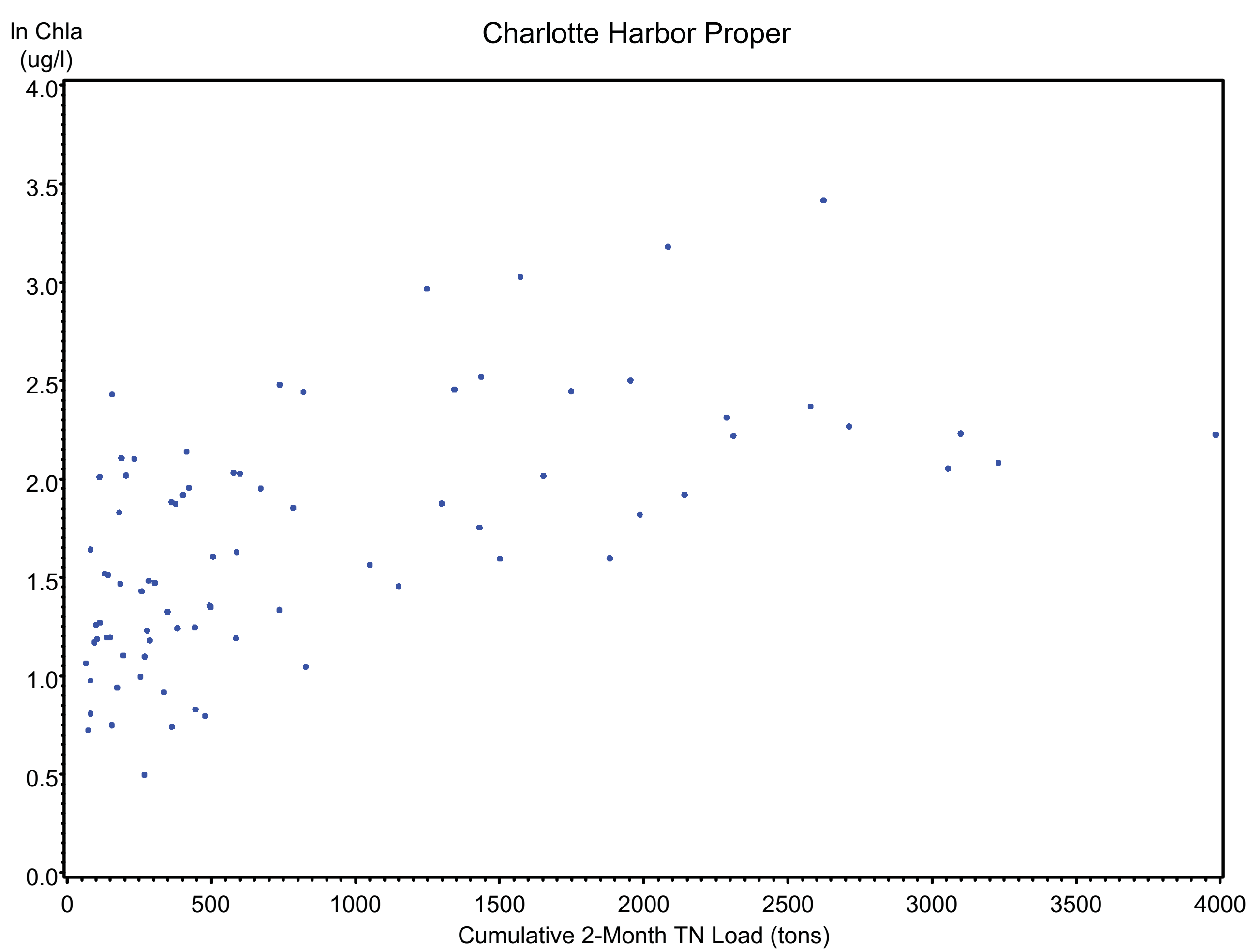


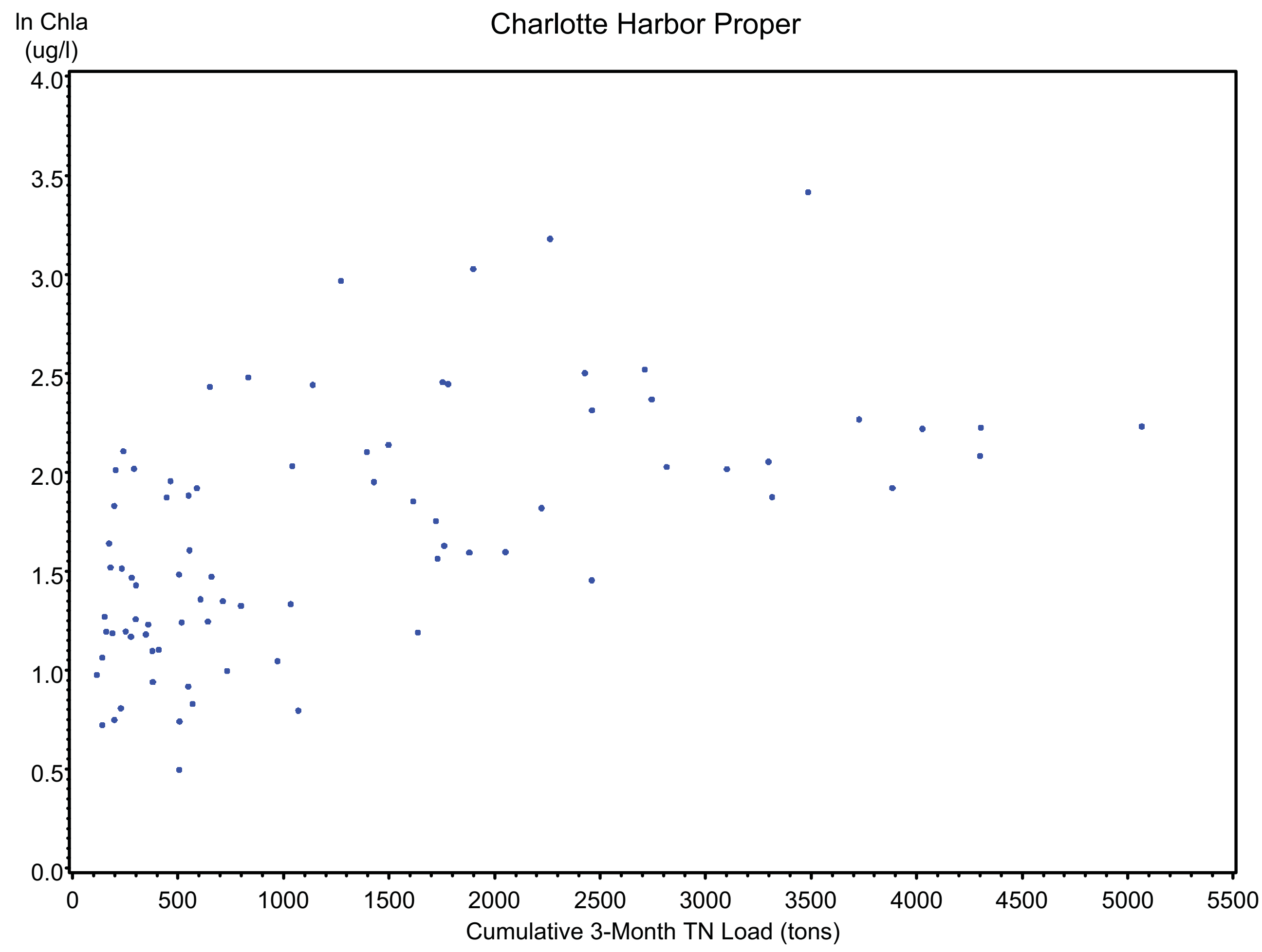
Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 2-Month TN Load (tons)

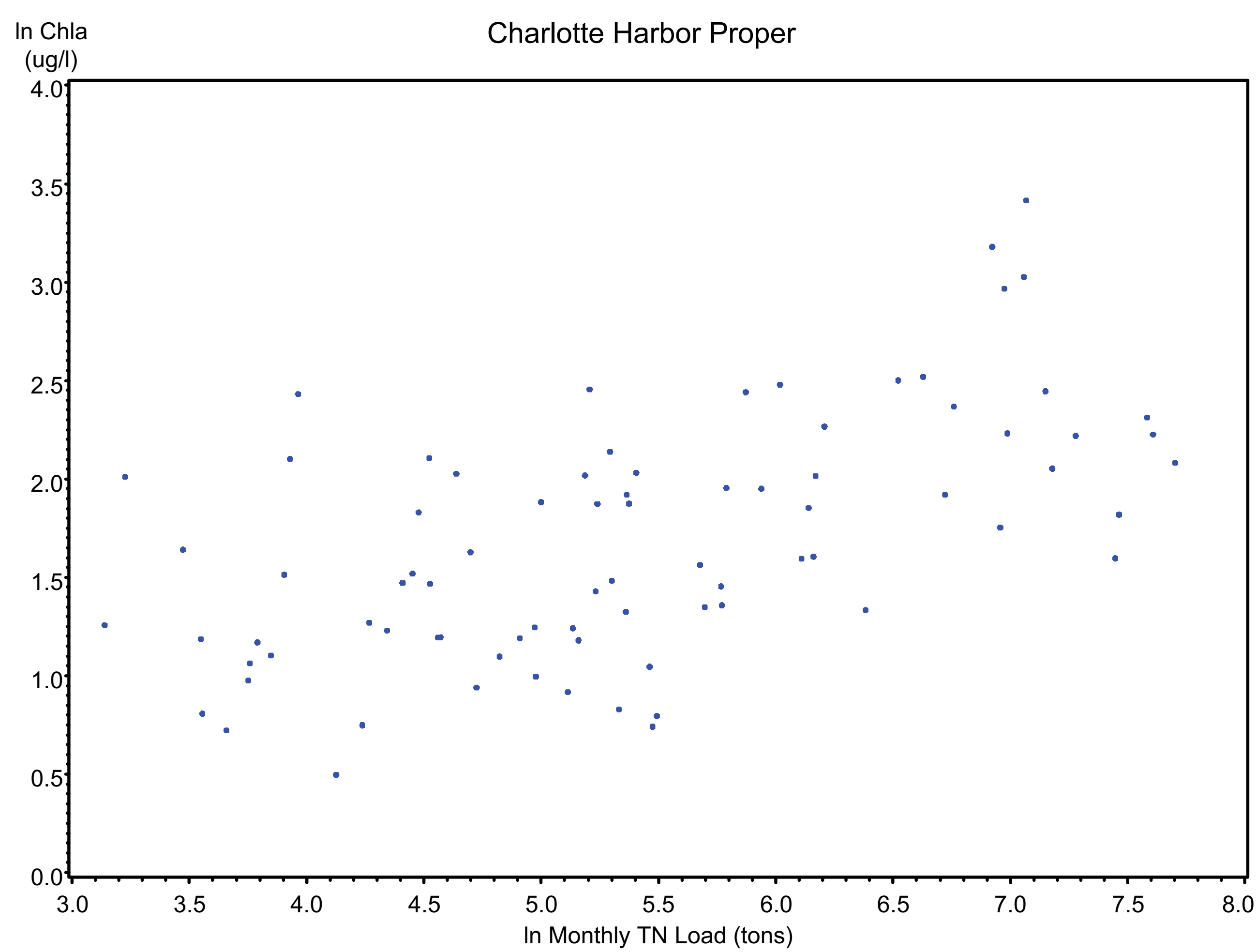


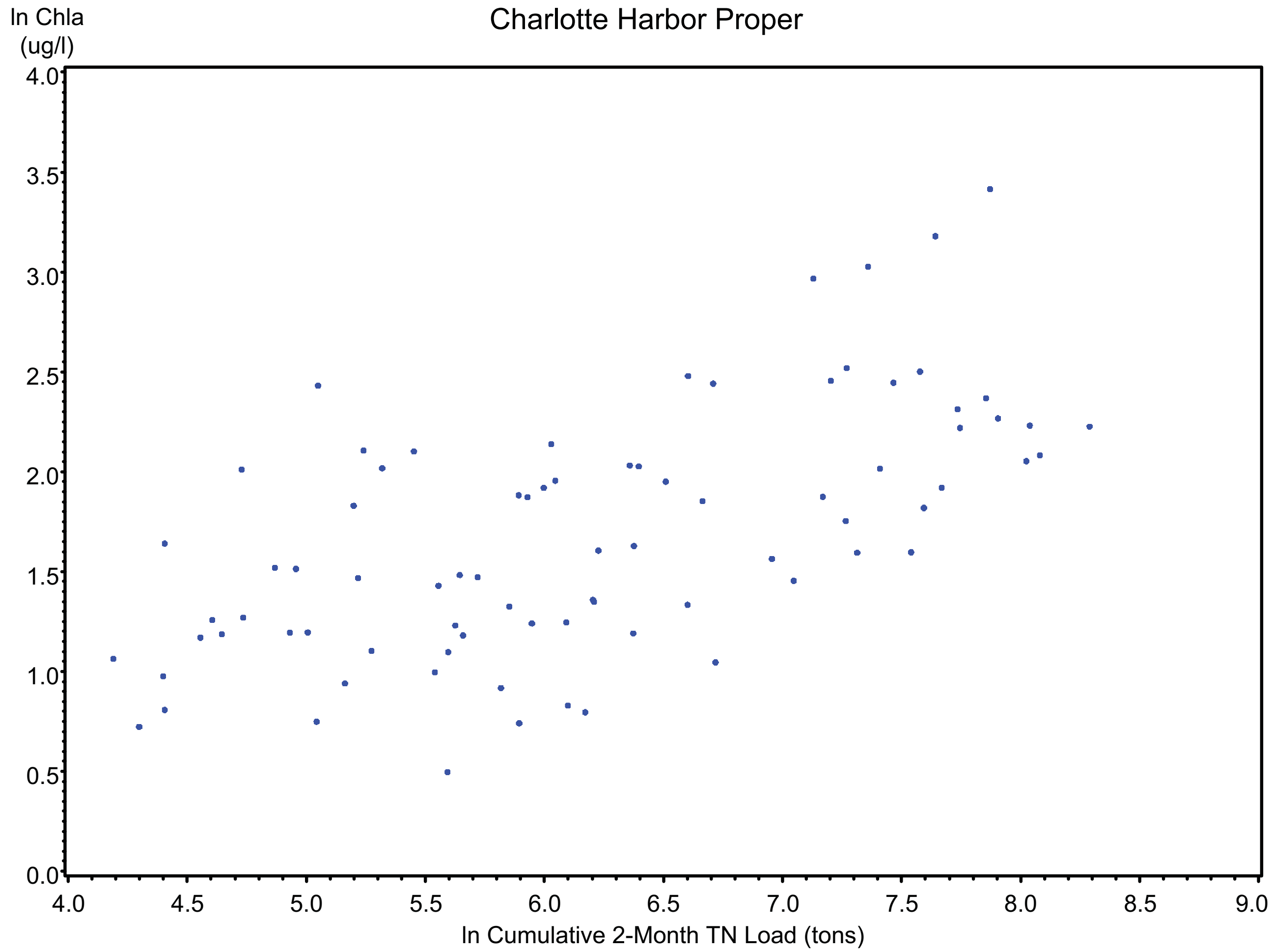
Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 3-Month TN Load (tons)

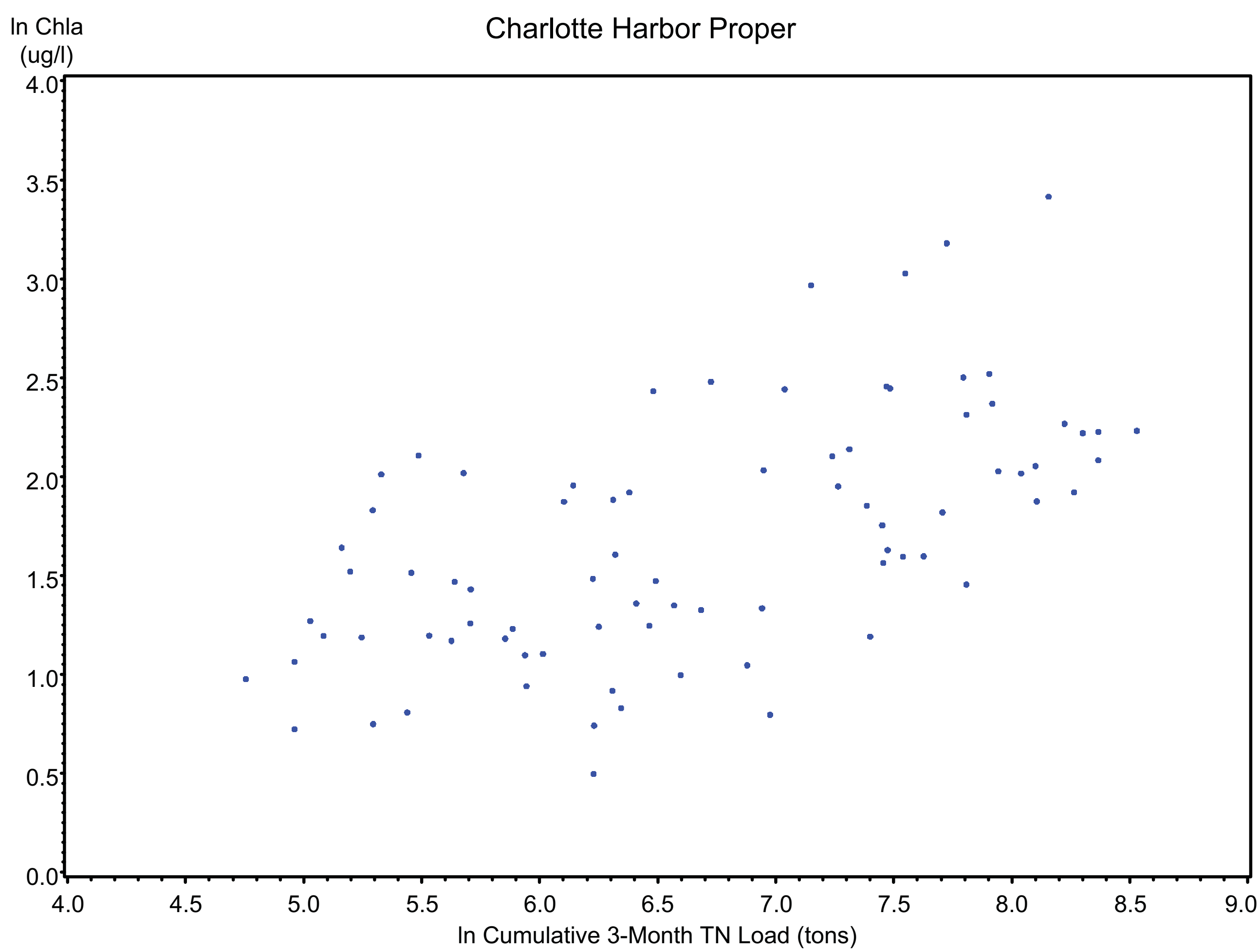

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
2500
Monthly TN Load (tons)

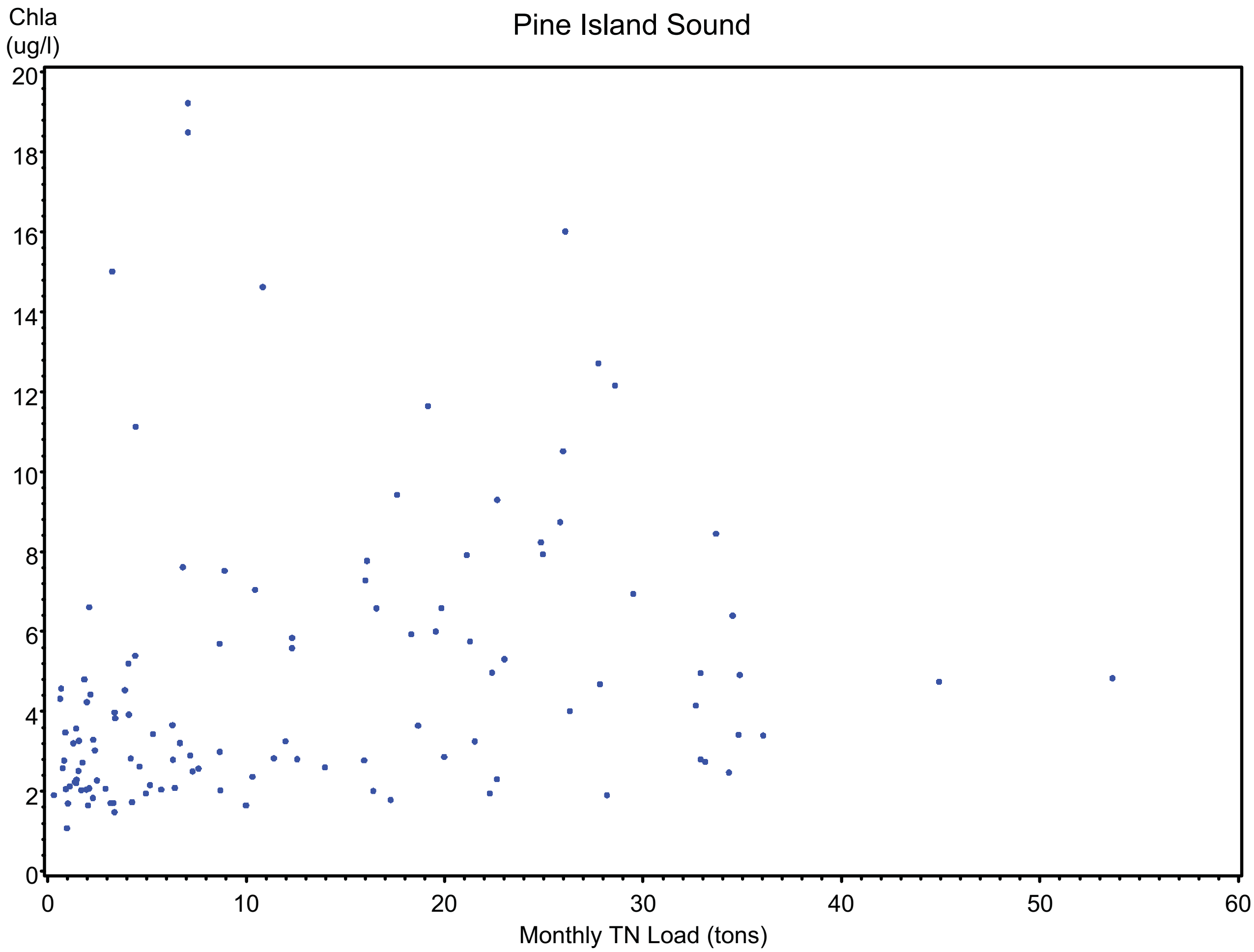

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

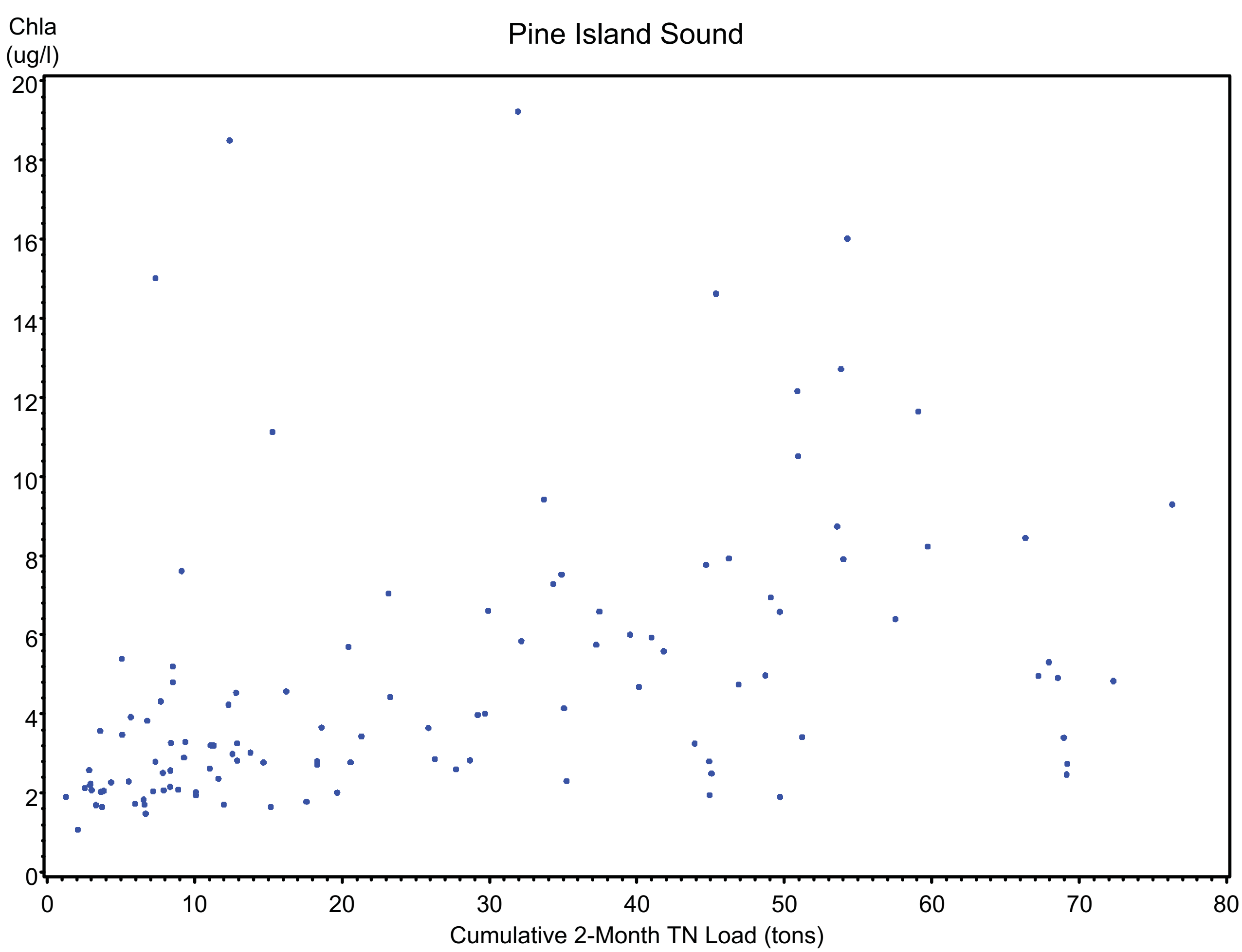

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
Cumulative 3-Month TN Load (tons)

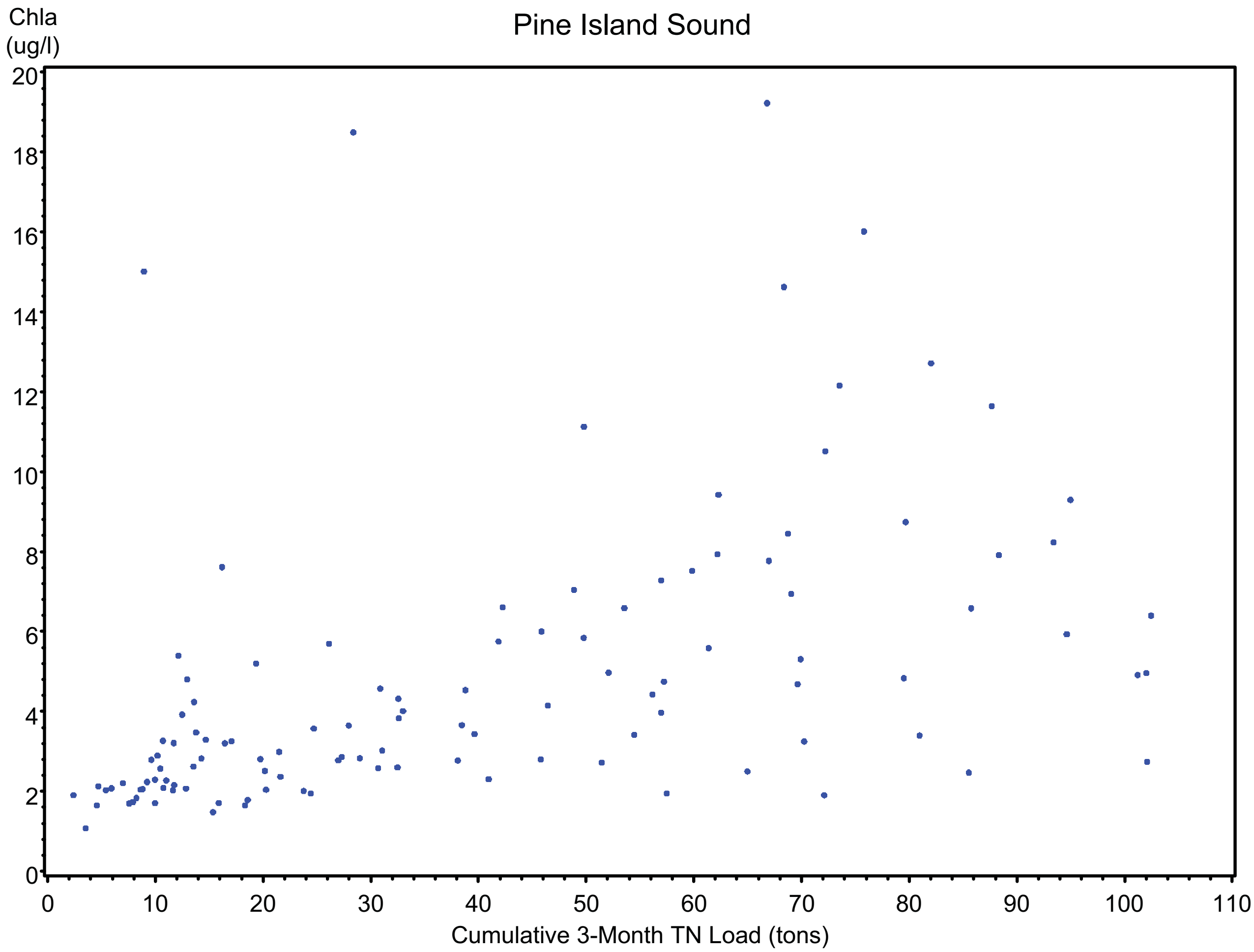

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
ln Monthly TN Load (tons)

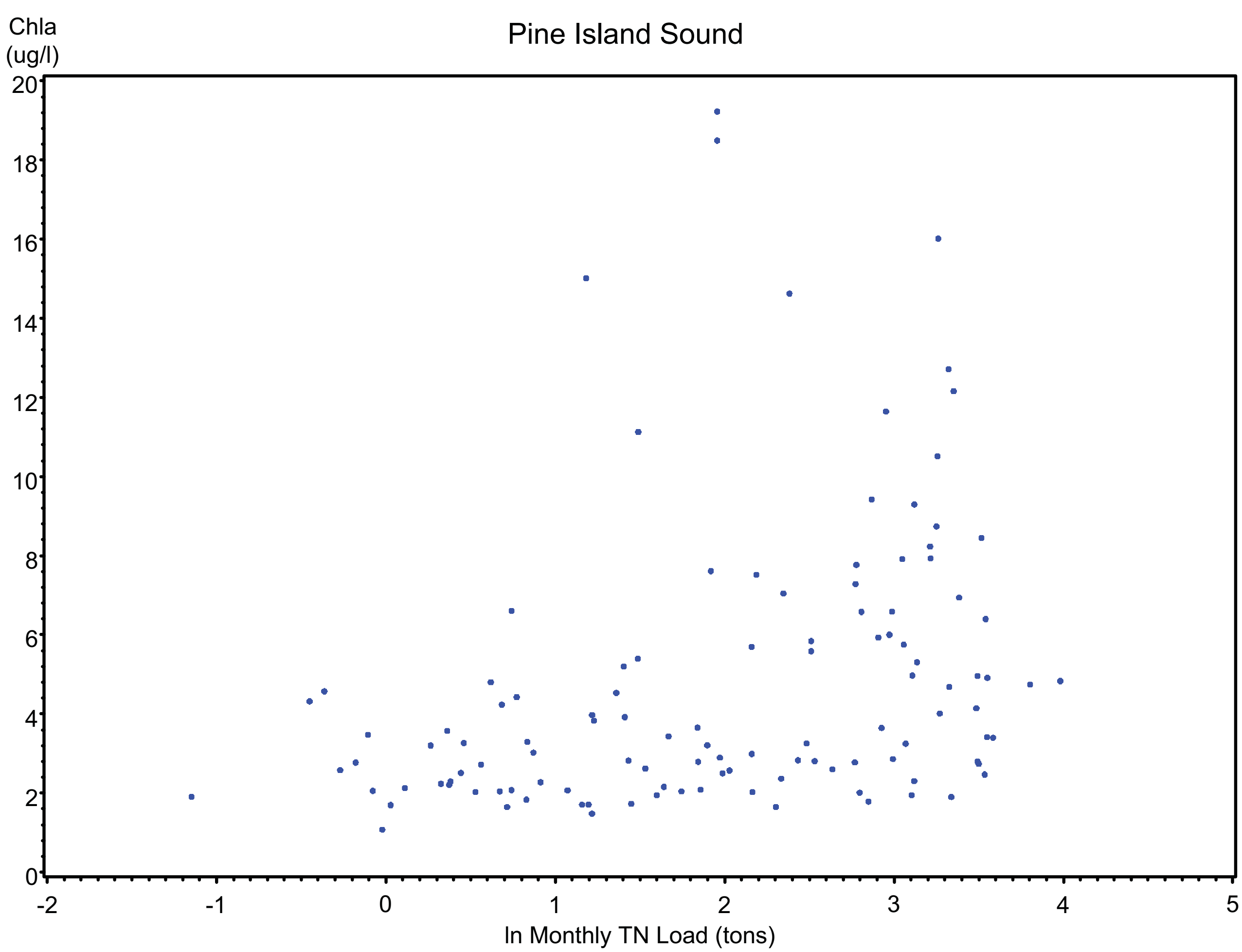

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 2-Month TN Load (tons)

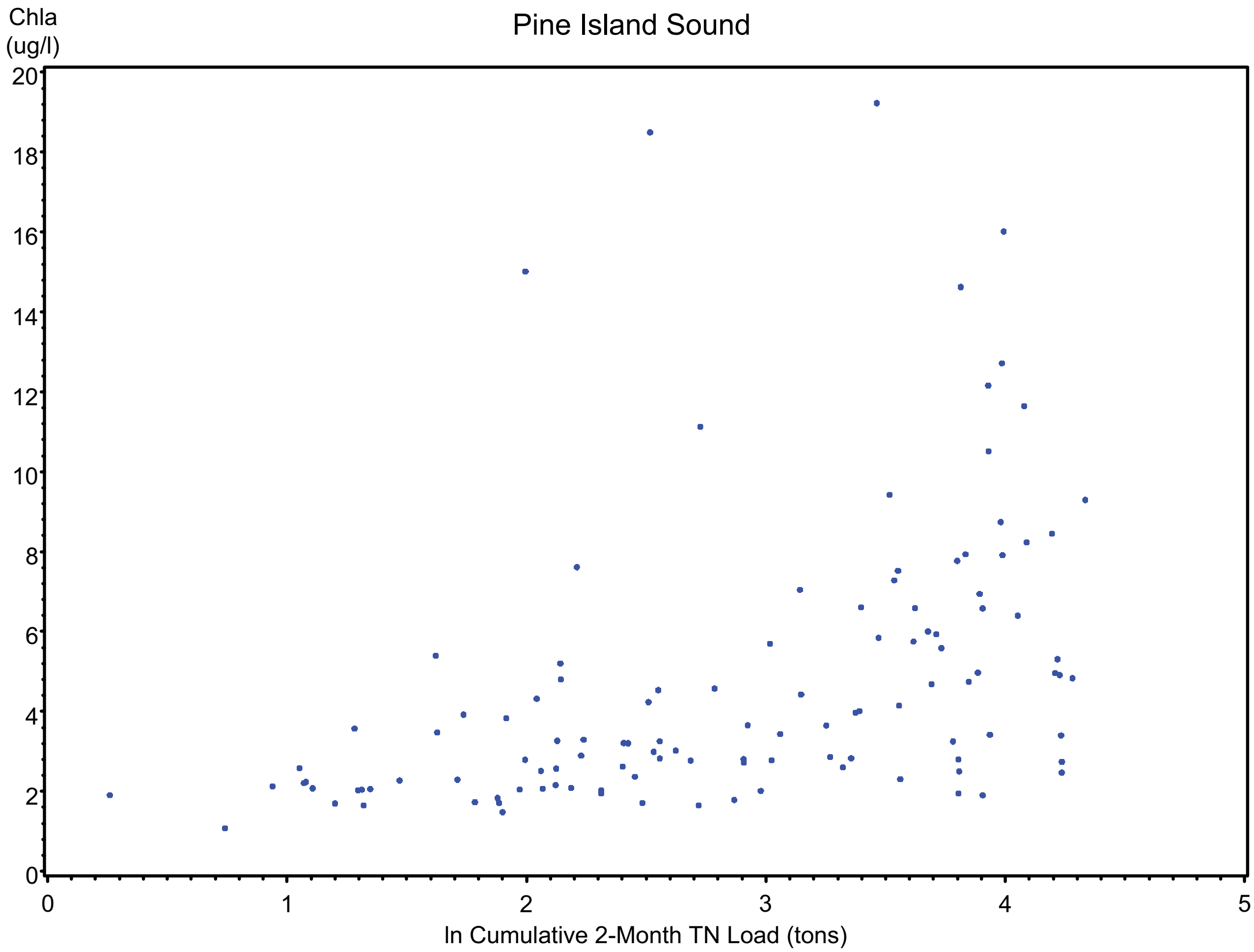

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0
8.5
9.0
ln Cumulative 3-Month TN Load (tons)

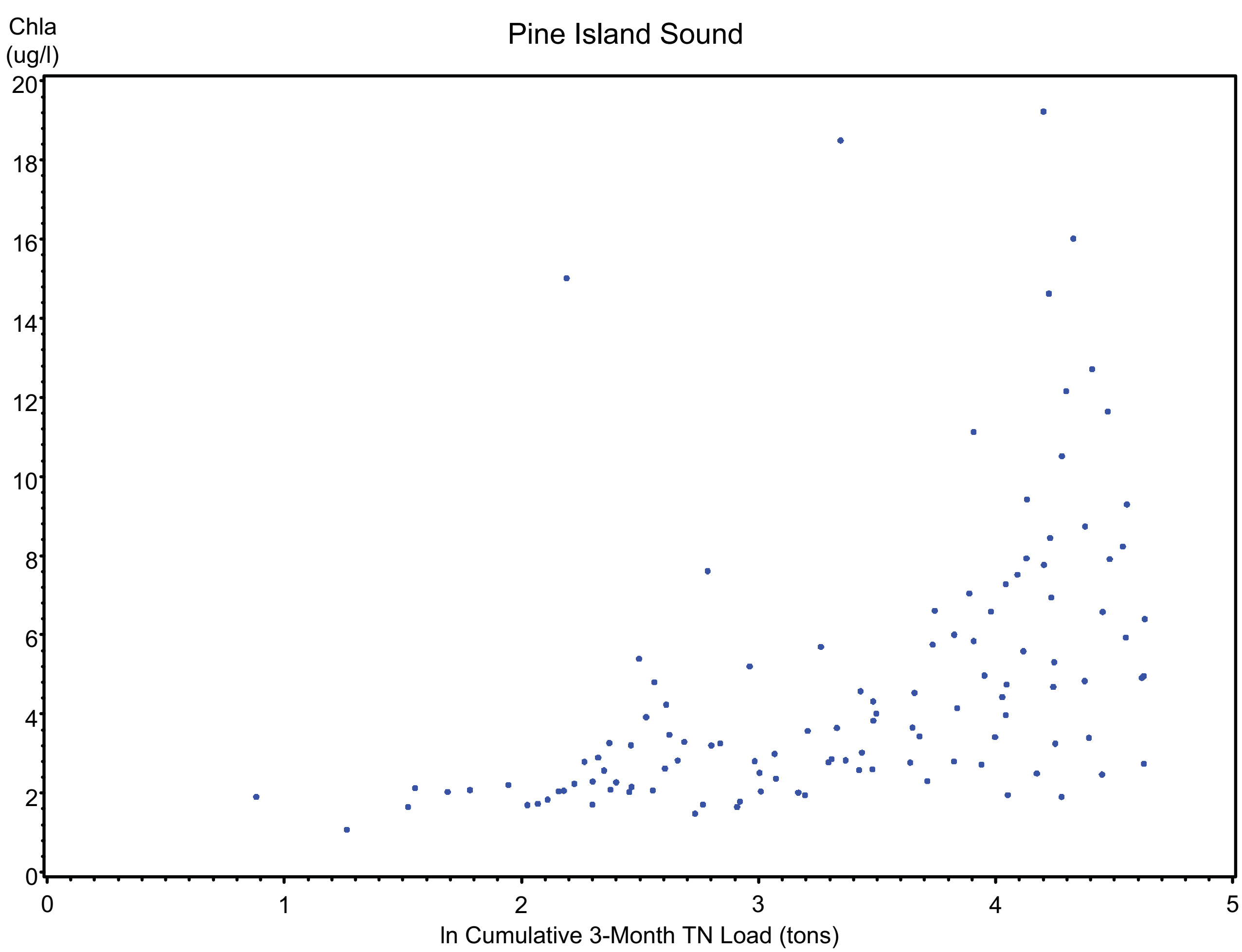

Pine Island Sound
Chla (ug/l)
0 2 4 6 8 10 12 14 16 18 20
0 10 20 30 40 50 60
Monthly TN Load (tons)

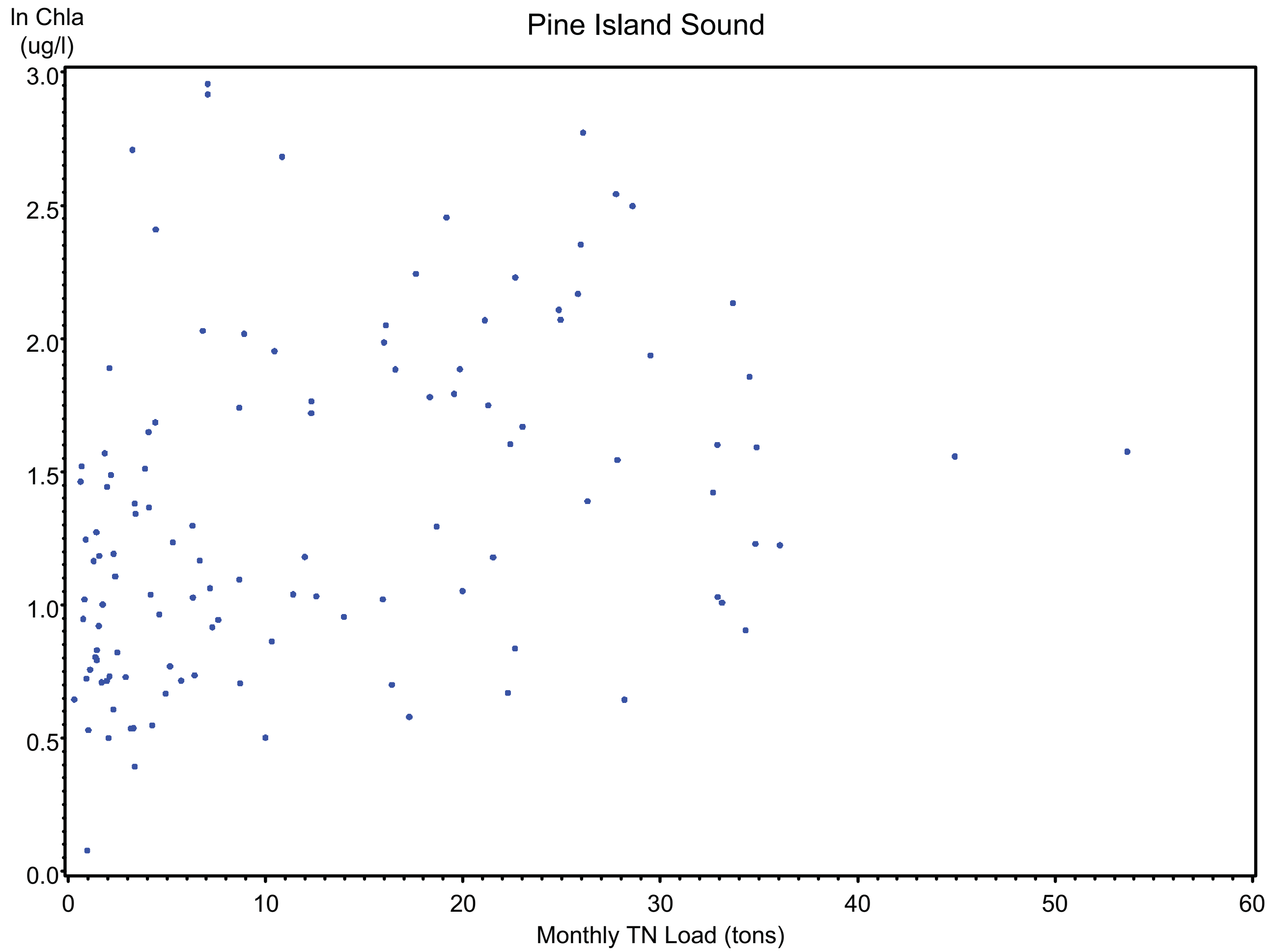

Pine Island Sound
Chla (ug/l)
0 2 4 6 8 10 12 14 16 18 20
0 10 20 30 40 50 60 70 80
Cumulative 2-Month TN Load (tons)

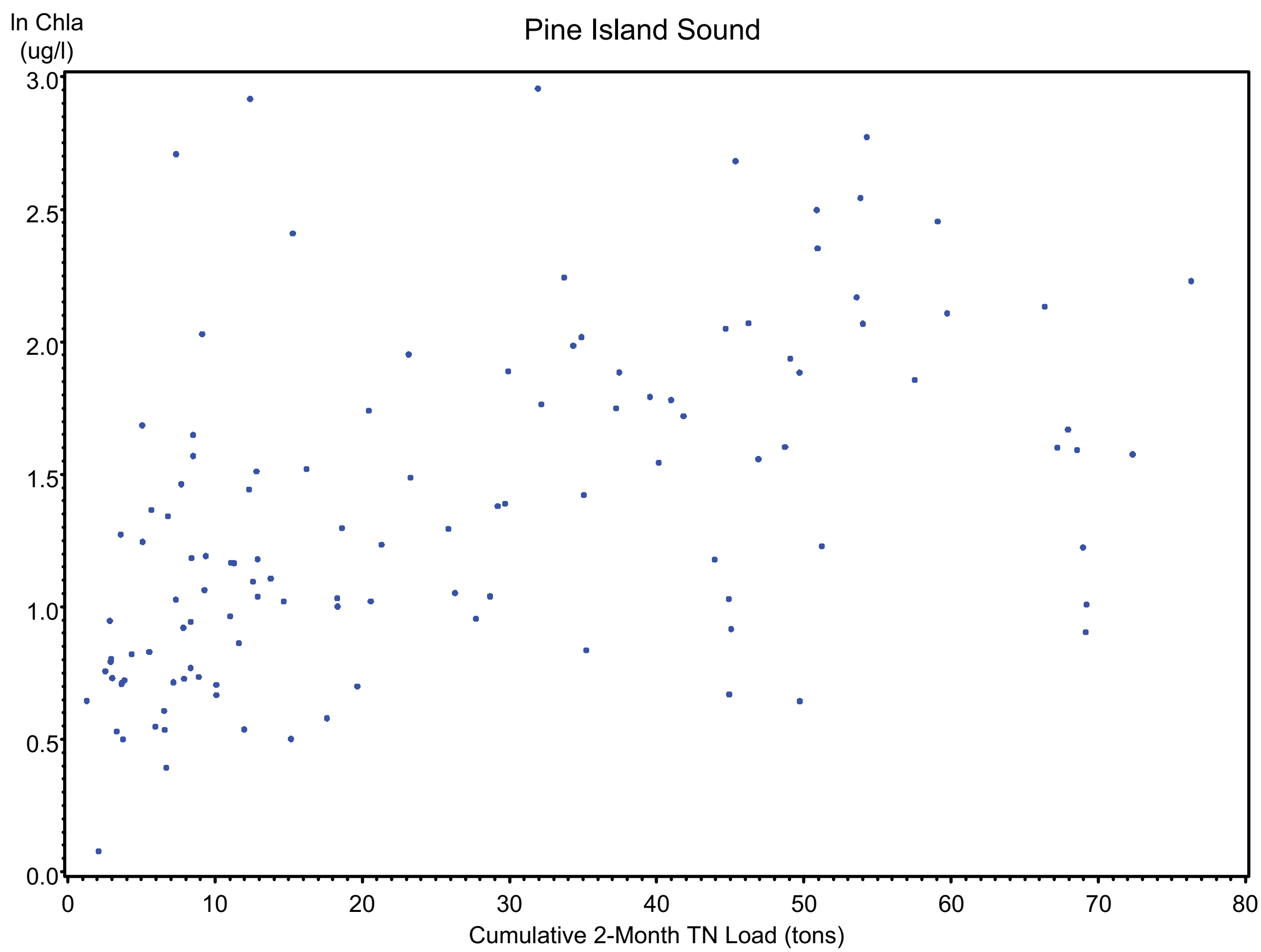

Pine Island Sound
Chla
(ug/l)
20
18
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

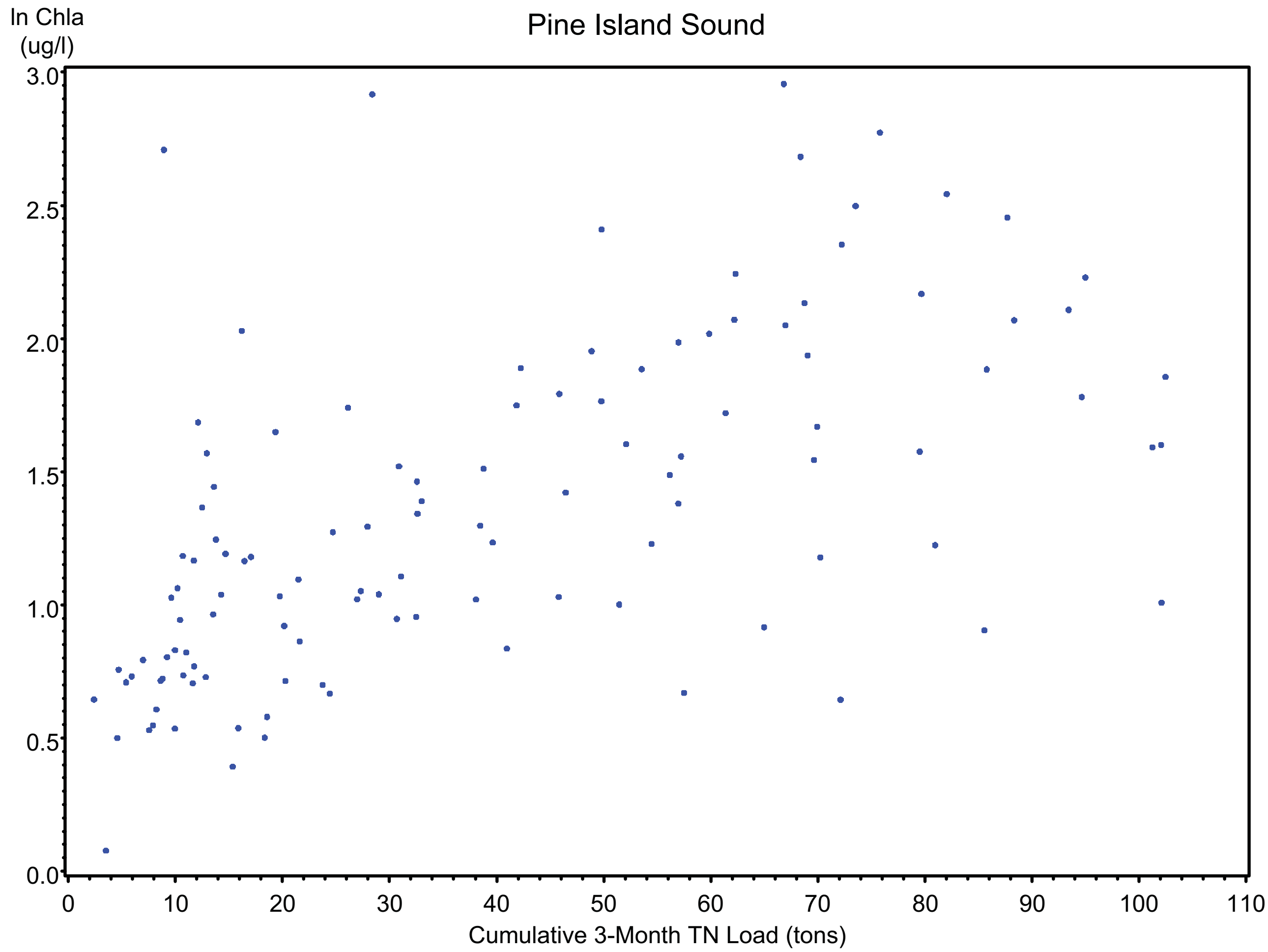

Pine Island Sound
Chla
(ug/l)
20
18
16
14
12
10
8
6
4
2
0
-2
-1
0
1
2
3
4
5
ln Monthly TN Load (tons)

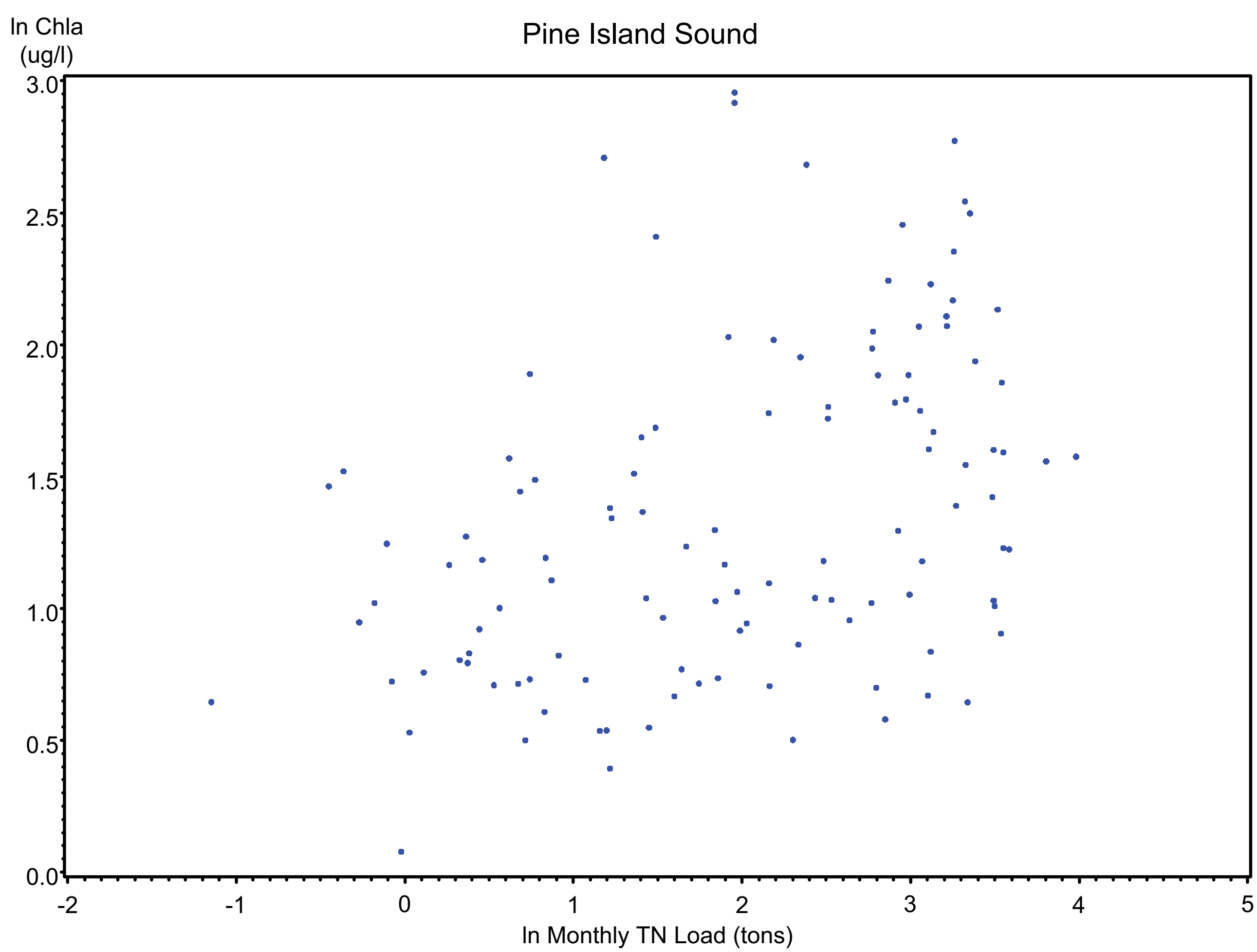

Pine Island Sound
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
1
2
3
4
5
ln Cumulative 2-Month TN Load (tons)

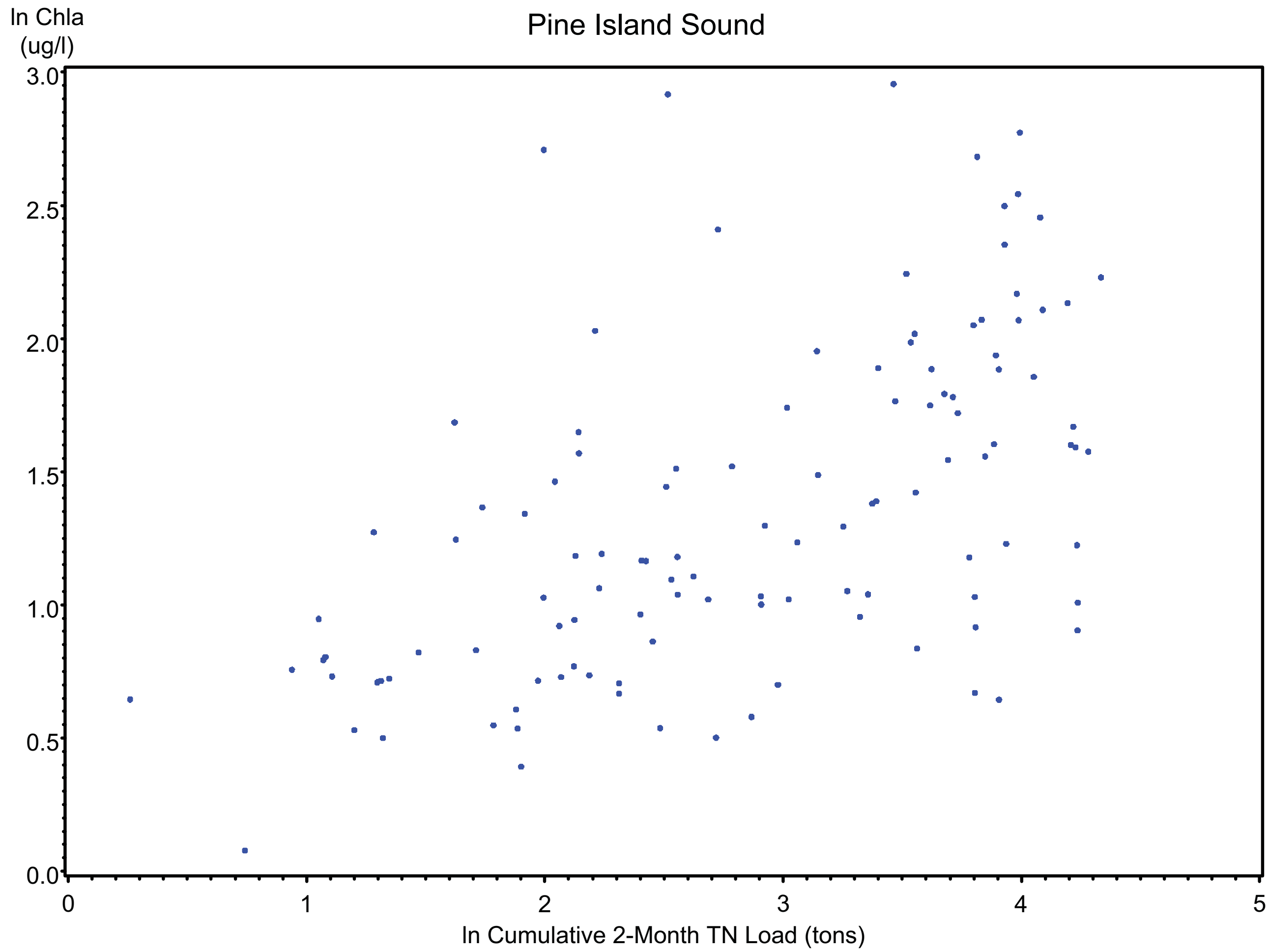

Pine Island Sound
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
1
2
3
4
5
ln Cumulative 3-Month TN Load (tons)

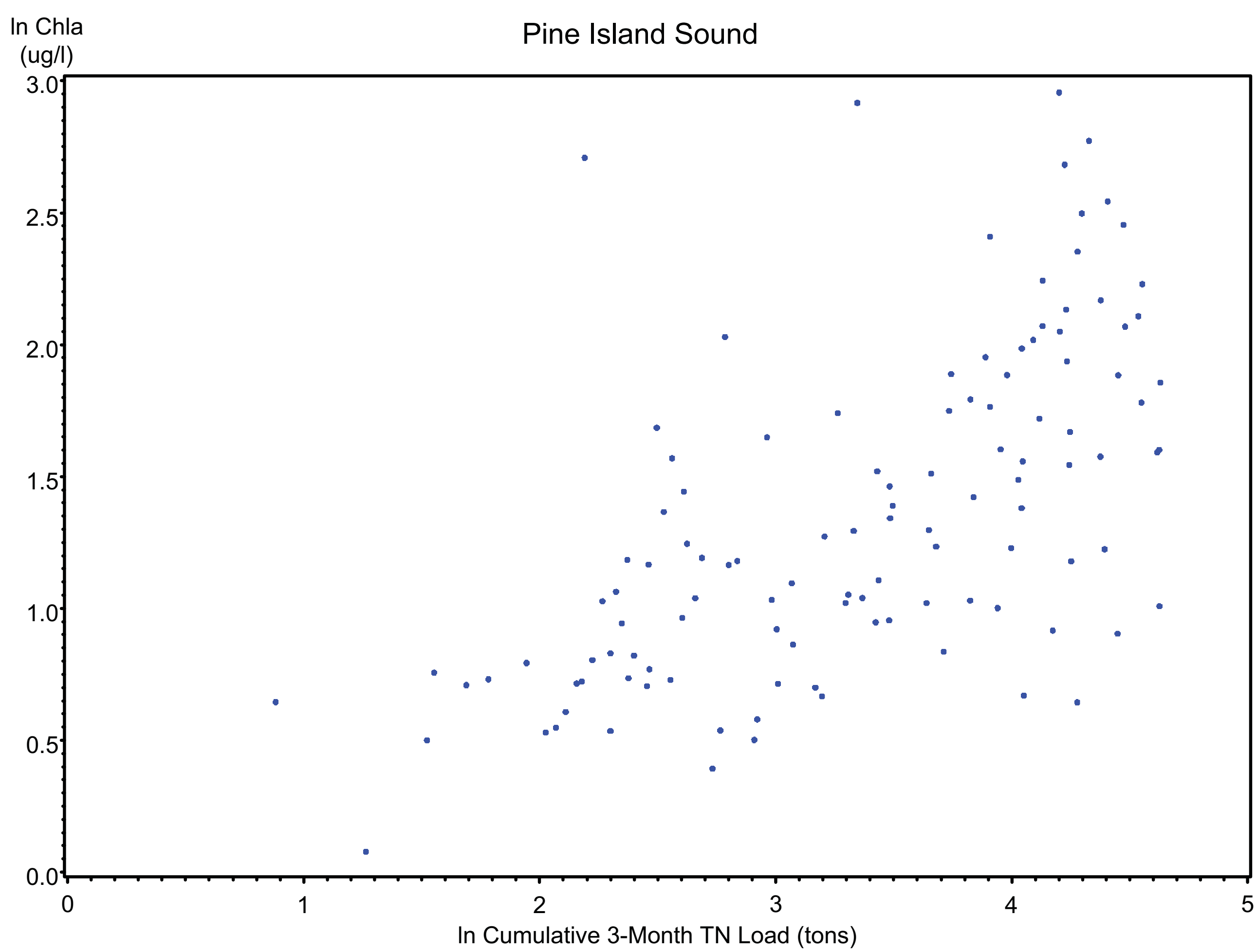

ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
Monthly TN Load (tons)

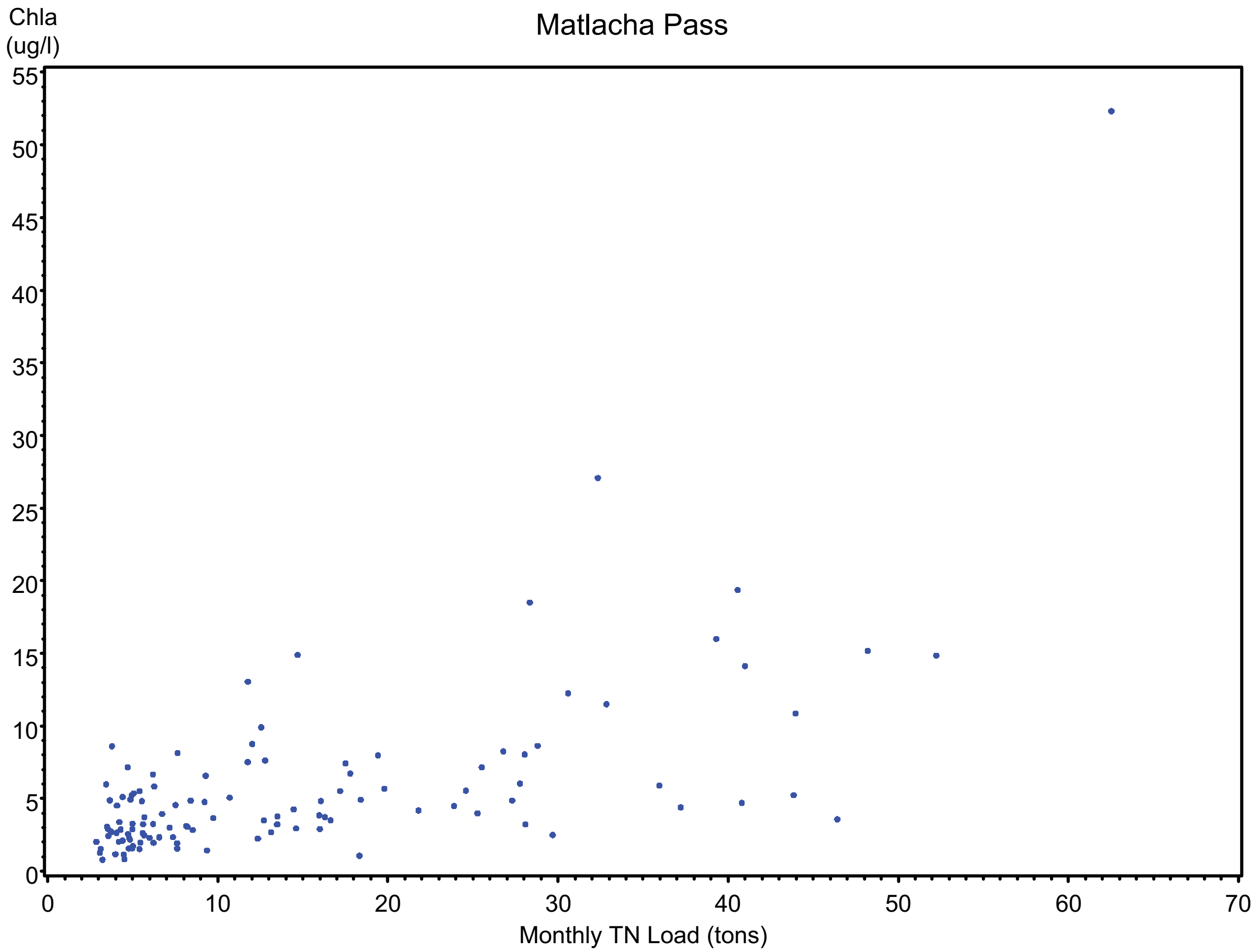

ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
Cumulative 2-Month TN Load (tons)

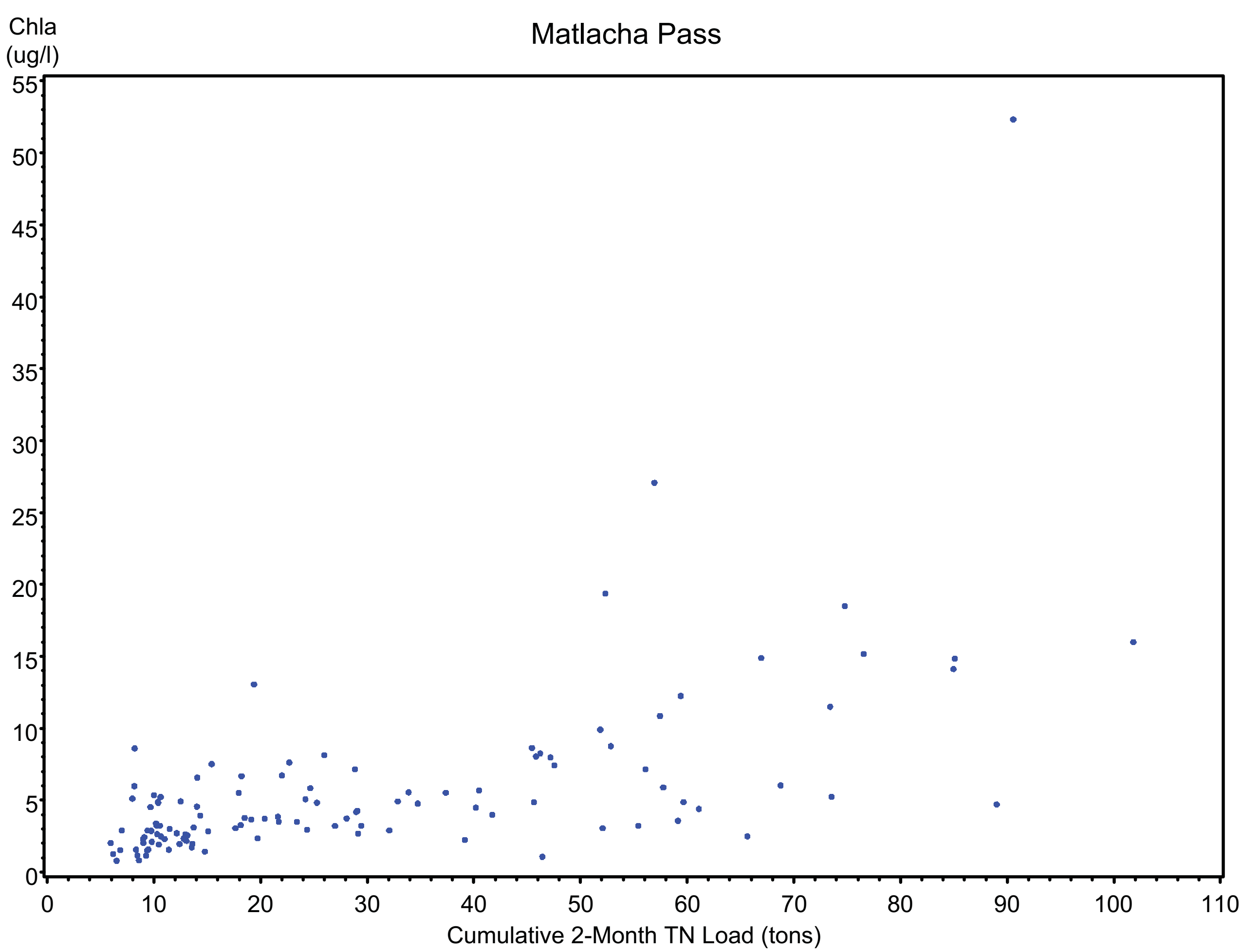

Pine Island Sound
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 3-Month TN Load (tons)

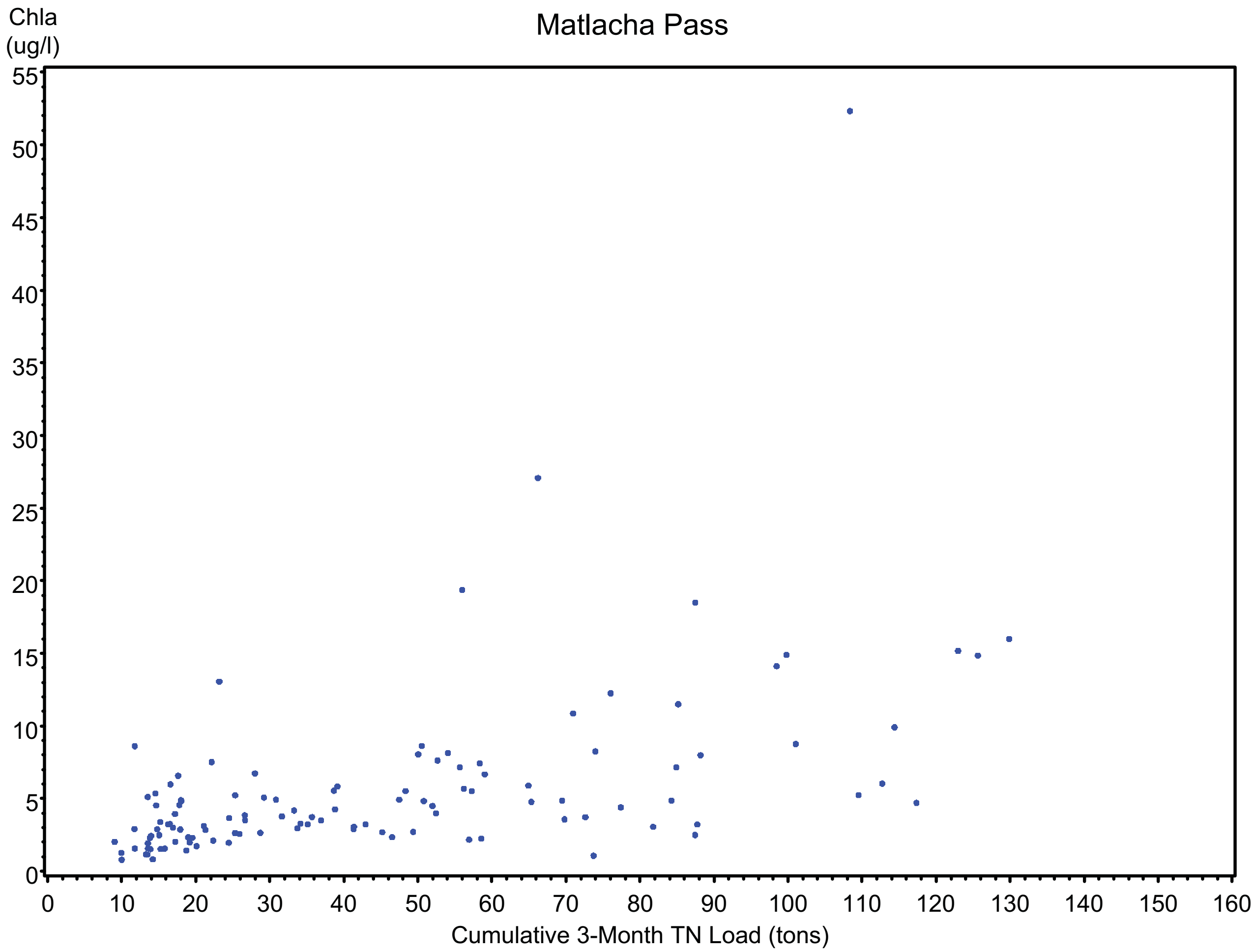

Pine Island Sound
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2
-1
0
1
2
3
4
5
ln Monthly TN Load (tons)

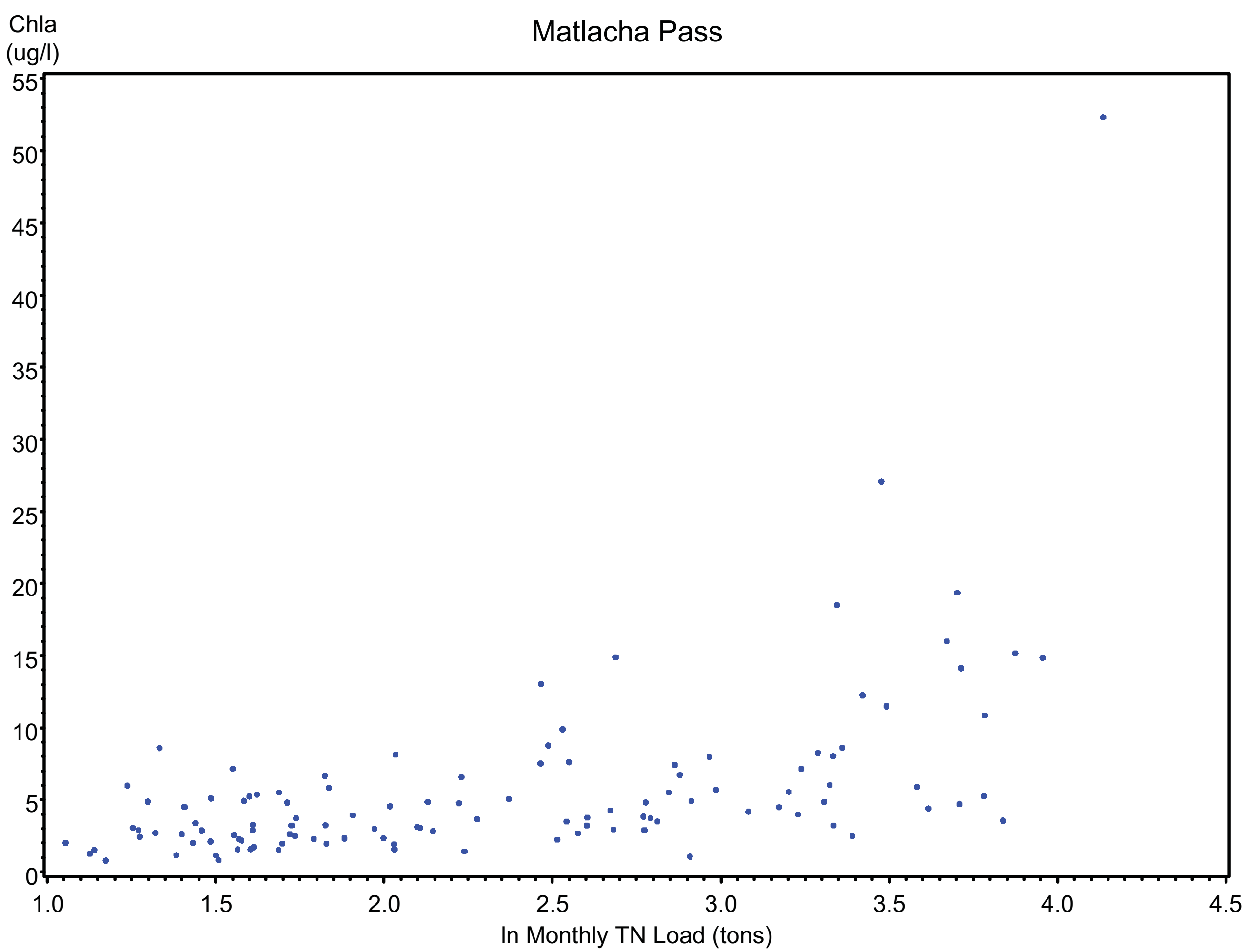

Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
1
2
3
4
5
ln Cumulative 2-Month TN Load (tons)

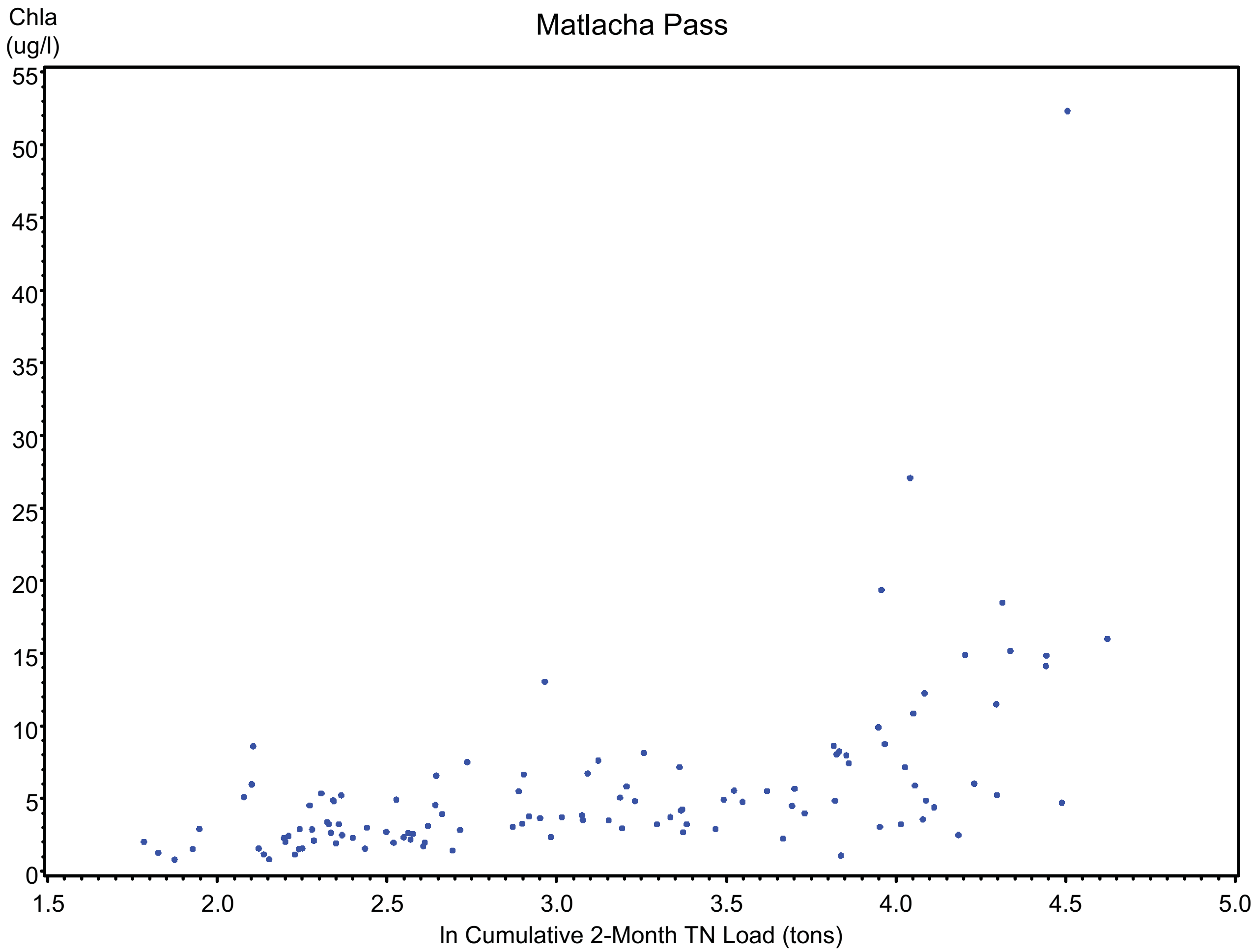

Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
1
2
3
4
5
ln Cumulative 3-Month TN Load (tons)

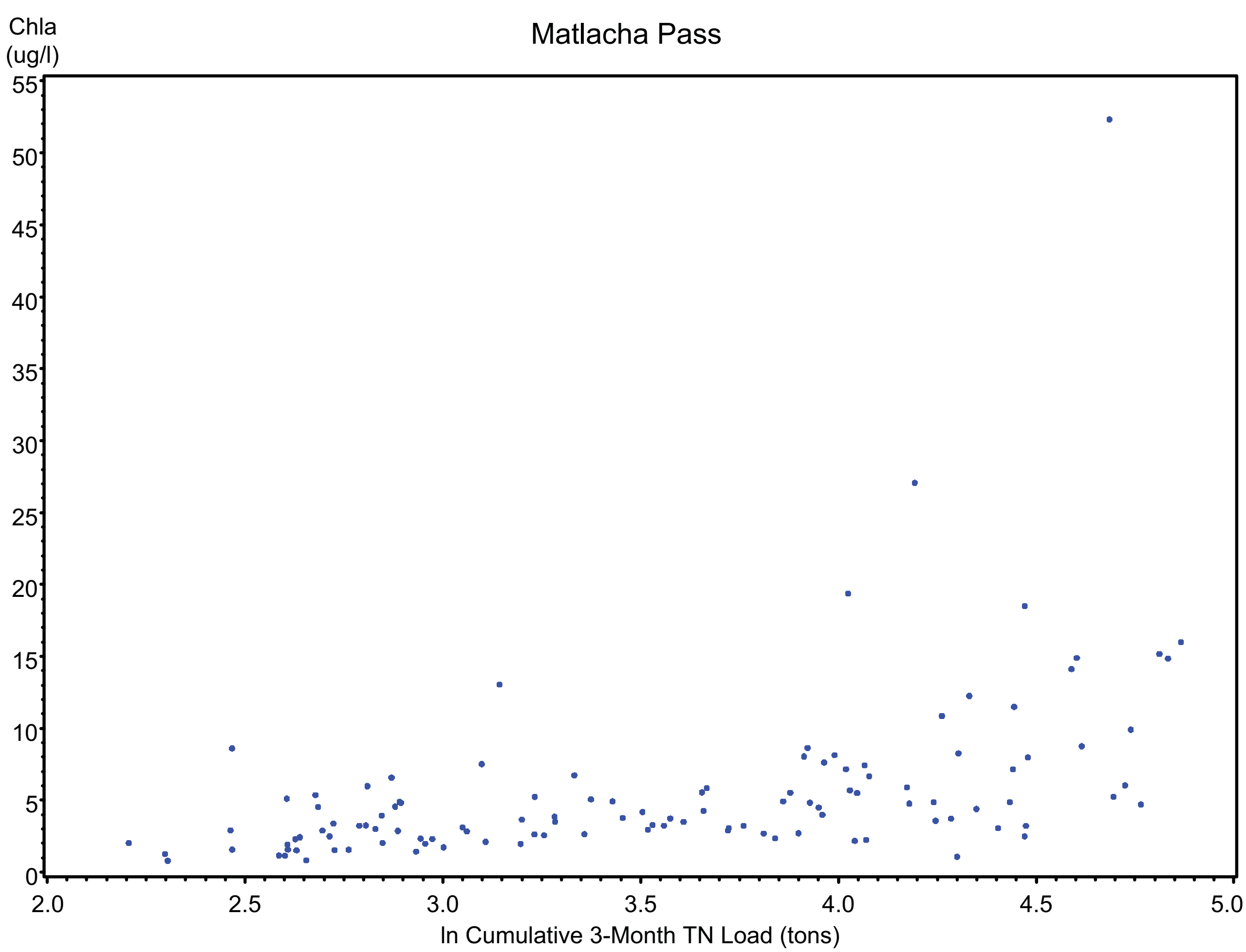

Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
10
20
30
40
50
60
70
Monthly TN Load (tons)

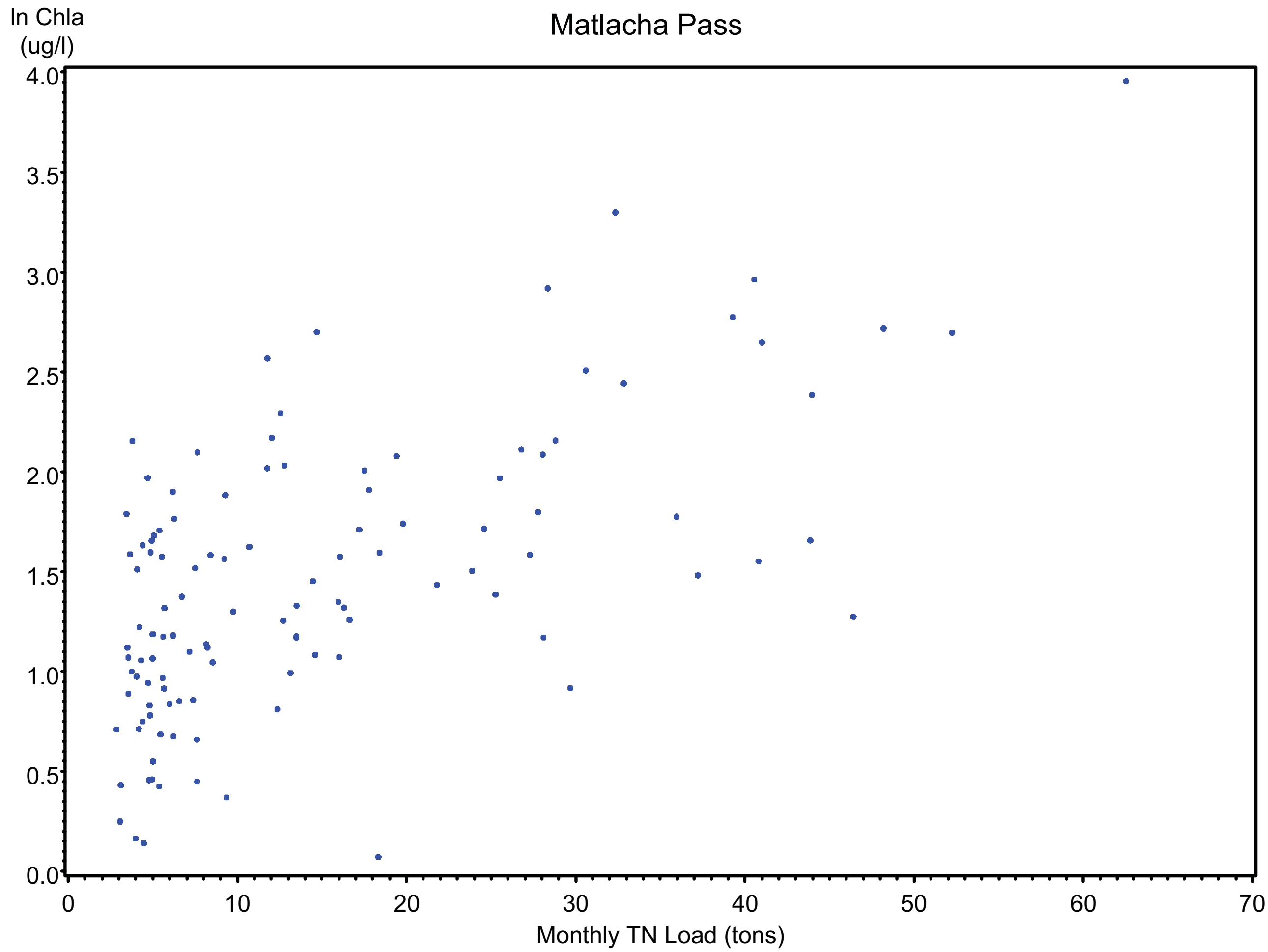

Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 2-Month TN Load (tons)


Matlacha Pass
Chla (ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
Cumulative 3-Month TN Load (tons)

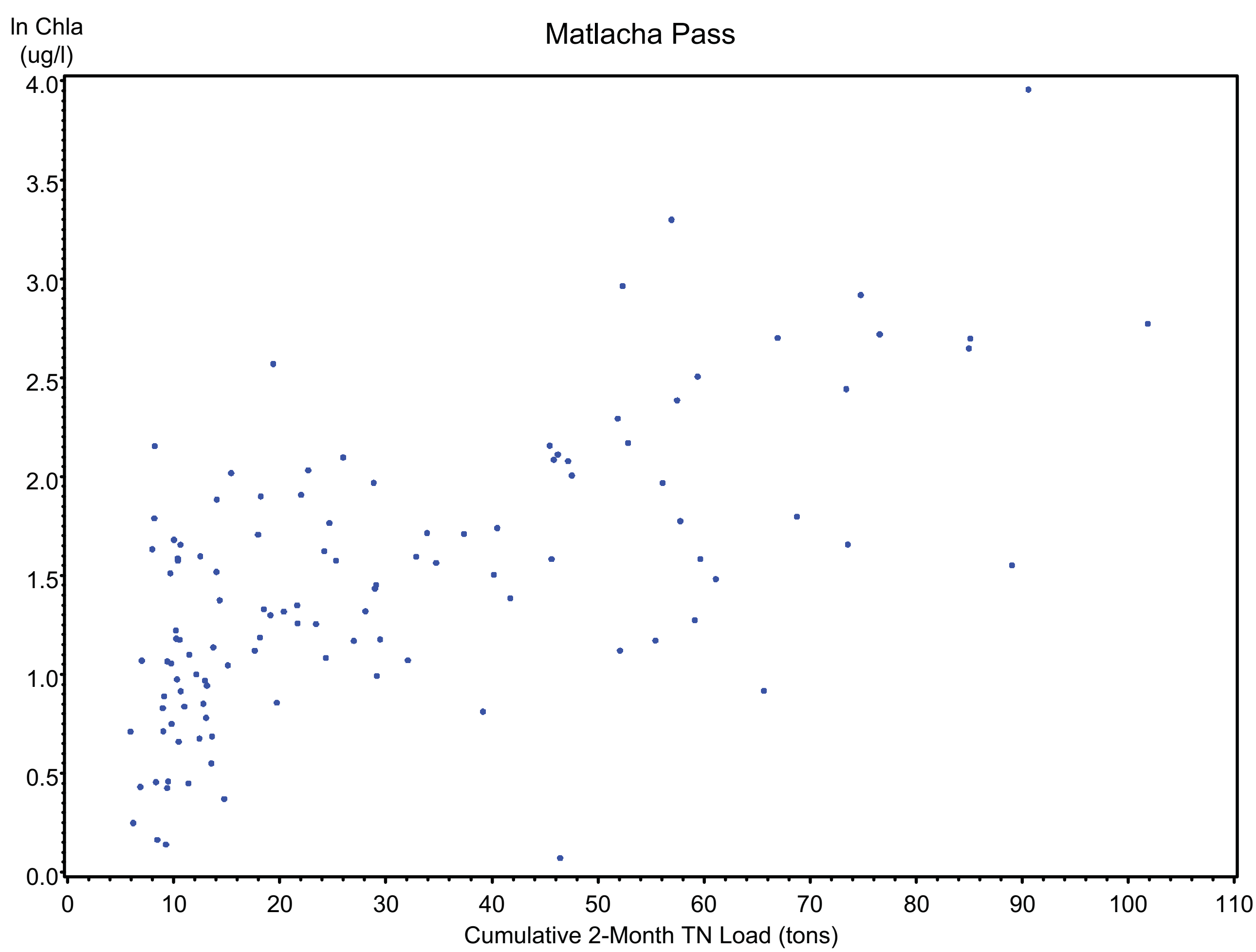

Matlacha Pass
Chla (ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Monthly TN Load (tons)


Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)

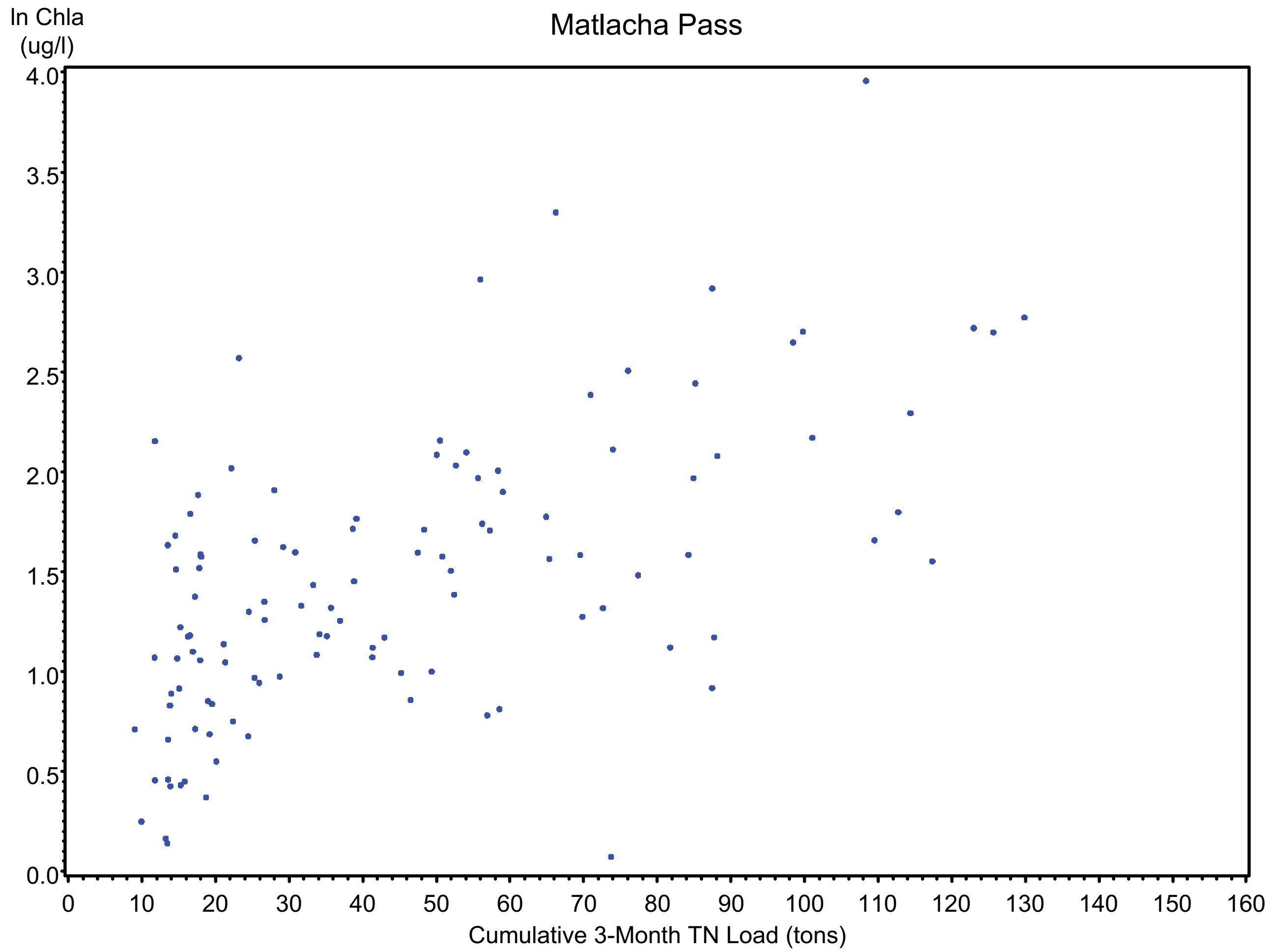

Matlacha Pass
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)



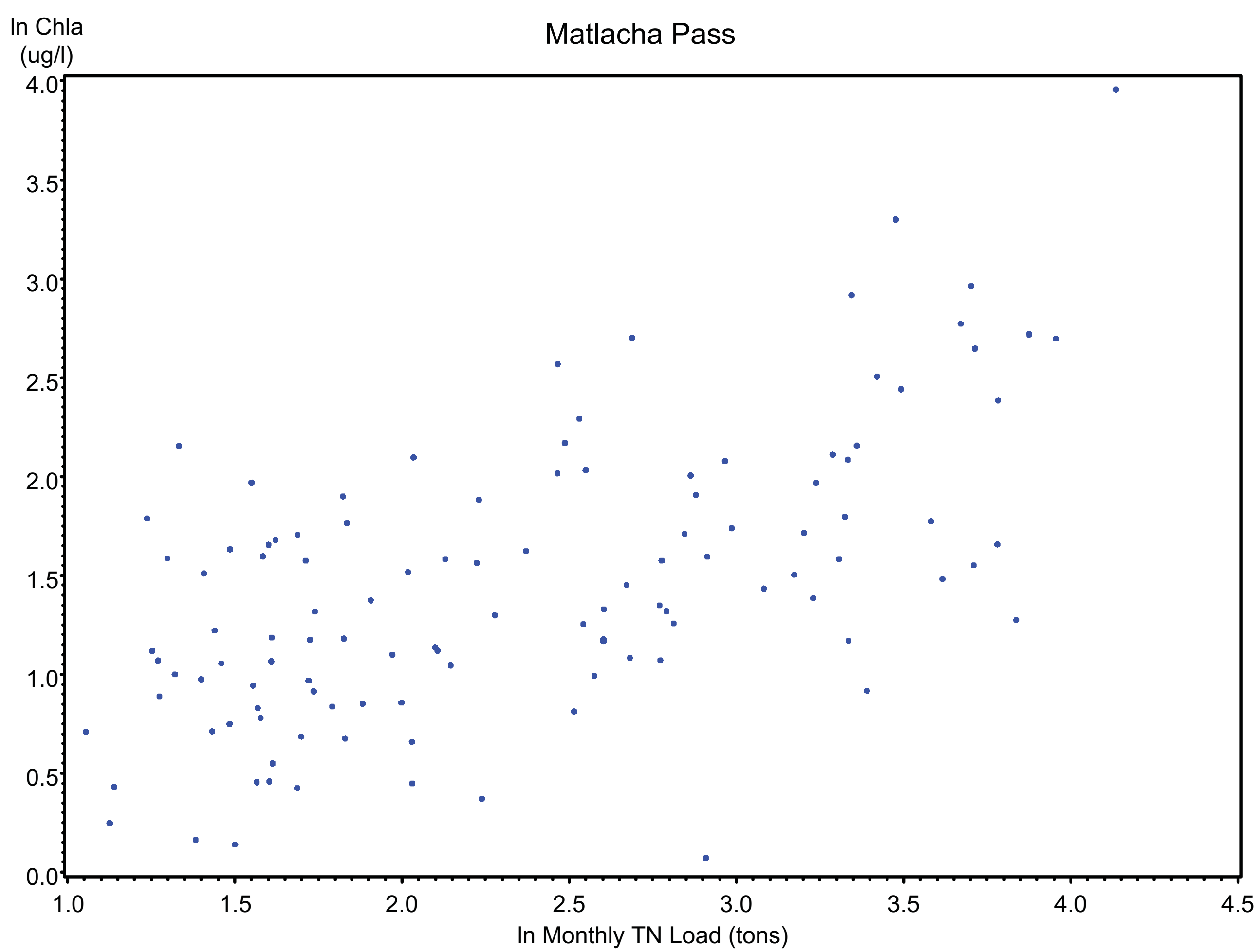
ln Chla
(ug/l)
Matlacha Pass
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
Monthly TN Load (tons)



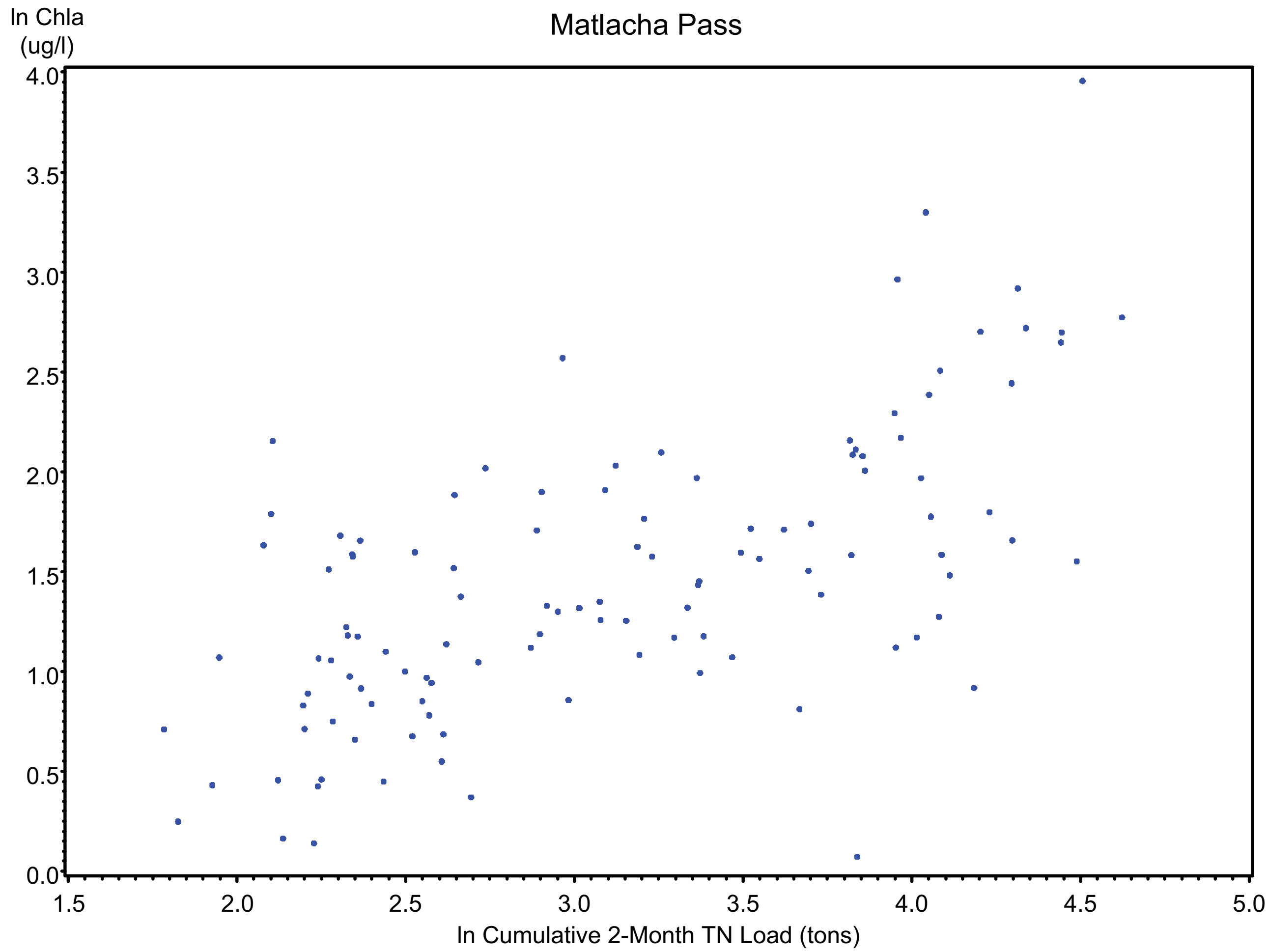
ln Chla
(ug/l)
Matlacha Pass
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
90
100
110
Cumulative 2-Month TN Load (tons)



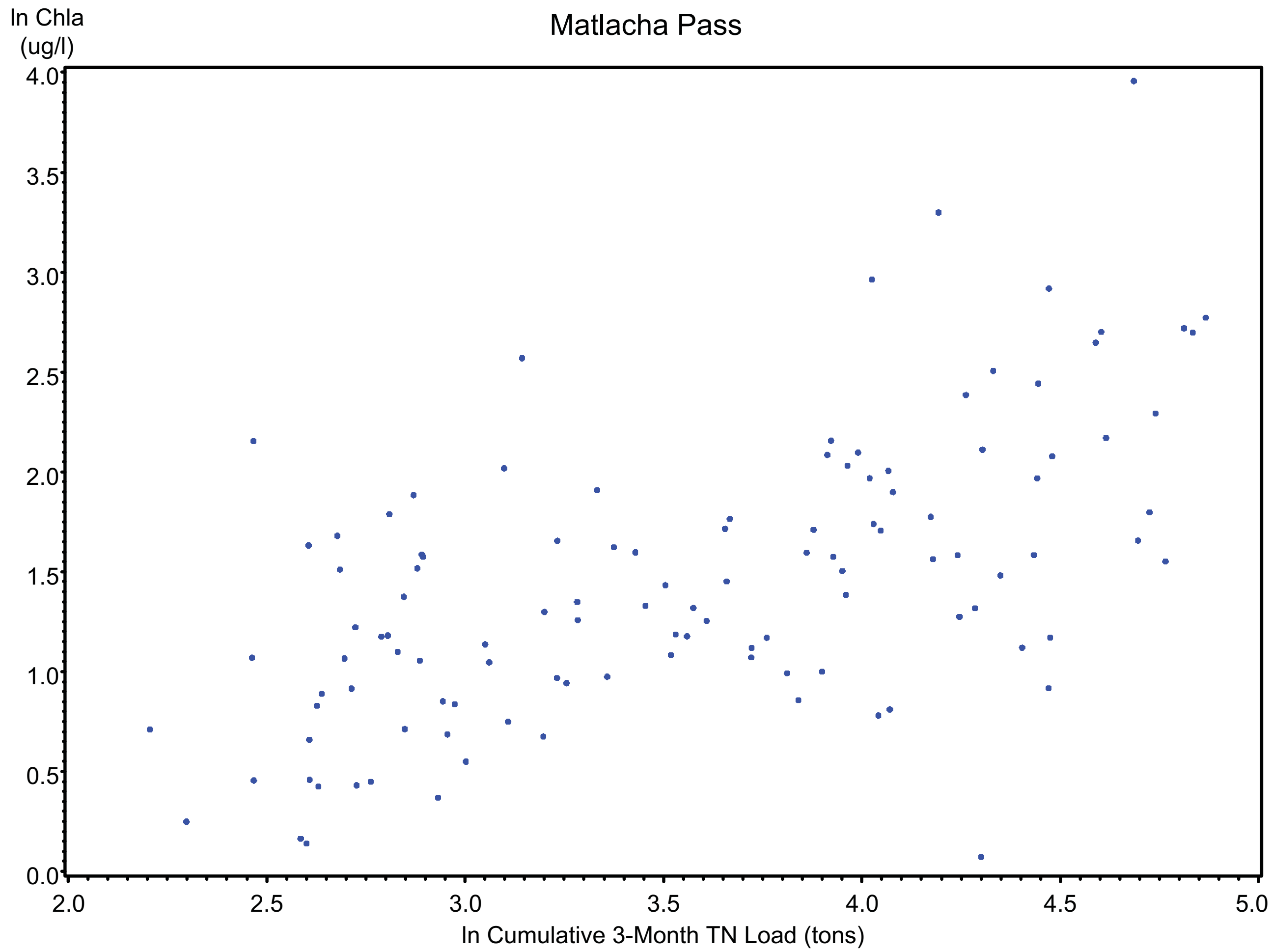
Matlacha Pass
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
Cumulative 3-Month TN Load (tons)



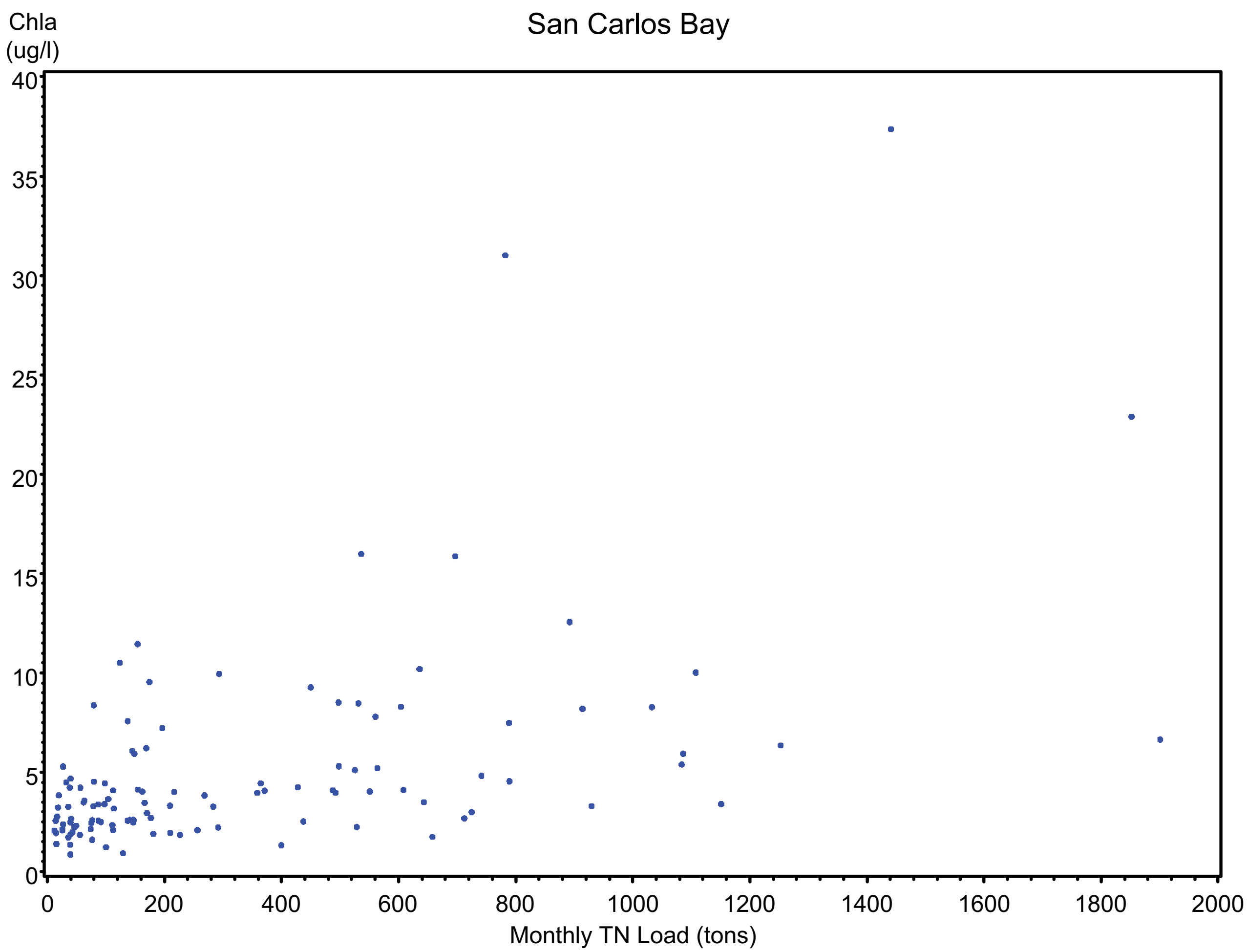
Matlacha Pass
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
ln Monthly TN Load (tons)



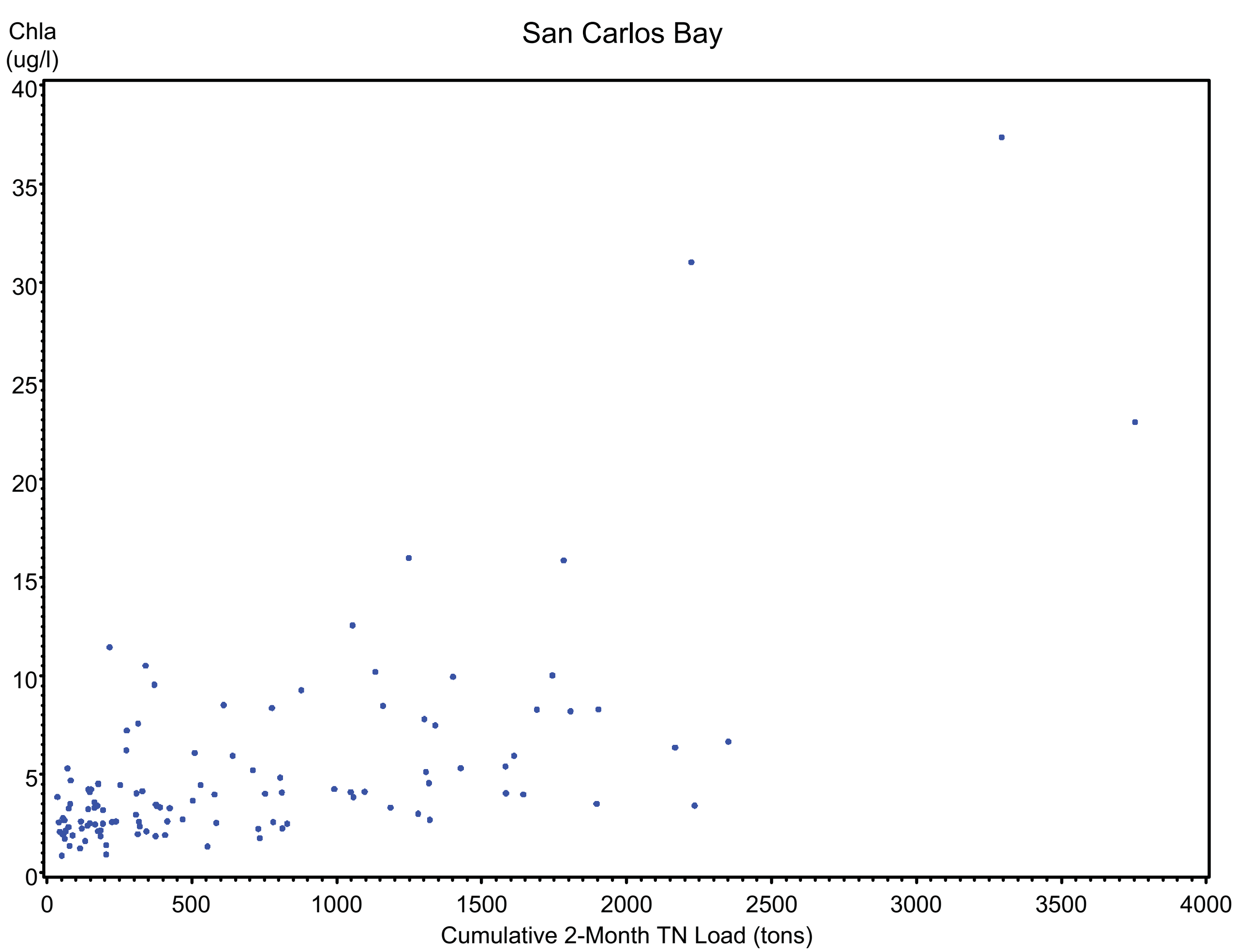
Matlacha Pass
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 2-Month TN Load (tons)



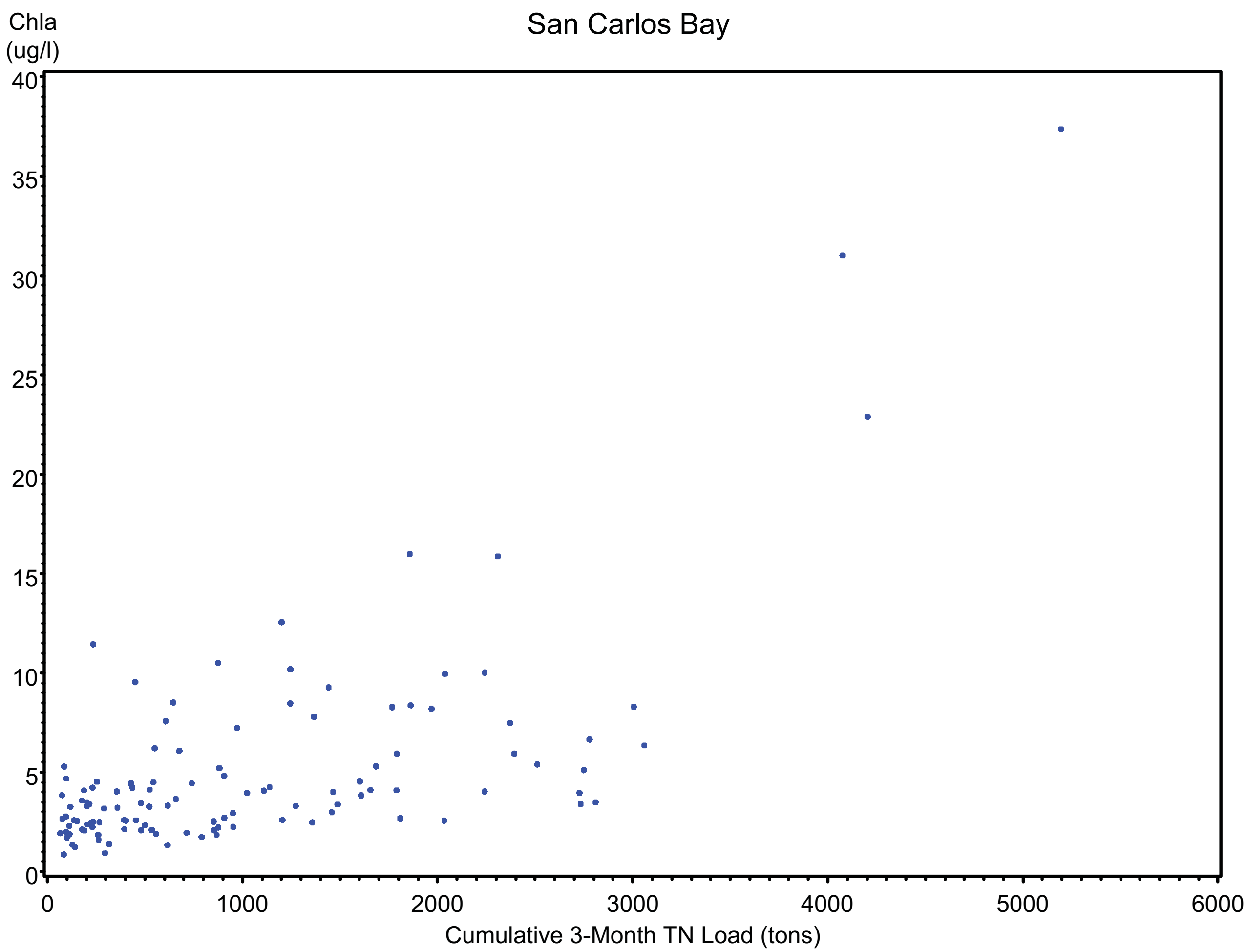
Matlacha Pass
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Cumulative 3-Month TN Load (tons)

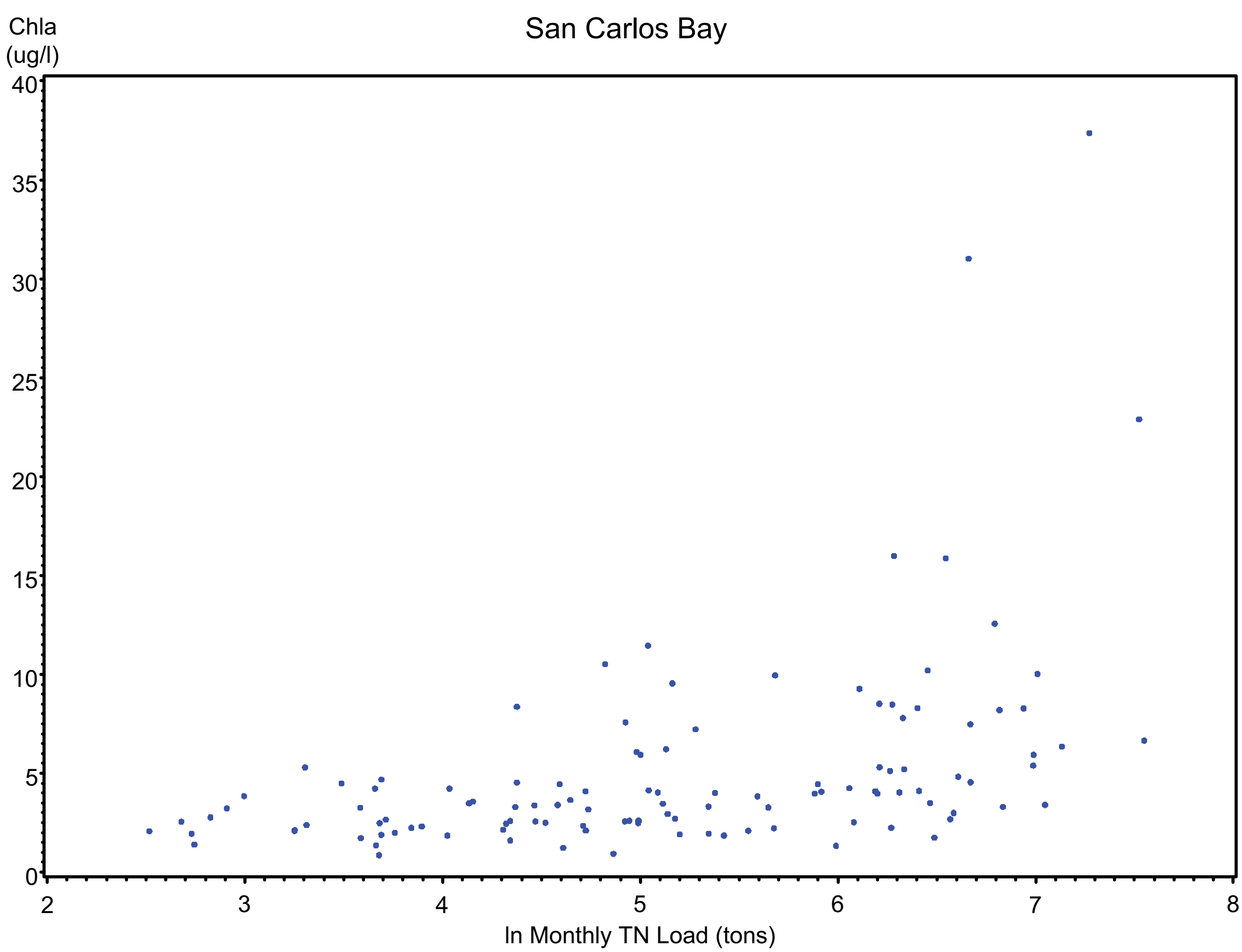


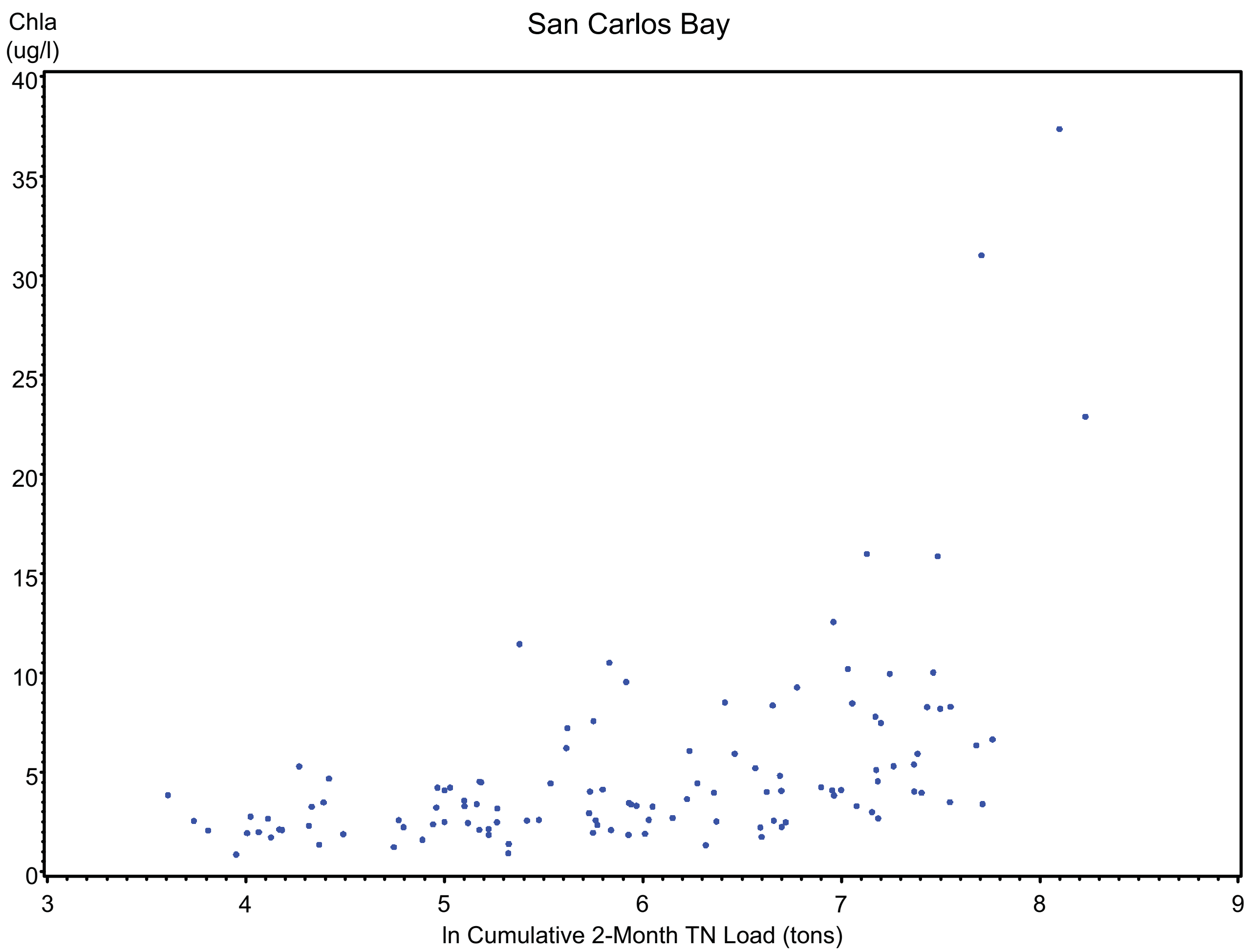
Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

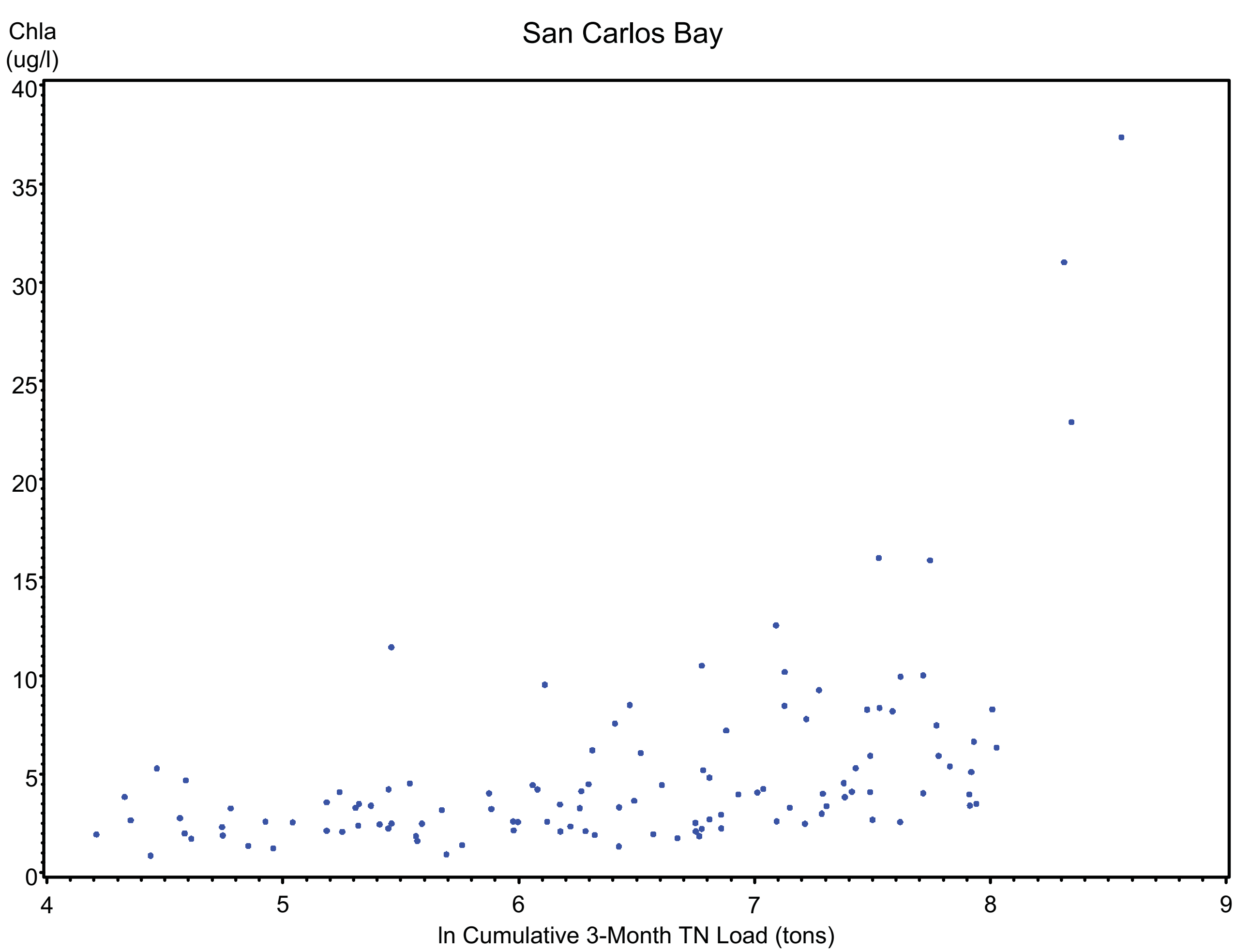


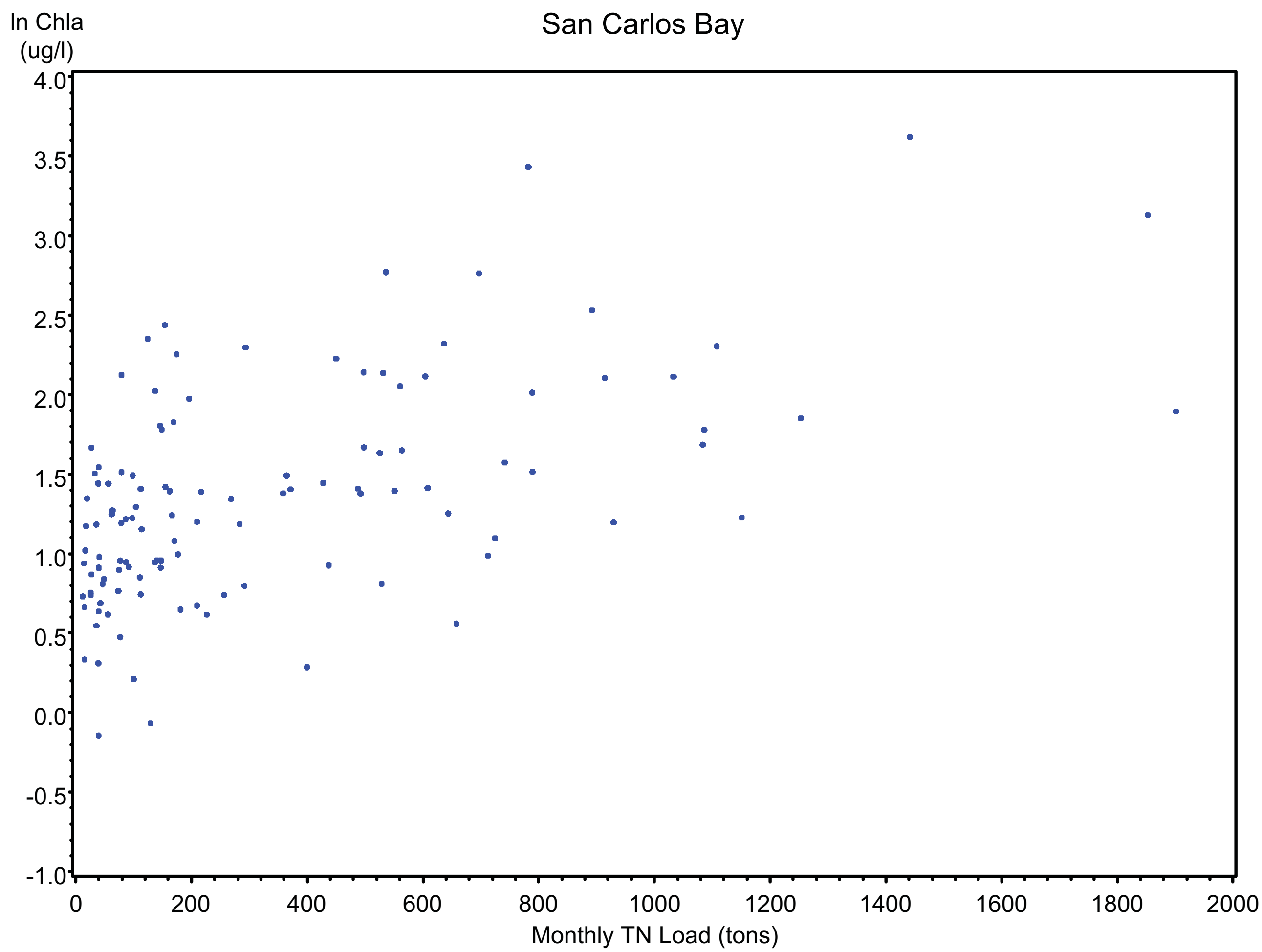
Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

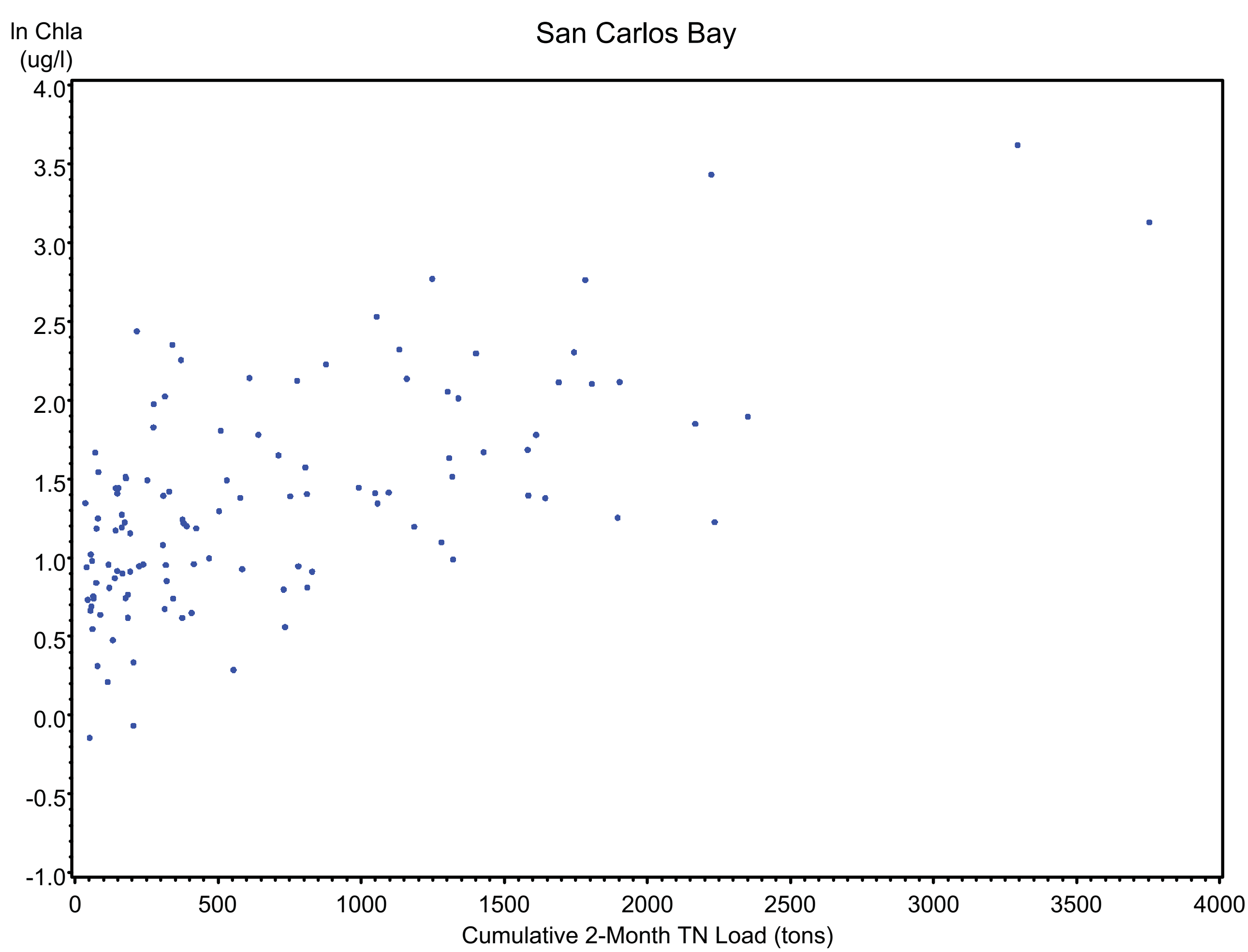

Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

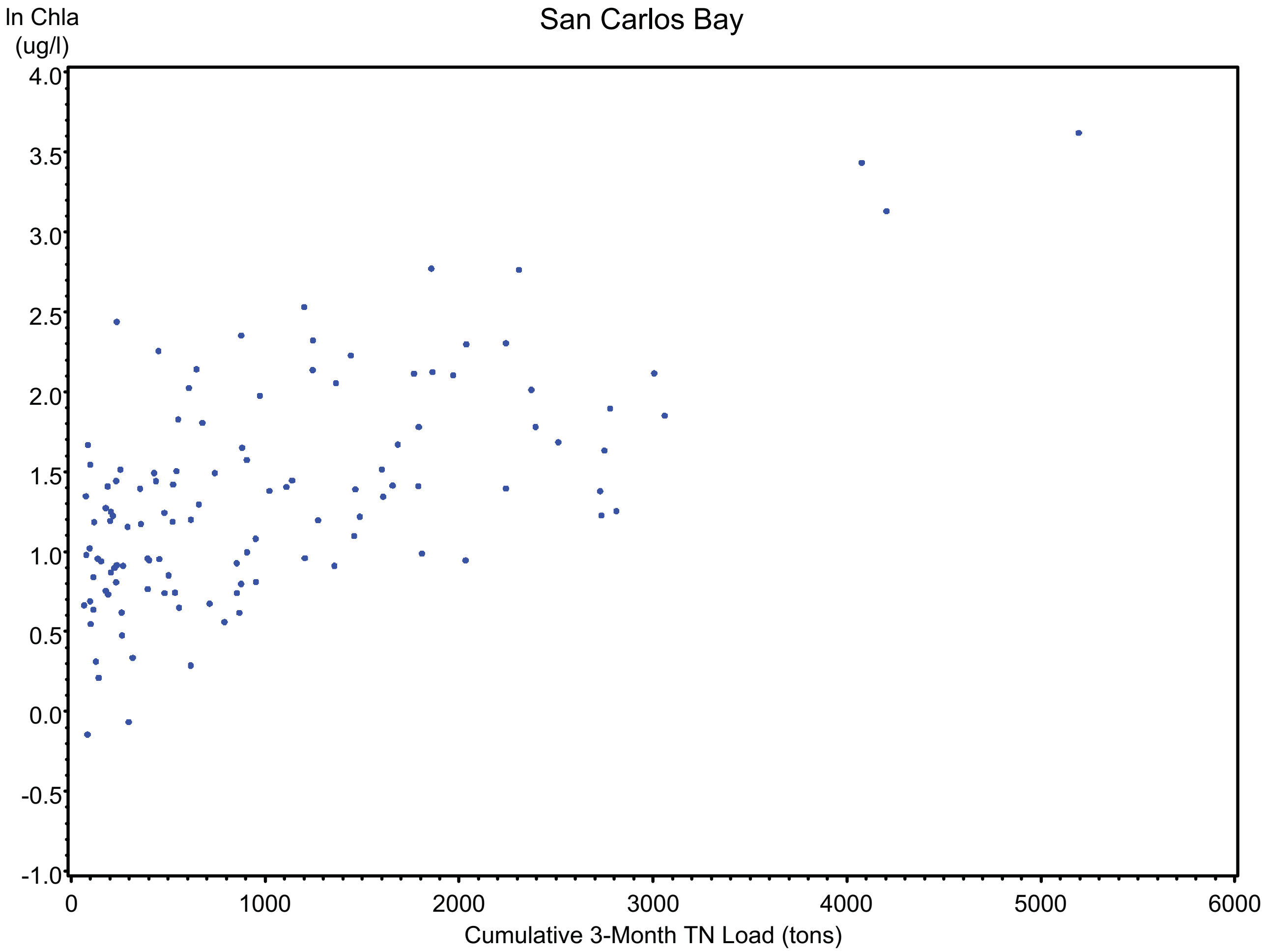

Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
2
3
4
5
6
7
8
ln Monthly TN Load (tons)

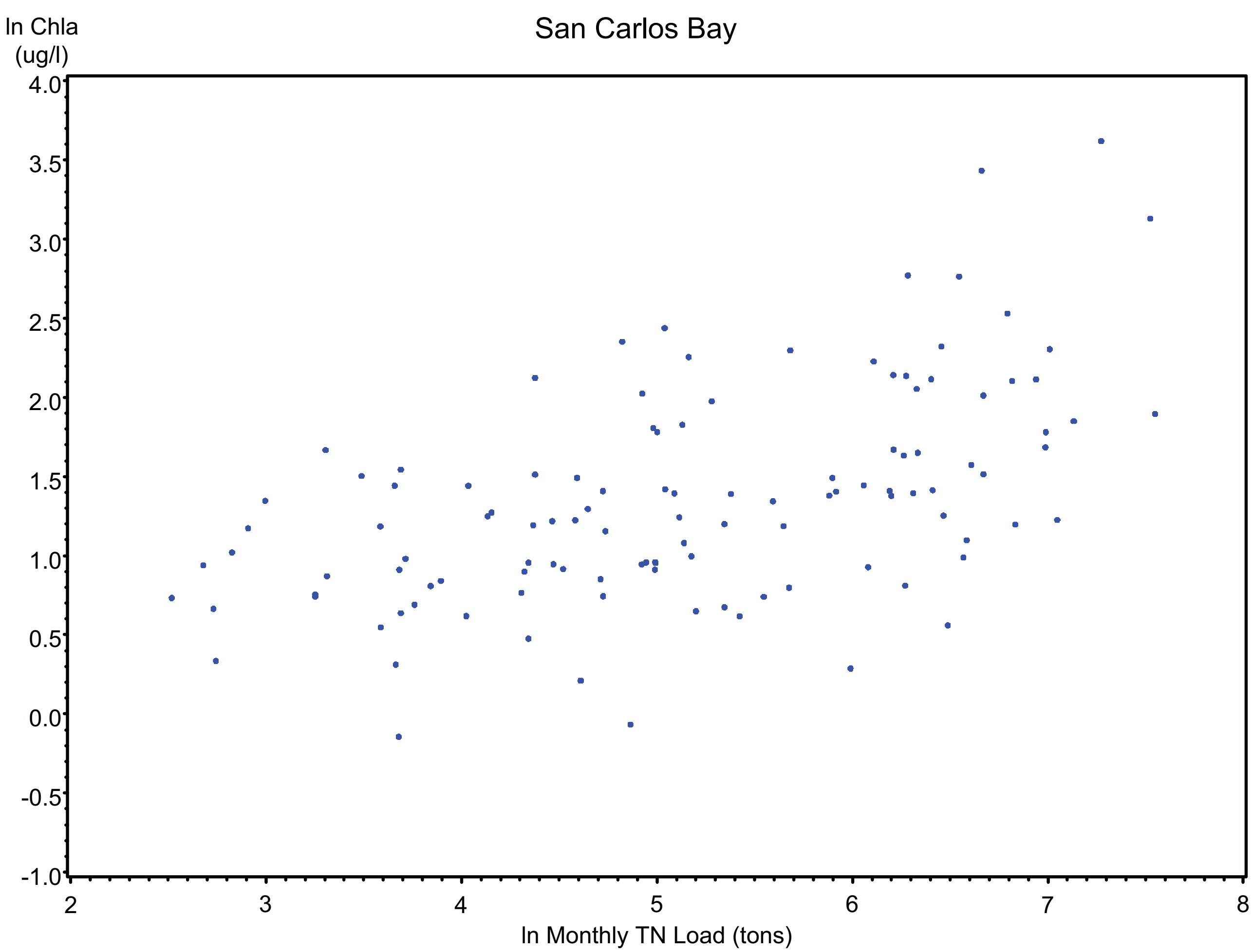

San Carlos Bay
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

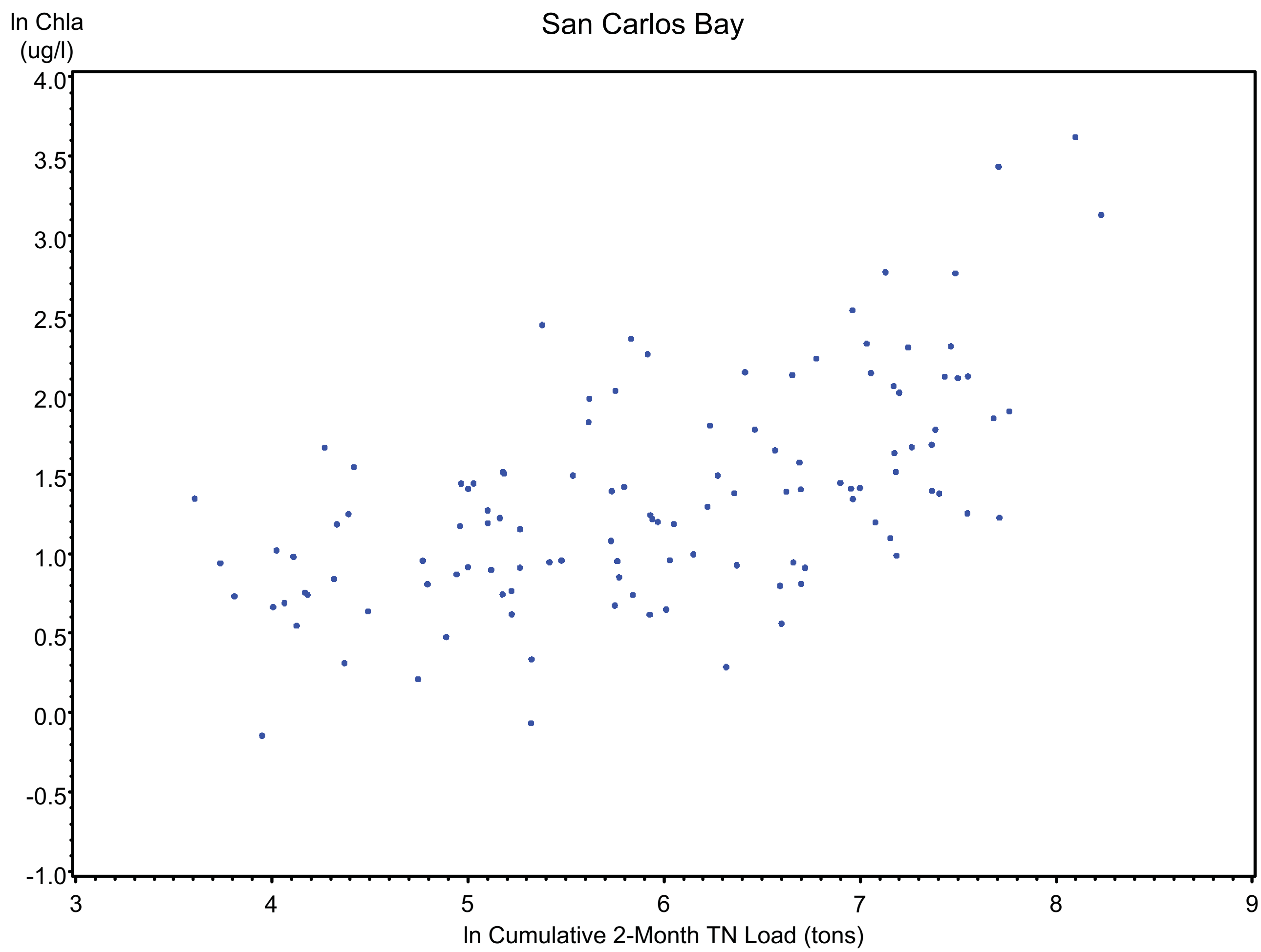

San Carlos Bay
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)


San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

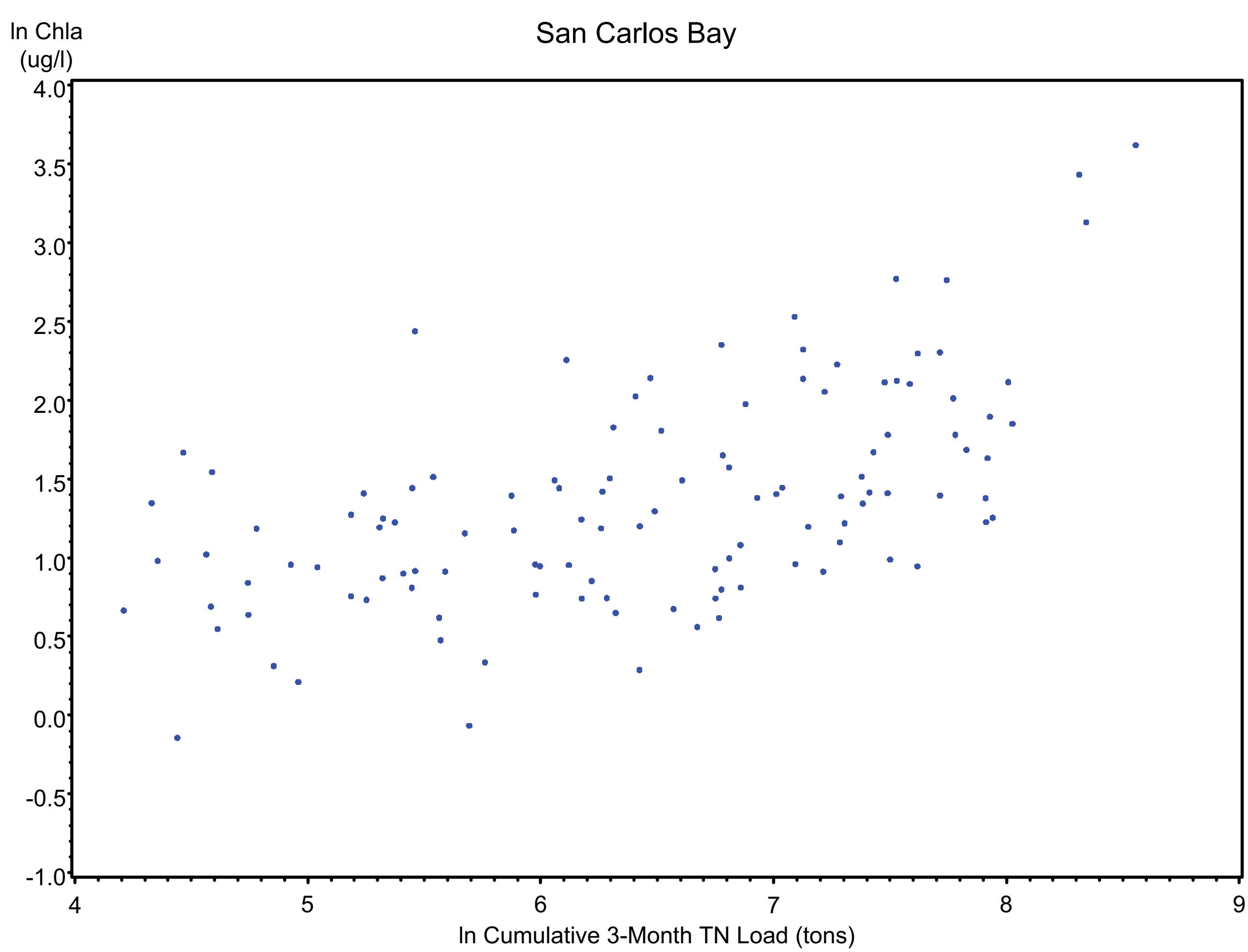

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)


San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

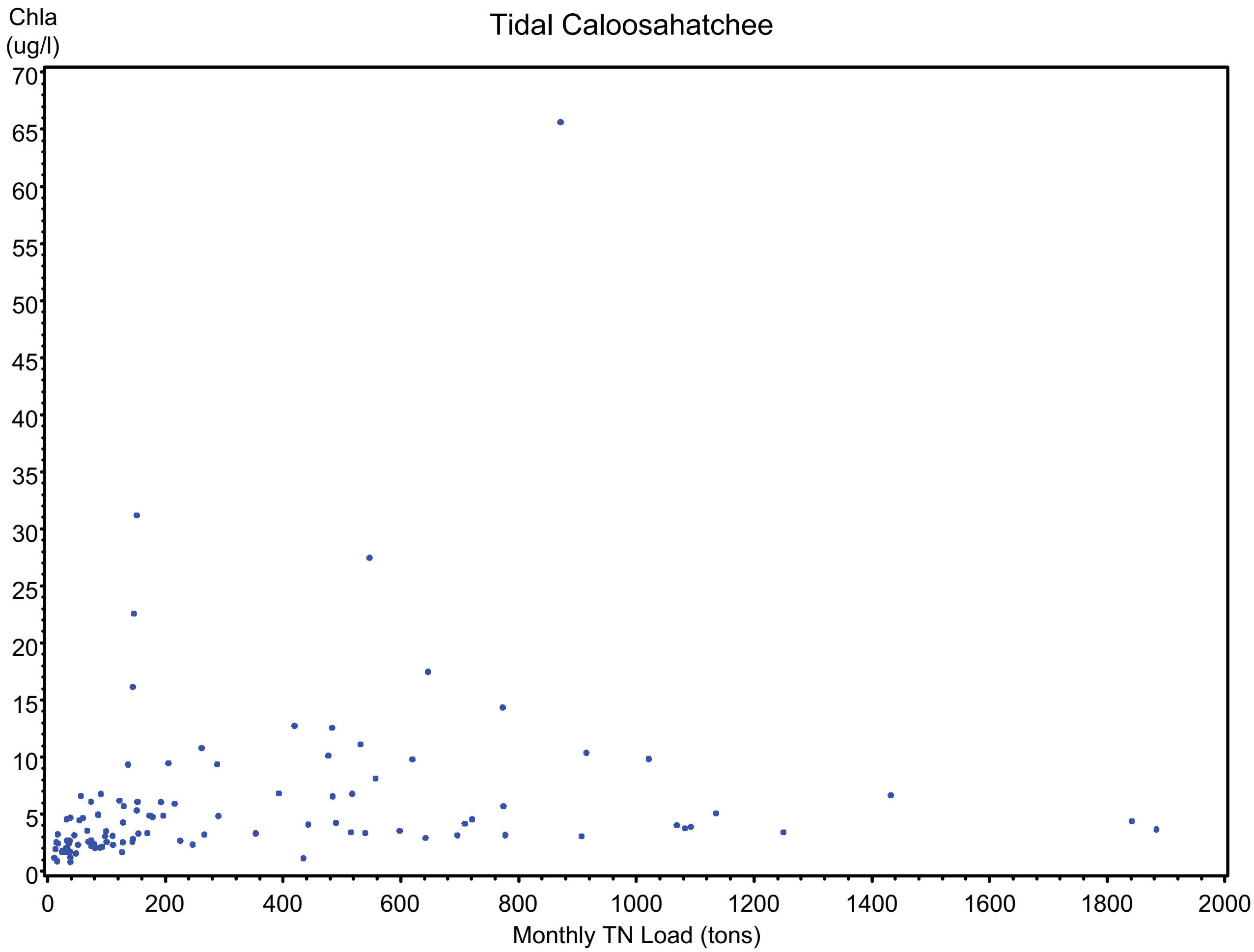

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
2
3
4
5
6
7
8
ln Monthly TN Load (tons)

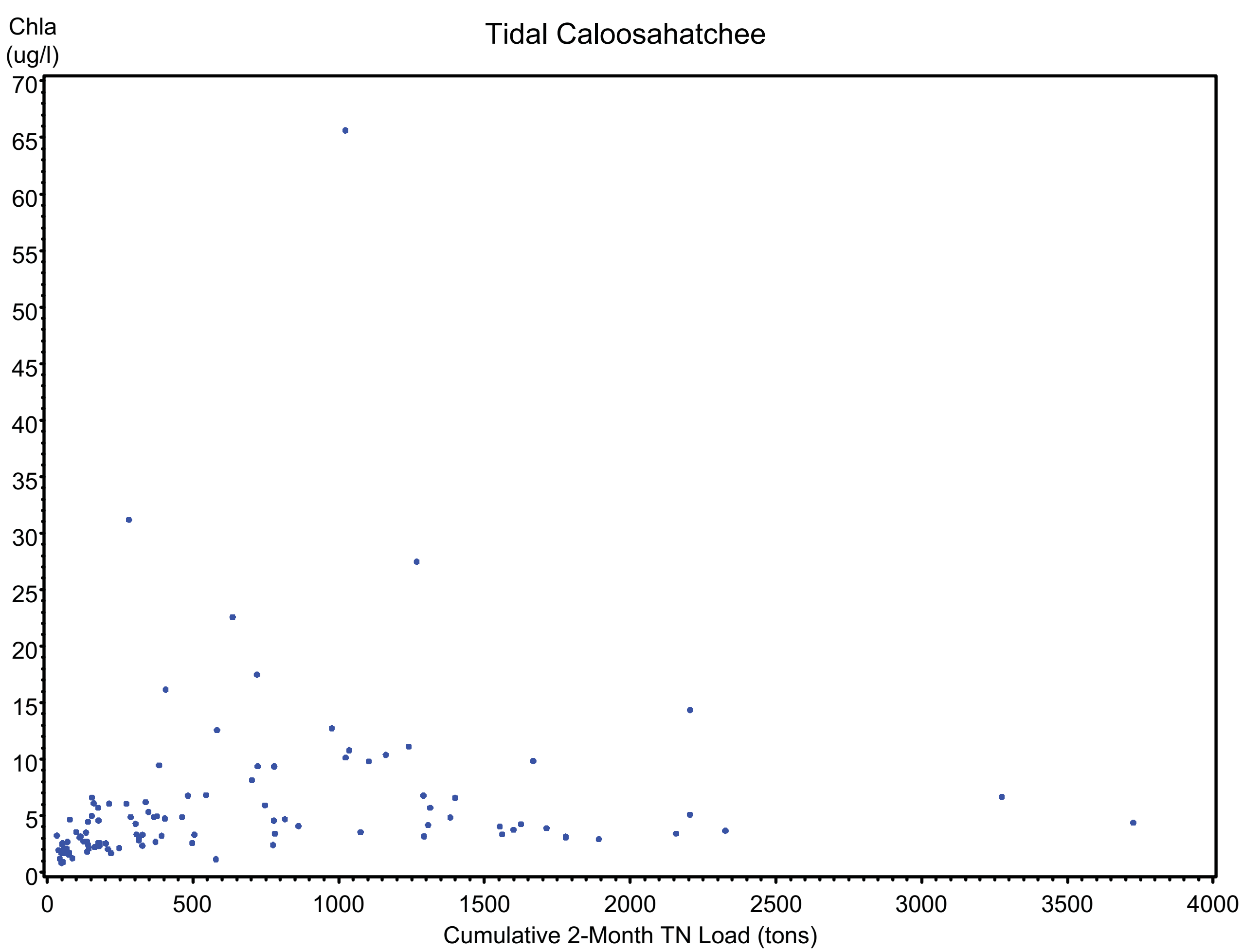


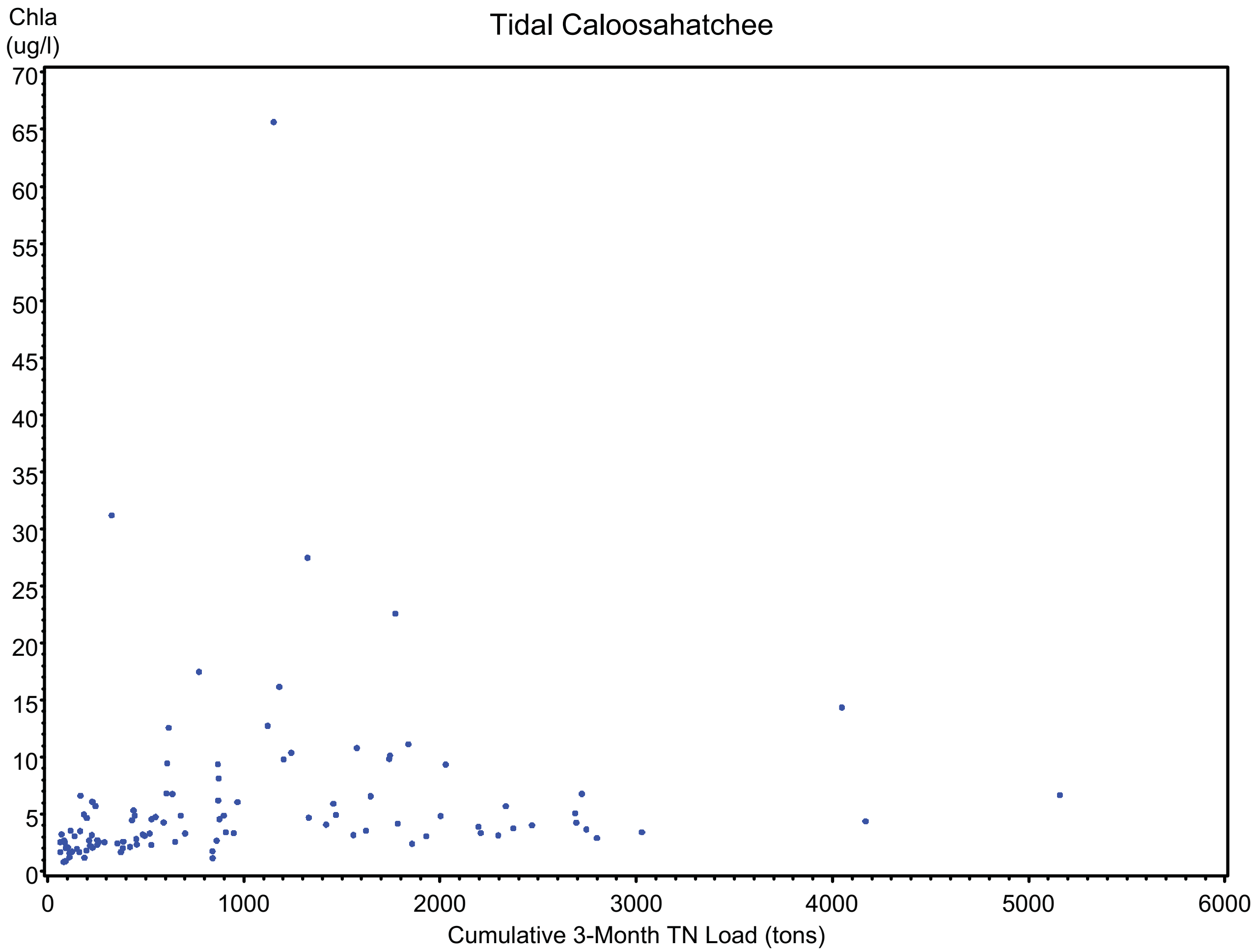
San Carlos Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

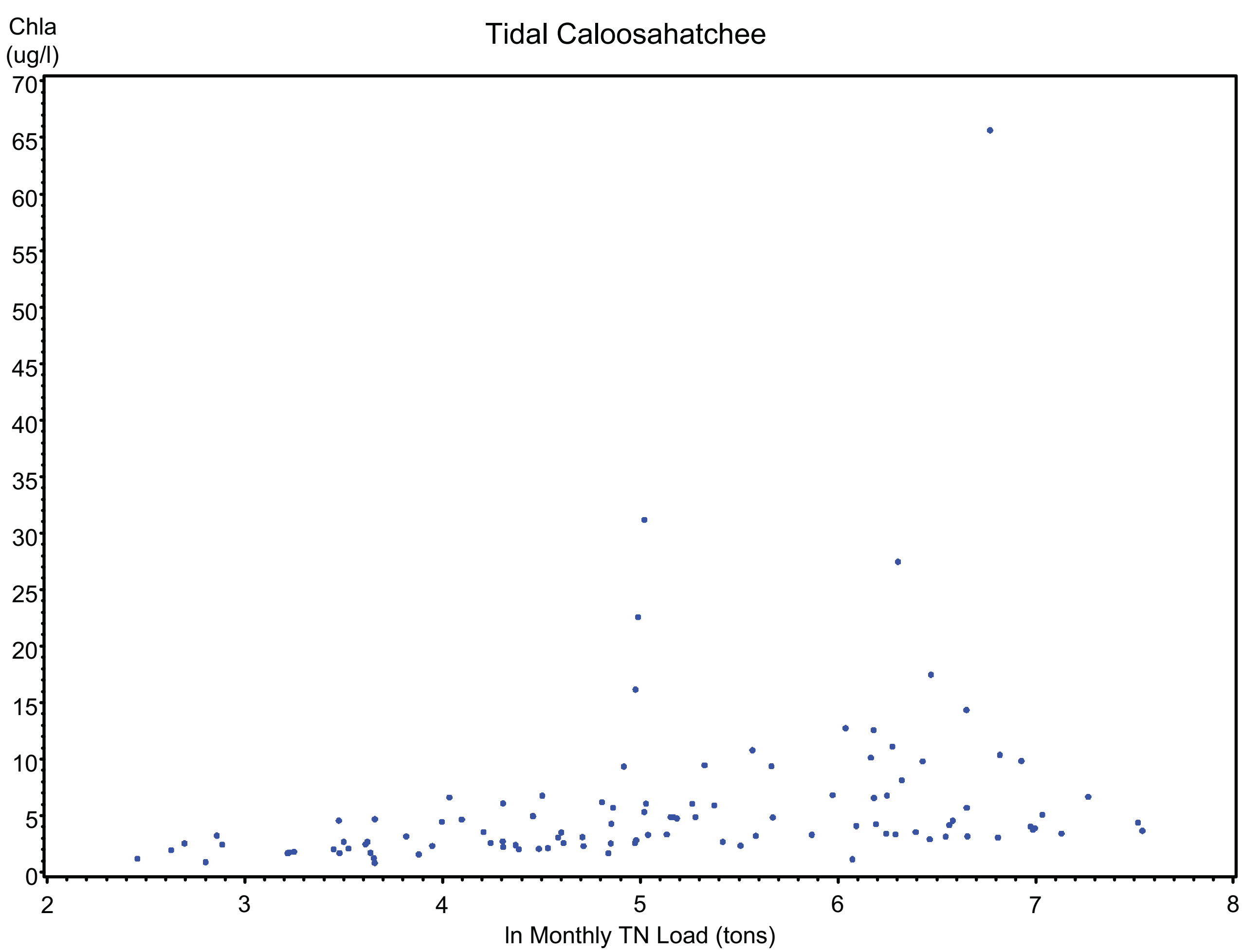


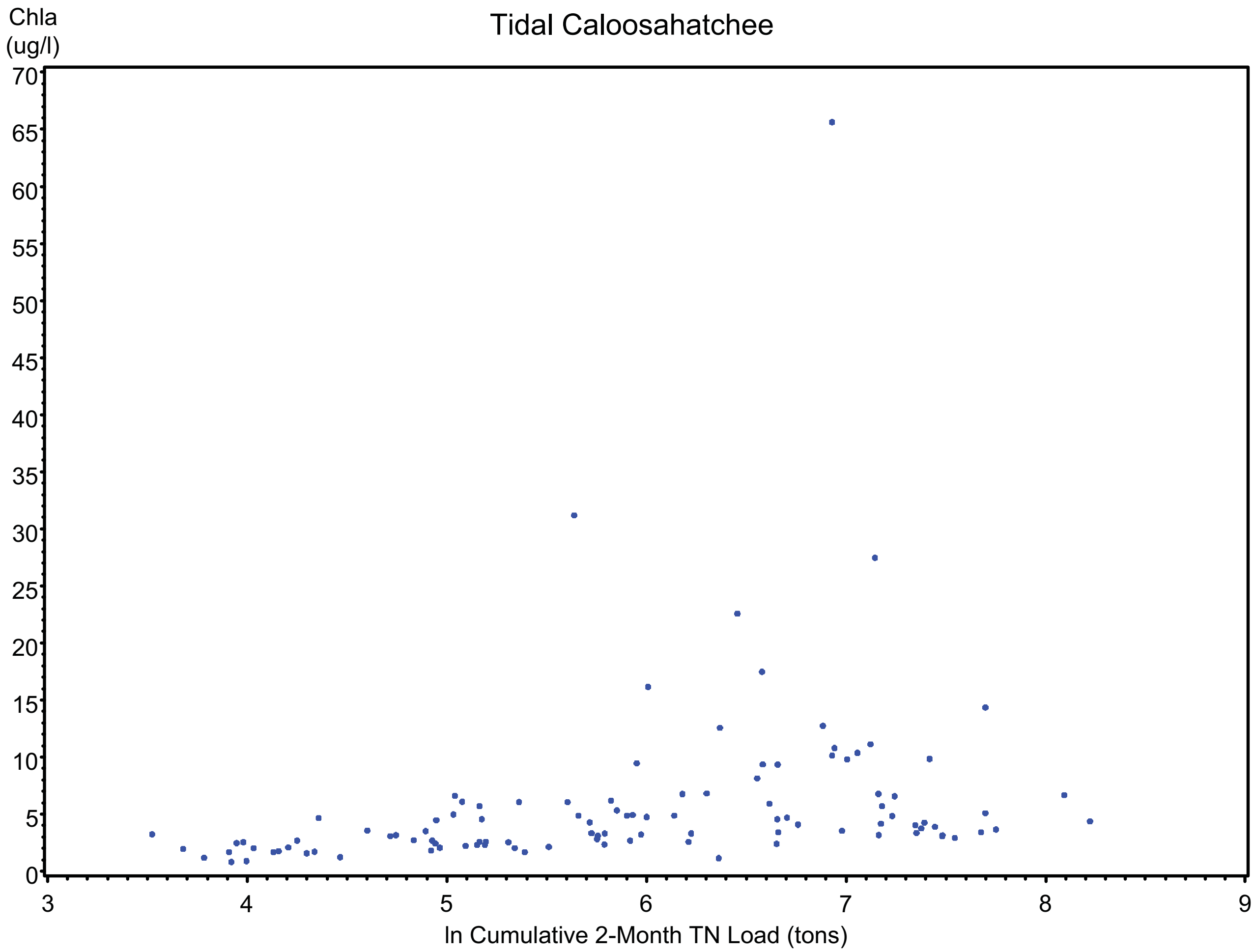
San Carlos Bay
ln Chla (ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

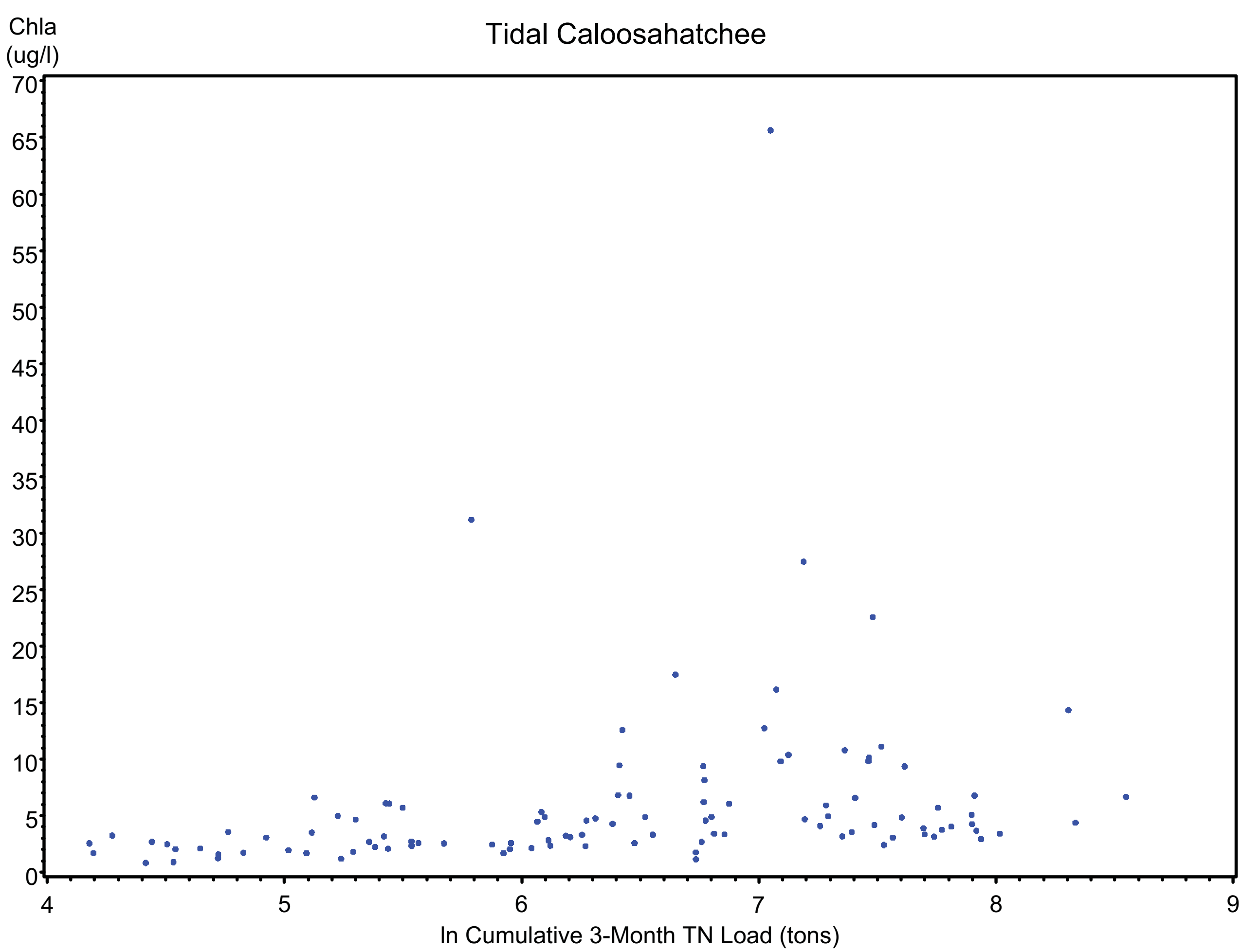

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

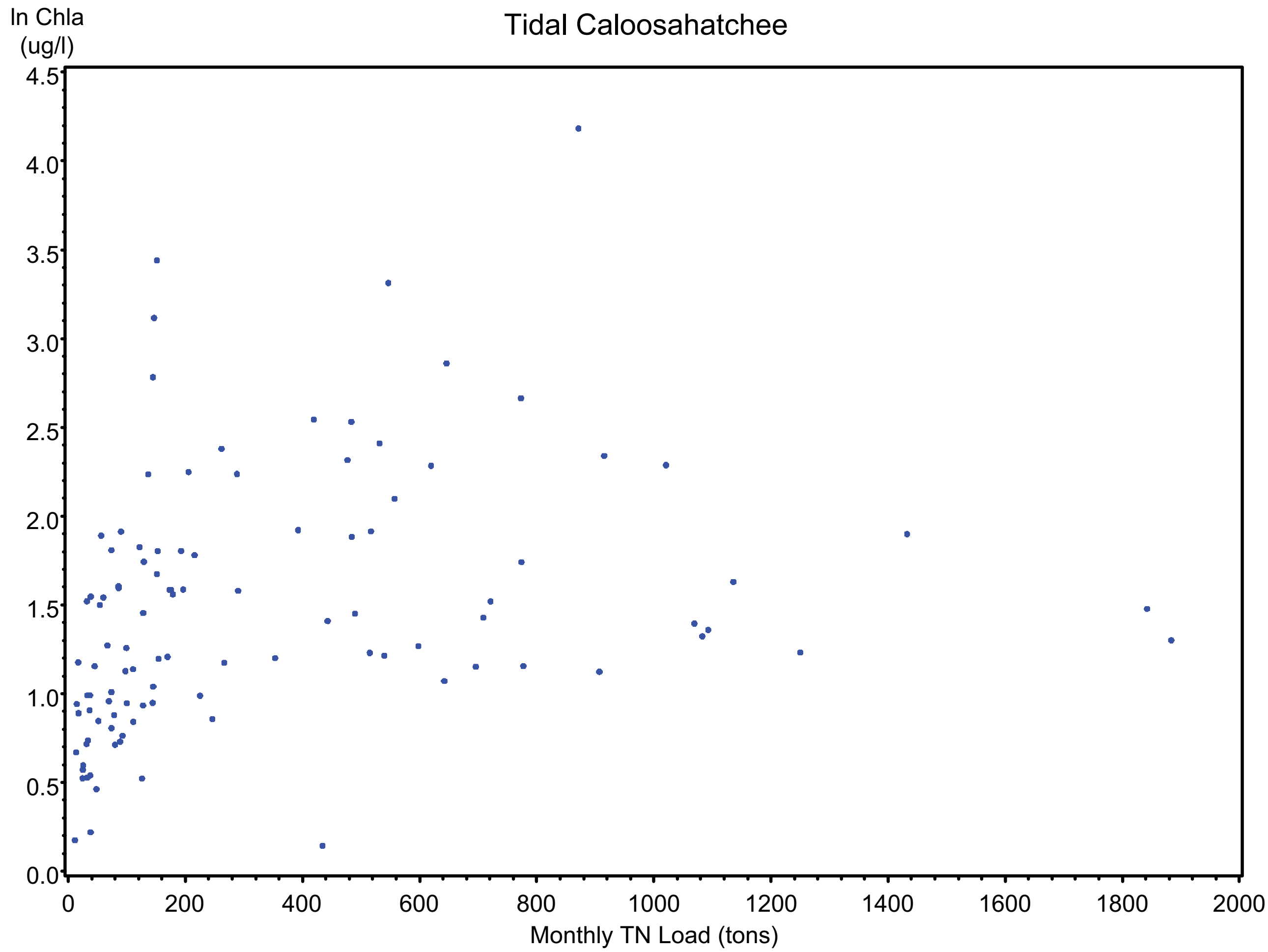

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

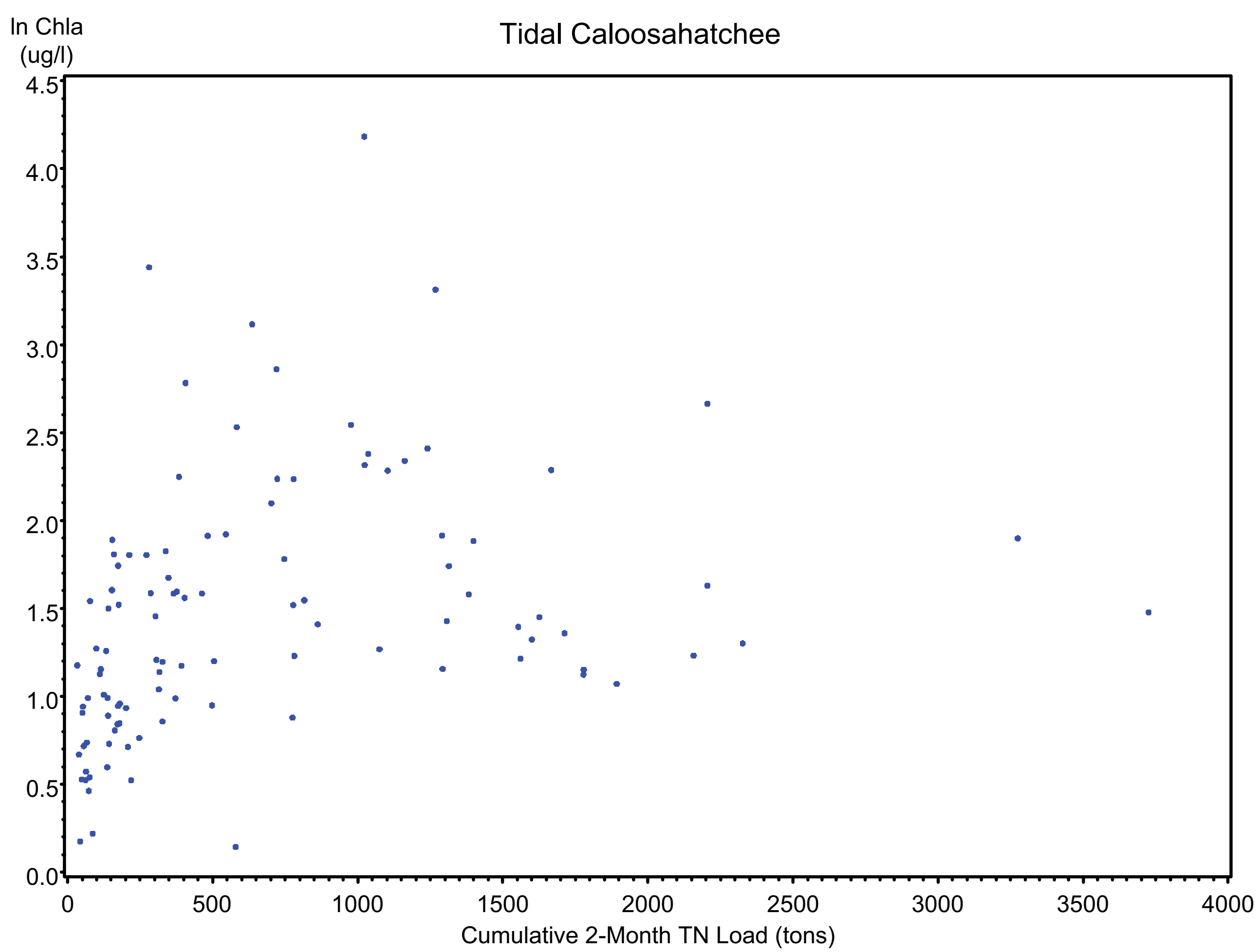

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

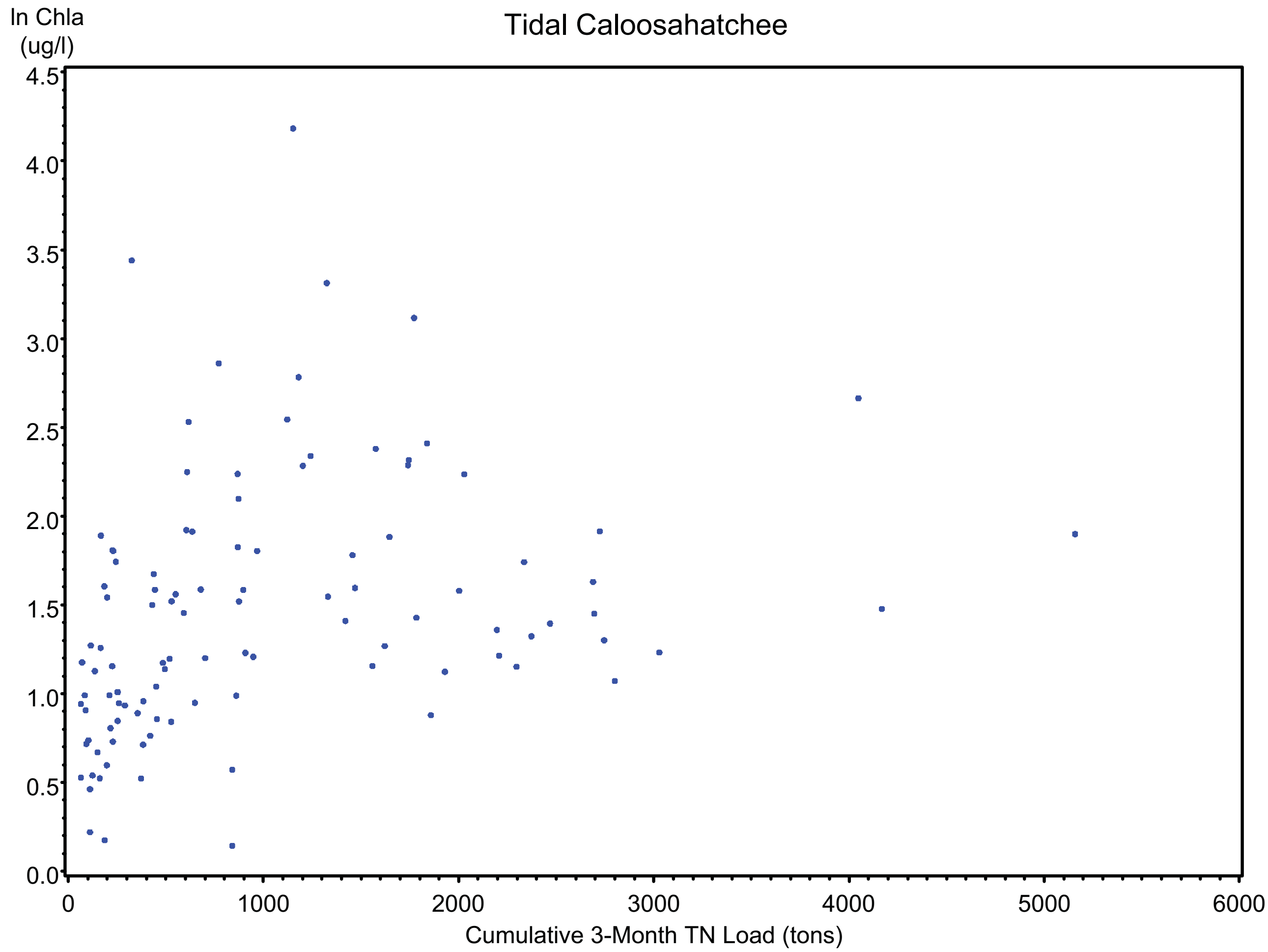

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
2
3
4
5
6
7
8
ln Monthly TN Load (tons)

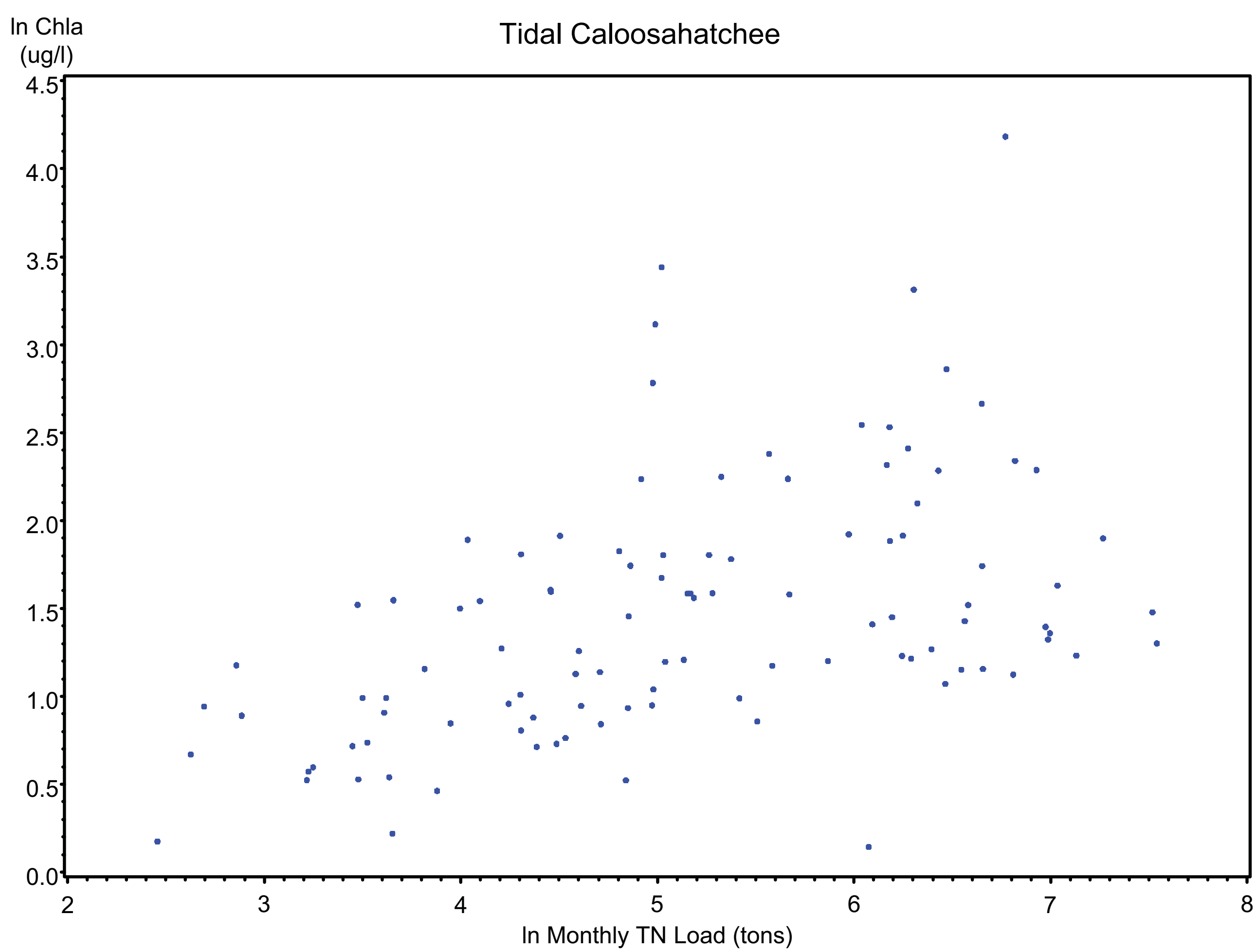

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

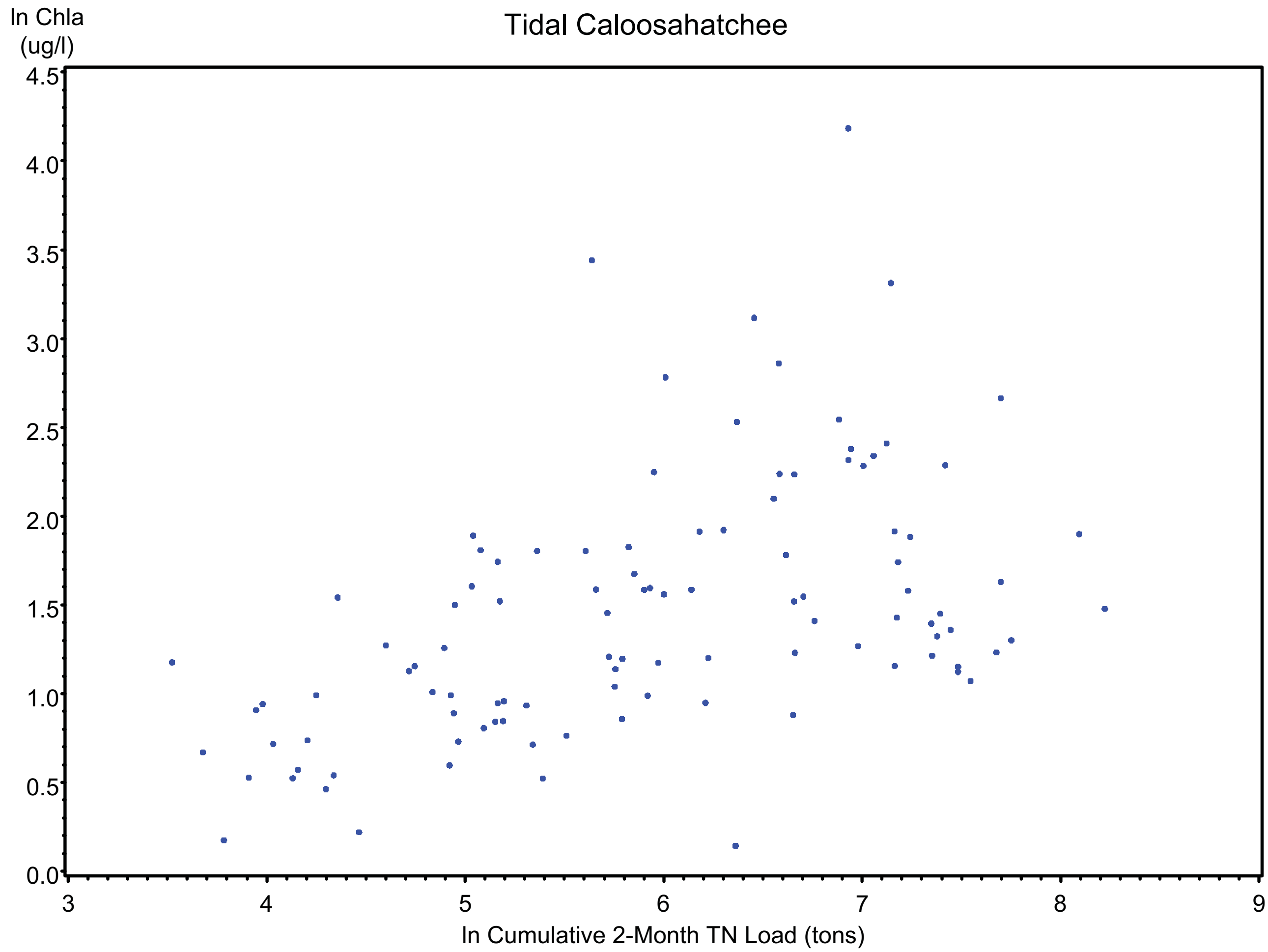

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)

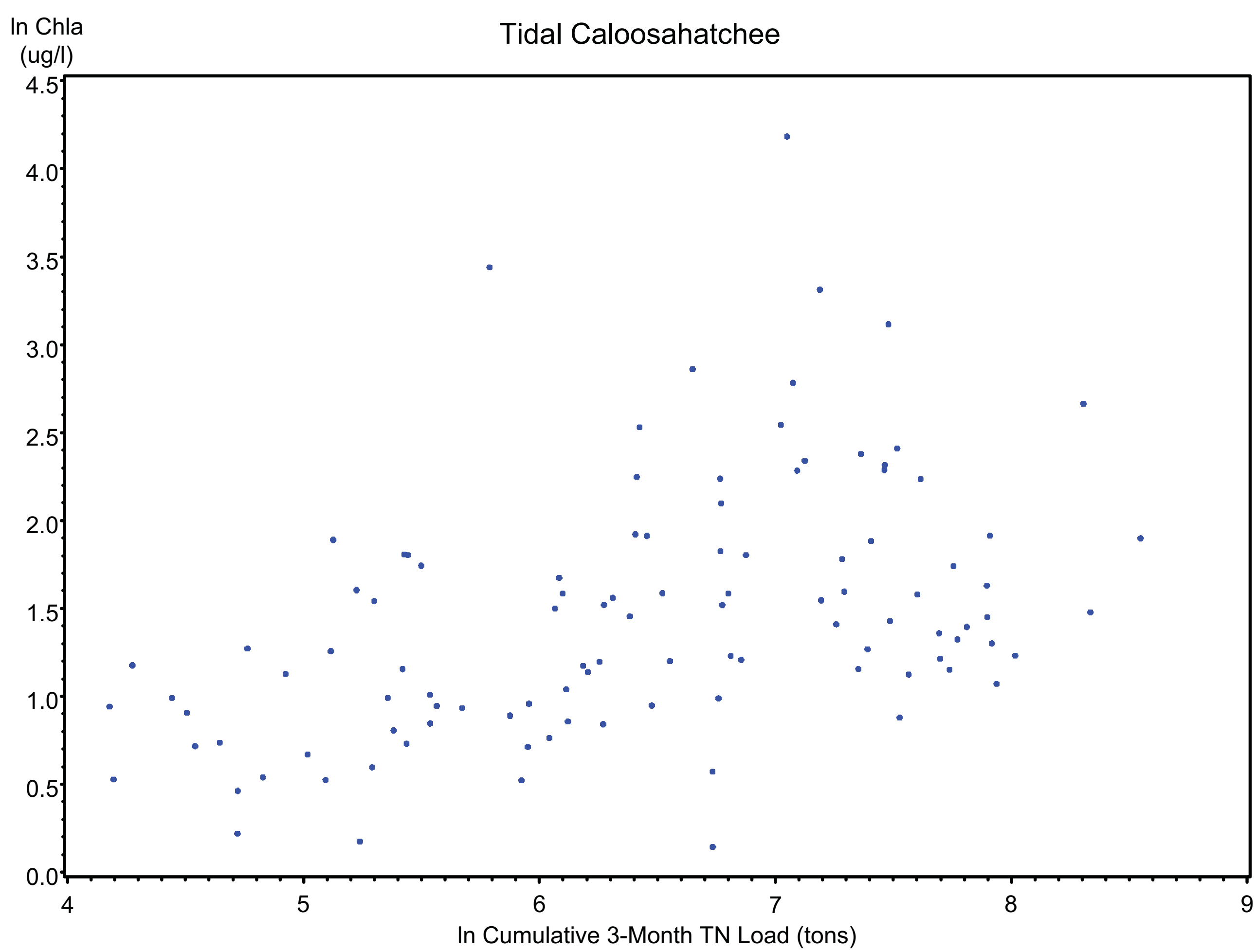

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Monthly TN Load (tons)

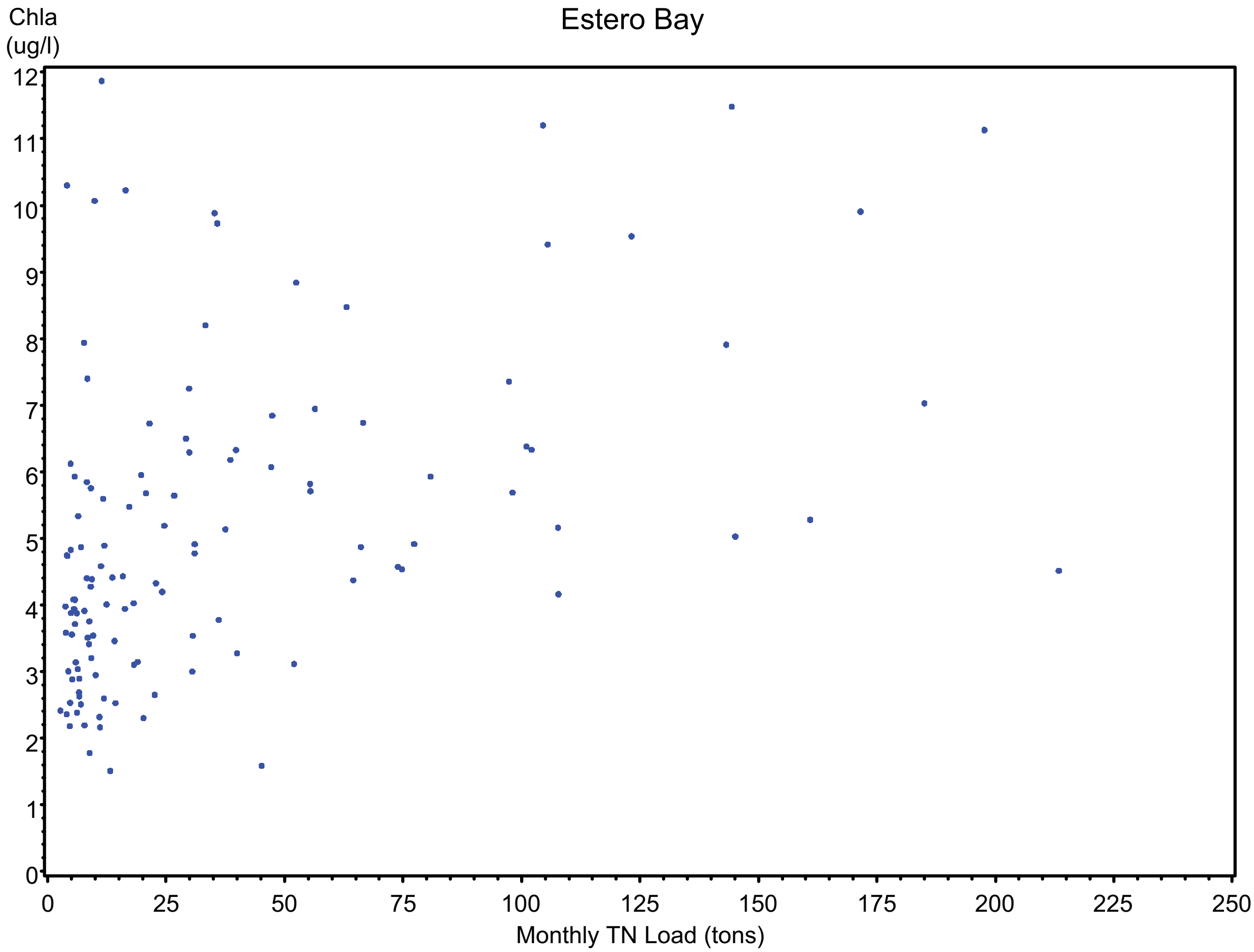

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
2500
3000
3500
4000
Cumulative 2-Month TN Load (tons)

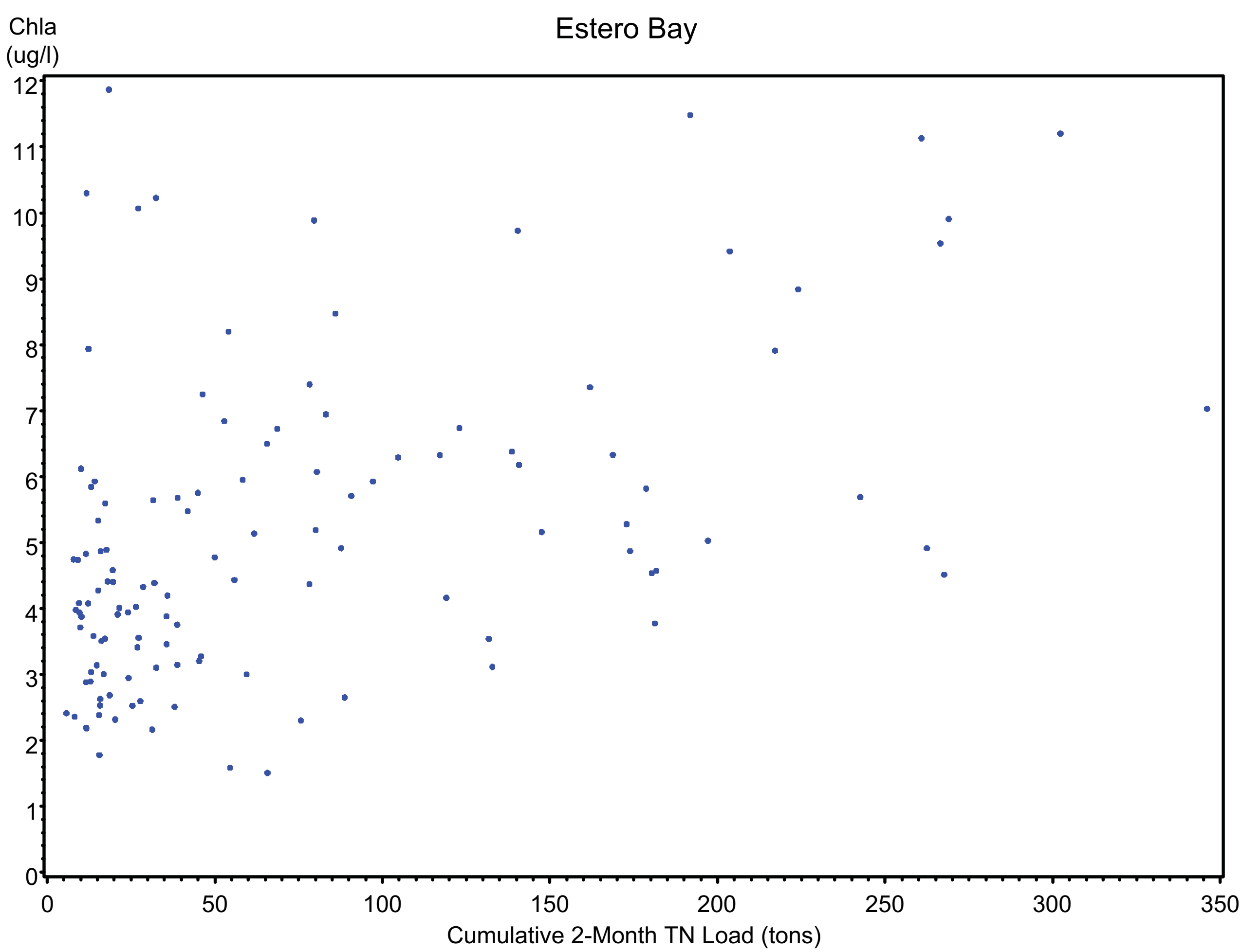

Tidal Caloosahatchee
ln Chla (ug/l)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
0
1000
2000
3000
4000
5000
6000
Cumulative 3-Month TN Load (tons)

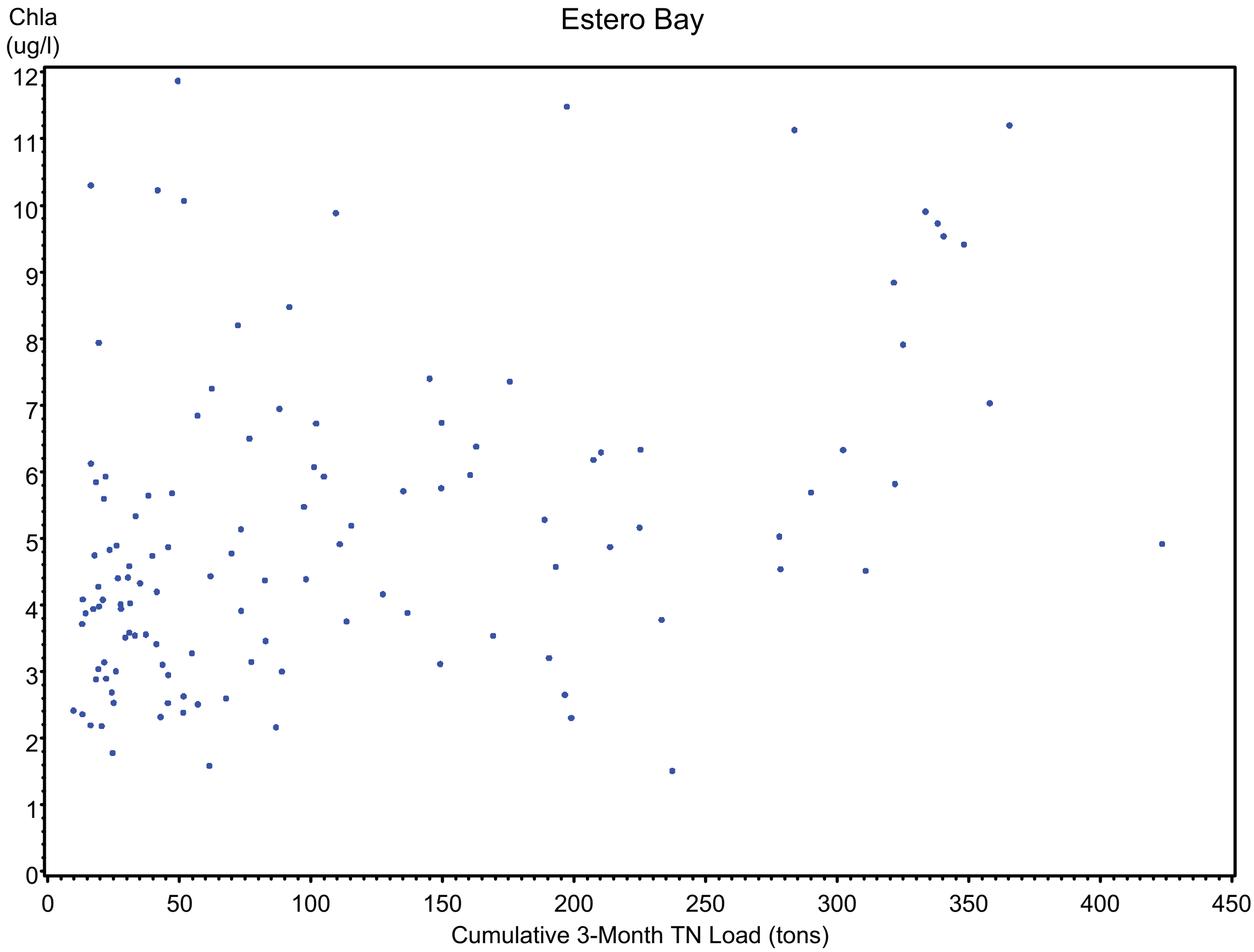

Tidal Caloosahatchee
ln Chla (ug/l)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
2
3
4
5
6
7
8
ln Monthly TN Load (tons)


Tidal Caloosahatchee
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3
4
5
6
7
8
9
ln Cumulative 2-Month TN Load (tons)

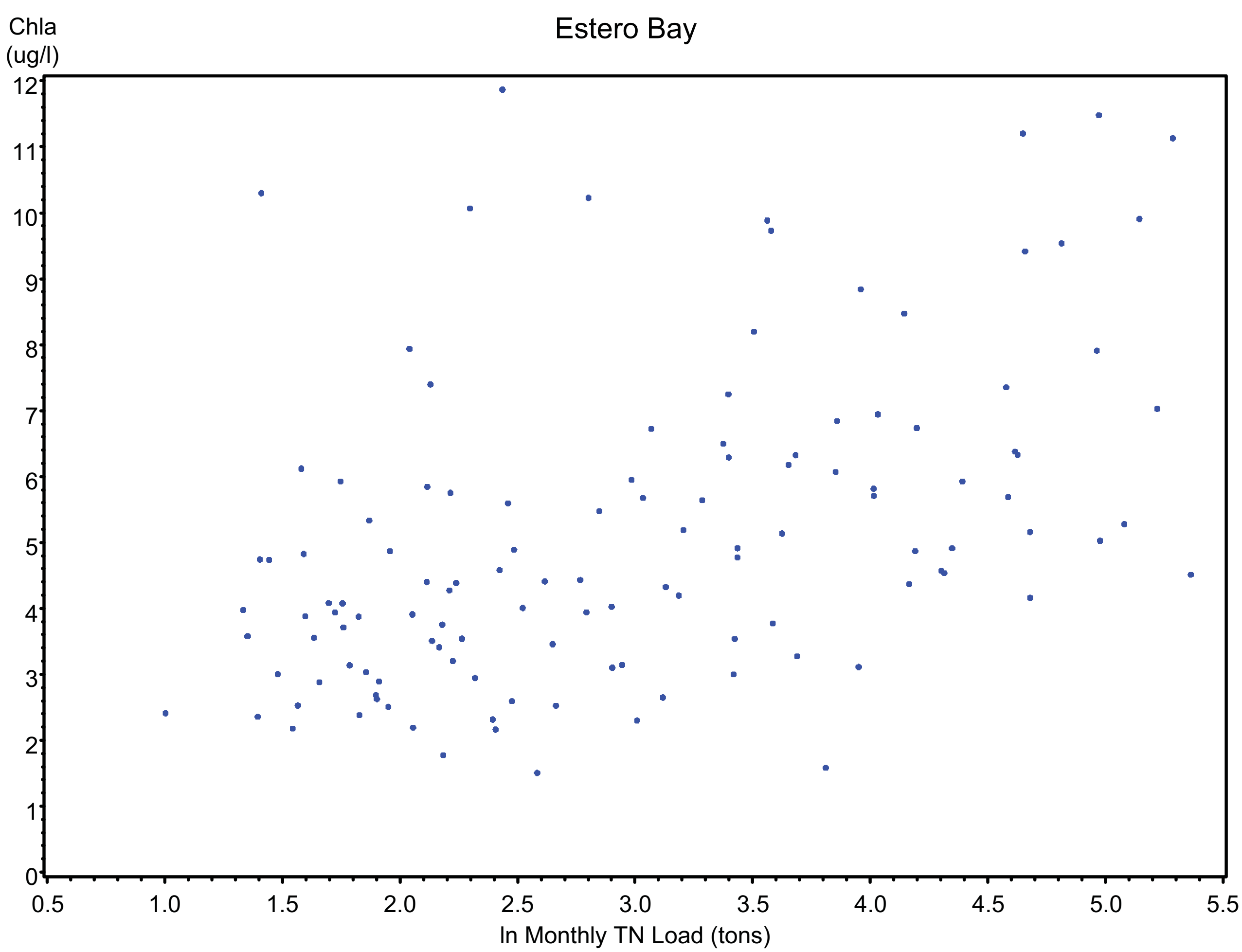

Tidal Caloosahatchee
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
4
5
6
7
8
9
ln Cumulative 3-Month TN Load (tons)


Chla
(ug/l)
Estero Bay
0
1
2
3
4
5
6
7
8
9
10
11
12
0
25
50
75
100
125
150
175
200
225
250
Monthly TN Load (tons)

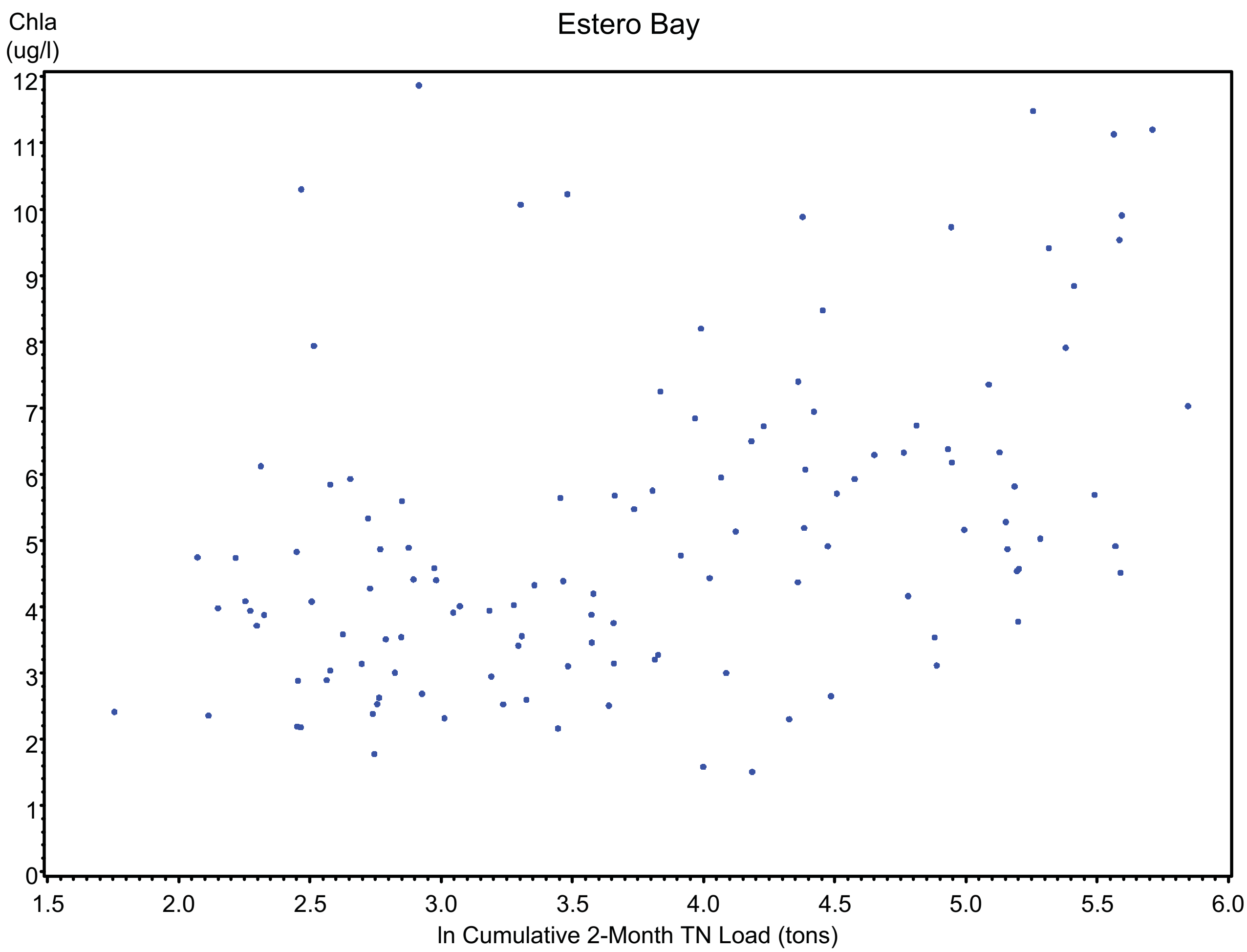

Chla
(ug/l)
Estero Bay
0
1
2
3
4
5
6
7
8
9
10
11
12
0
50
100
150
200
250
300
350
Cumulative 2-Month TN Load (tons)



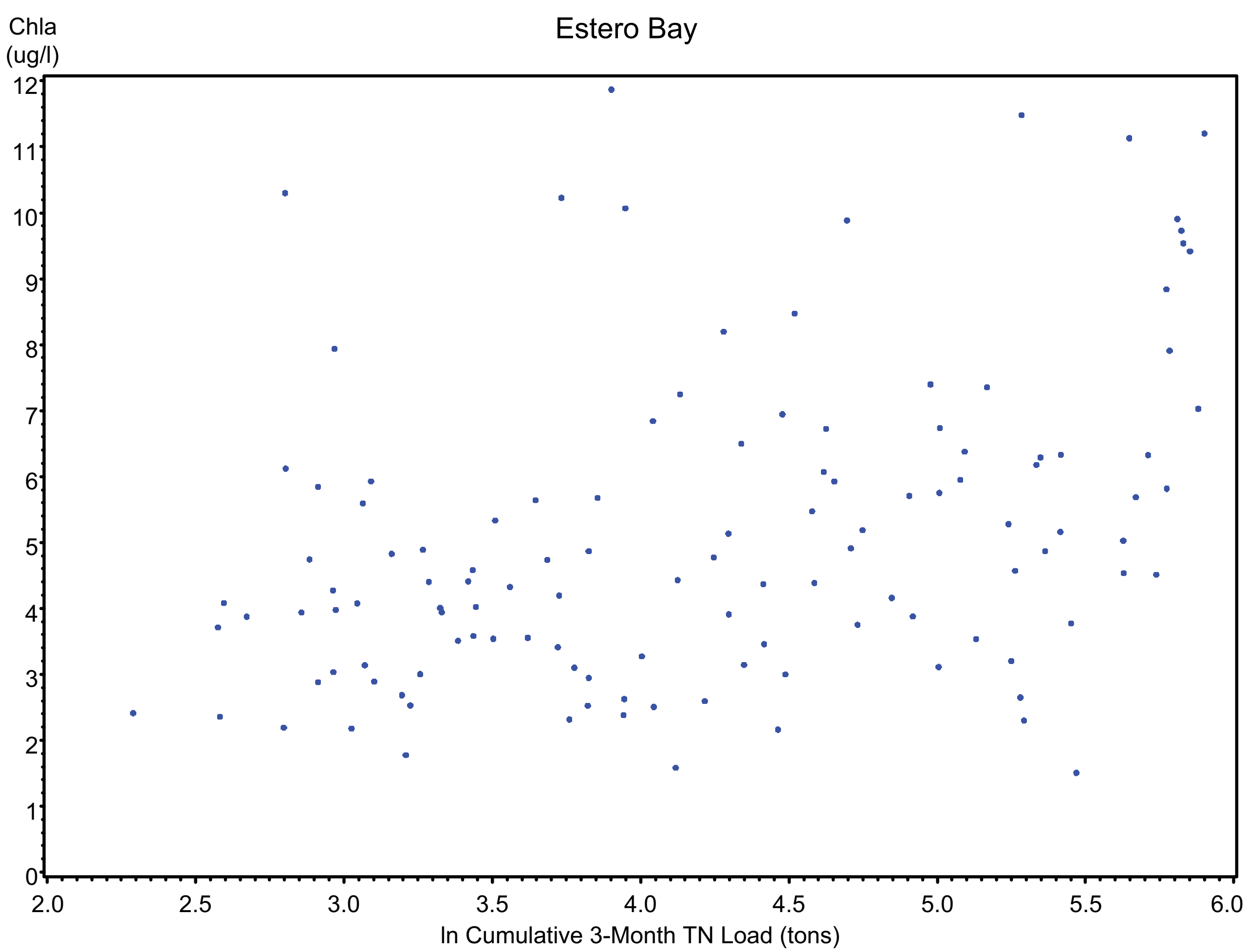
Estero Bay
Chla (ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
50
100
150
200
250
300
350
400
450
Cumulative 3-Month TN Load (tons)



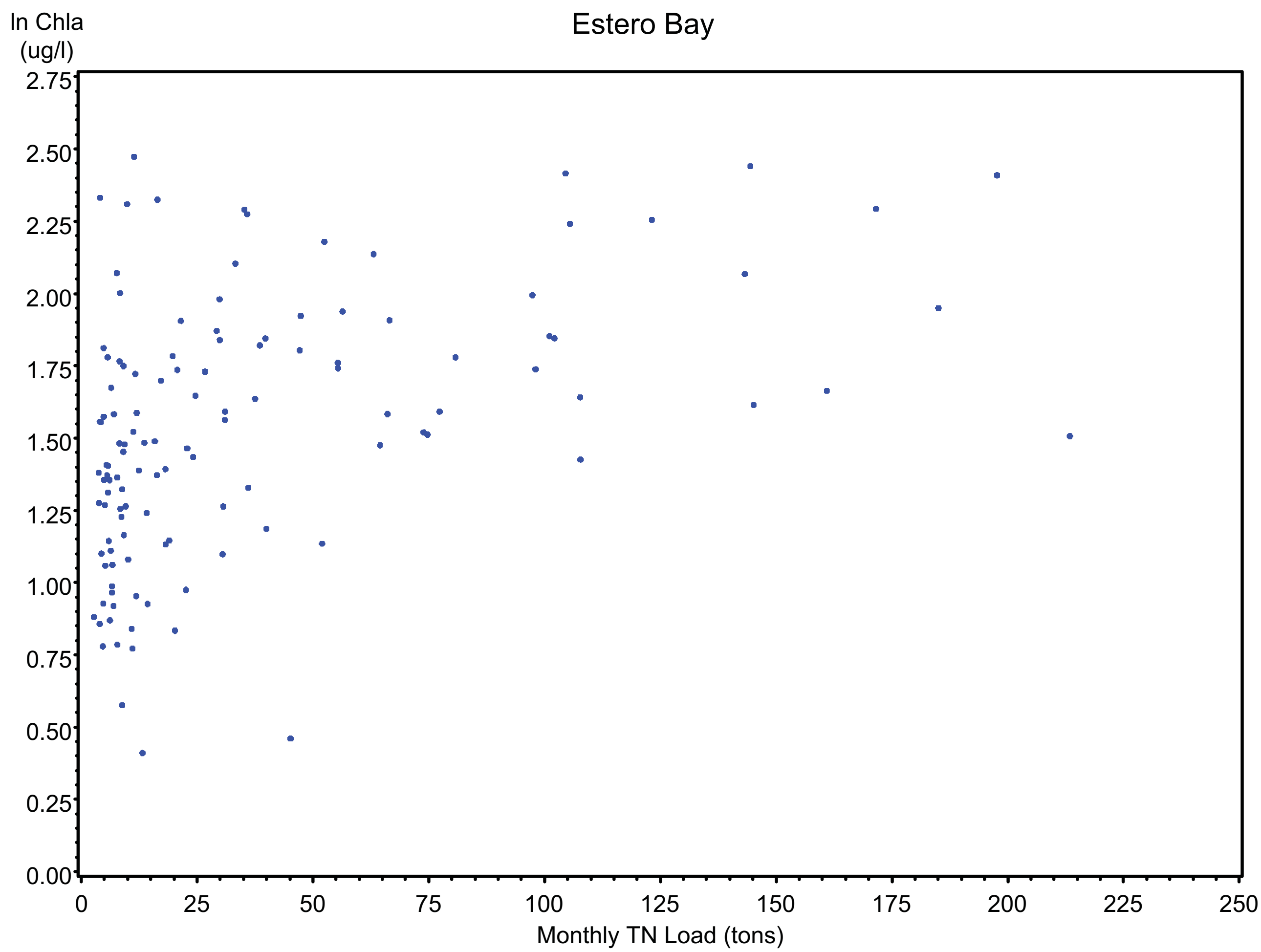
Estero Bay
Chla (ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

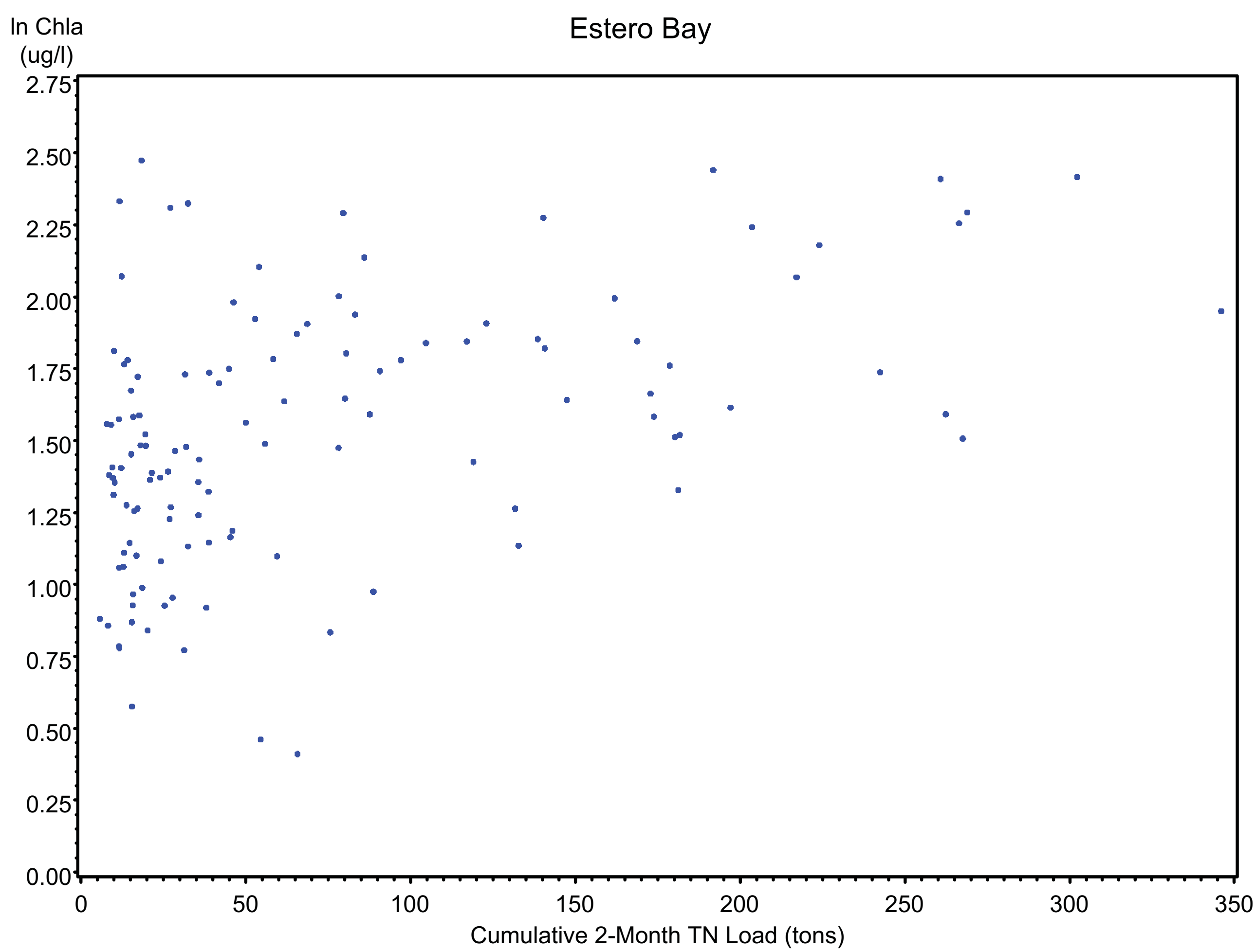


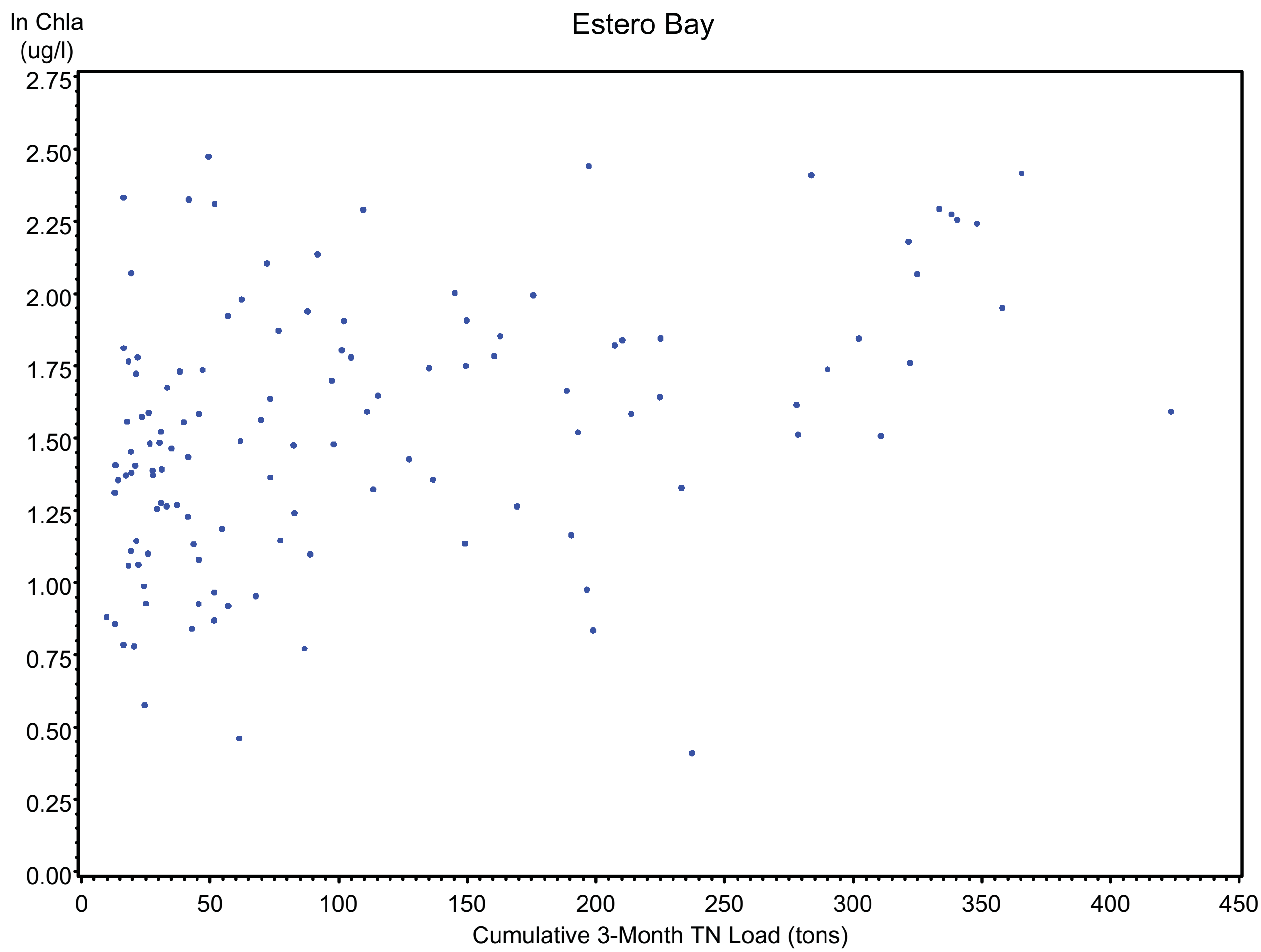
Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 2-Month TN Load (tons)

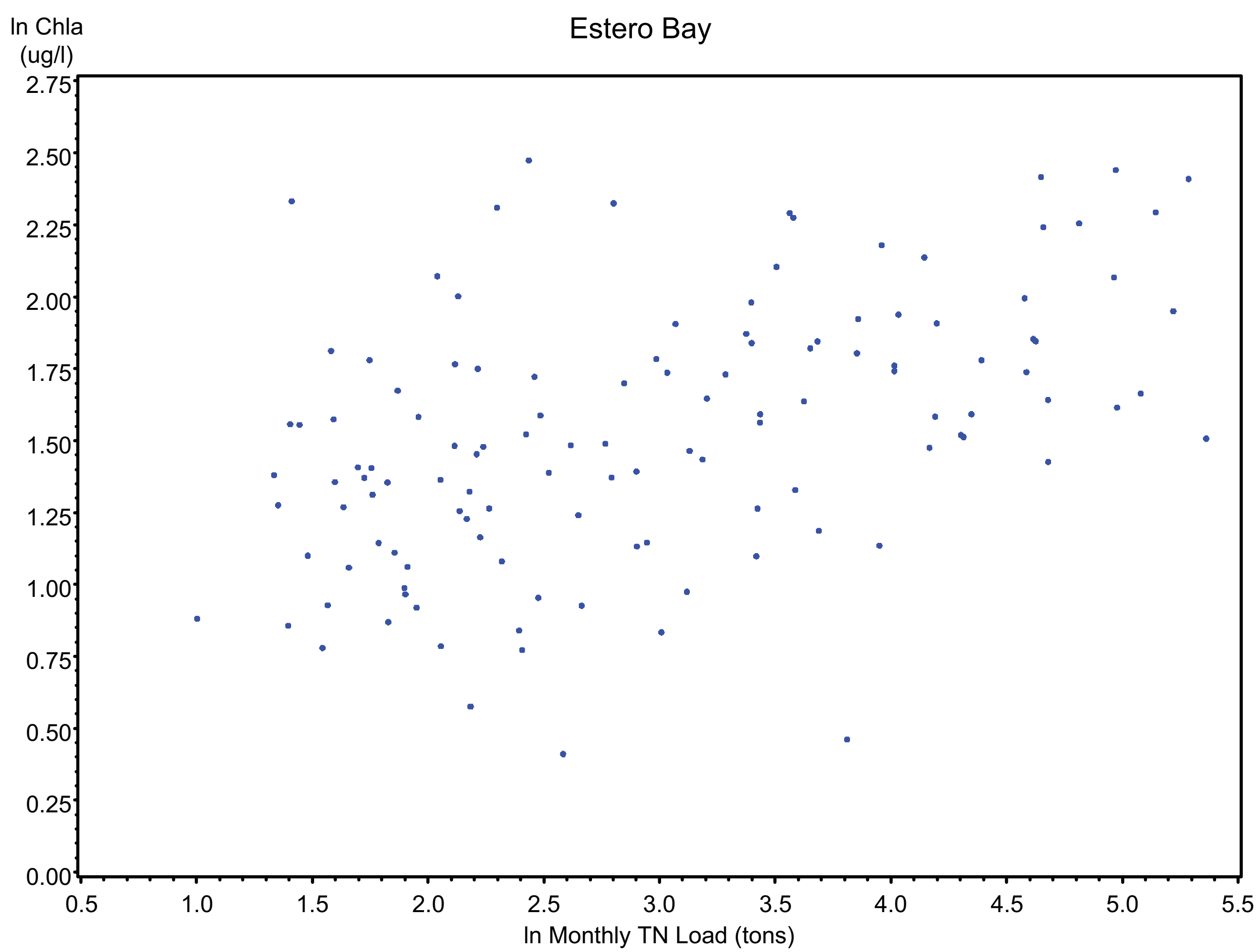


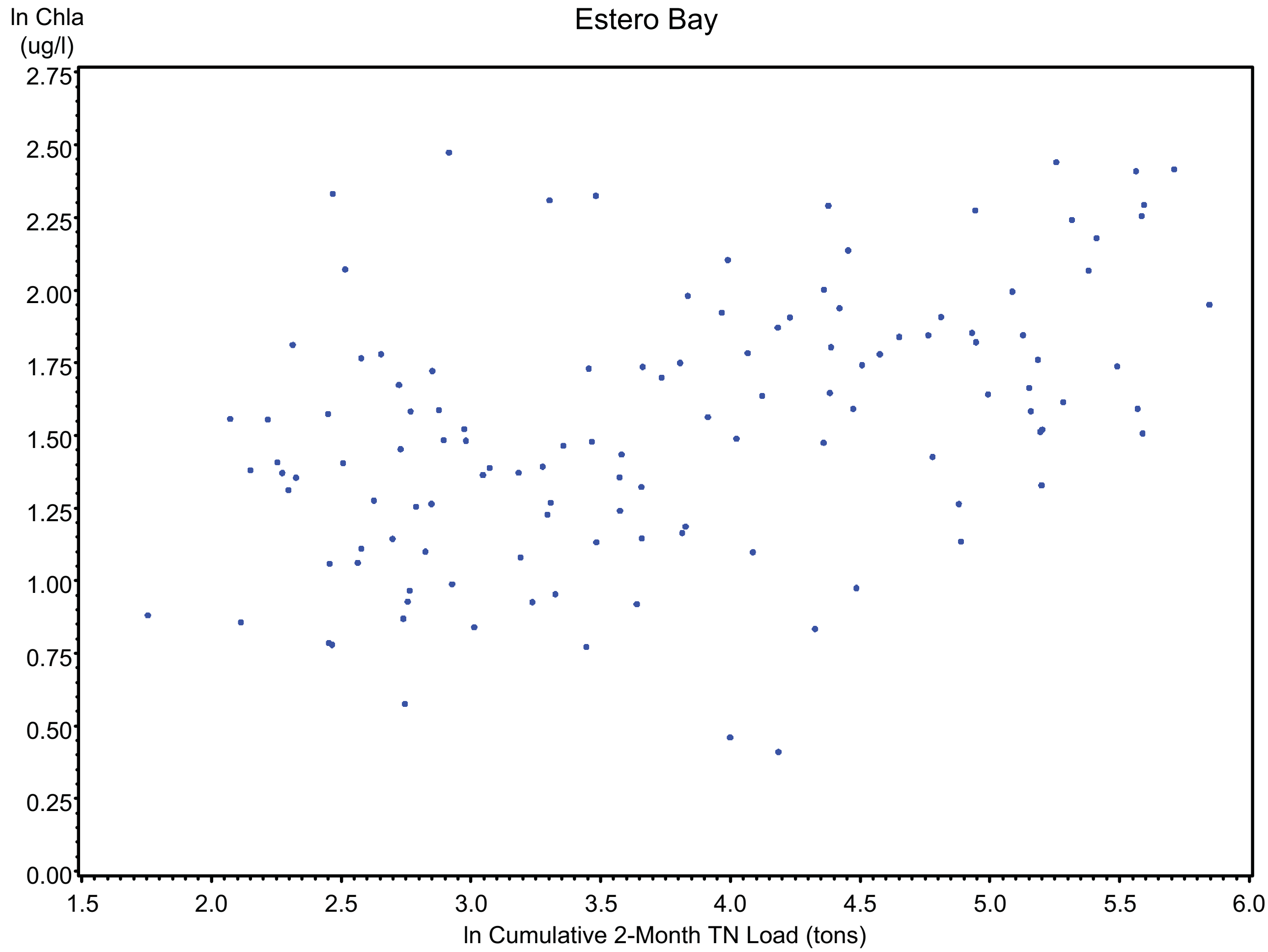
Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TN Load (tons)

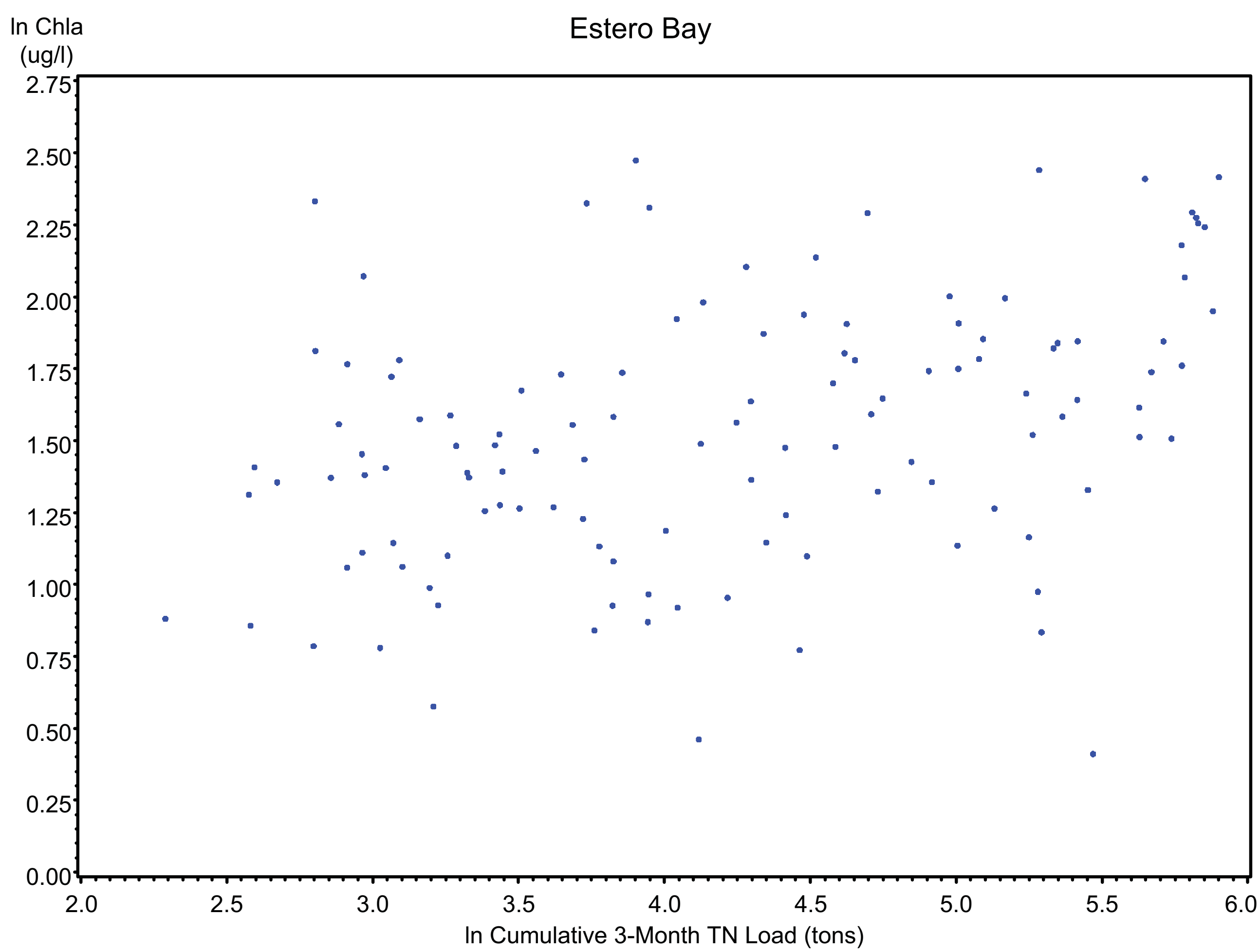

Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0 25 50 75 100 125 150 175 200 225 250
Monthly TN Load (tons)


Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0 50 100 150 200 250 300 350
Cumulative 2-Month TN Load (tons)

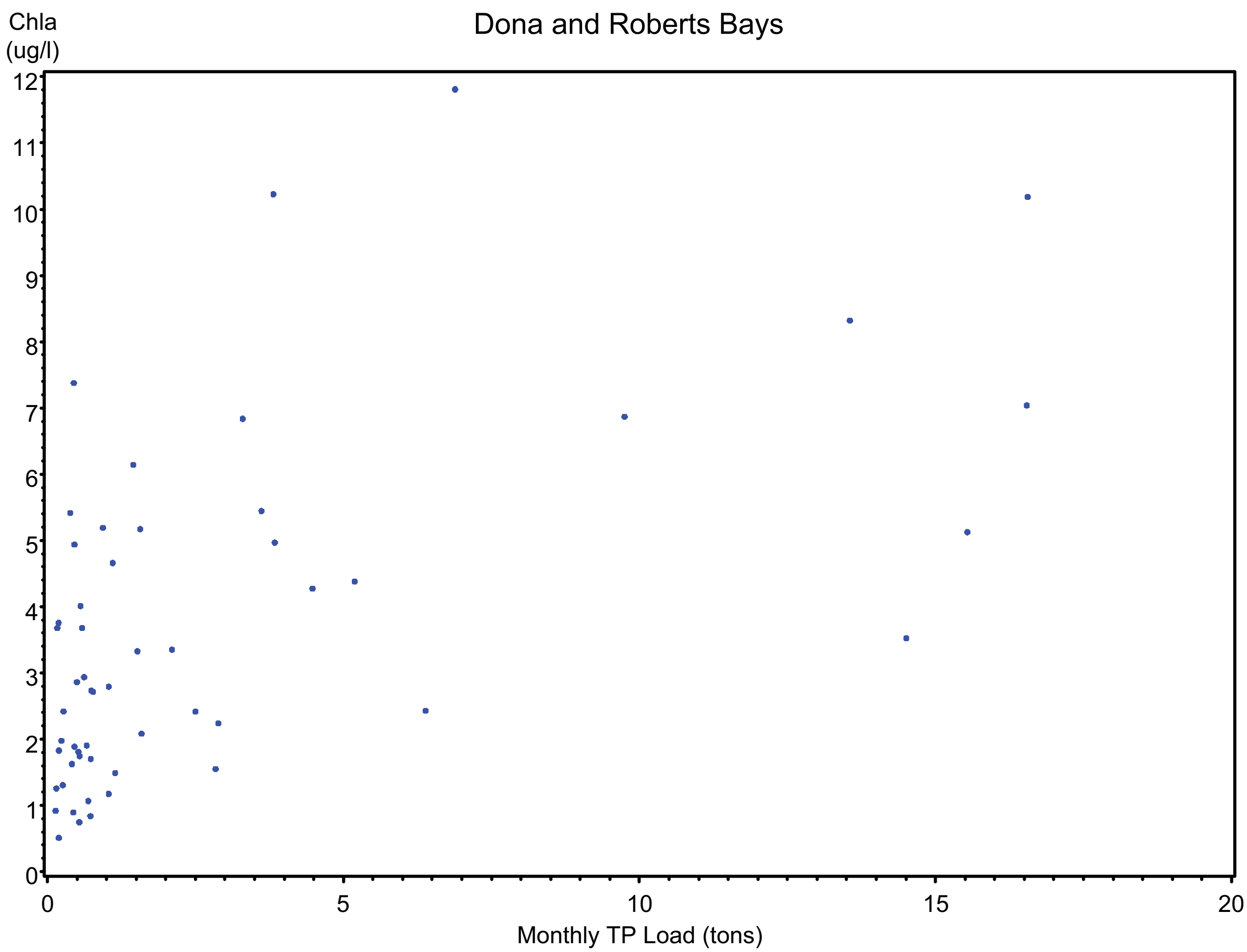

Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
50
100
150
200
250
300
350
400
450
Cumulative 3-Month TN Load (tons)


Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TN Load (tons)

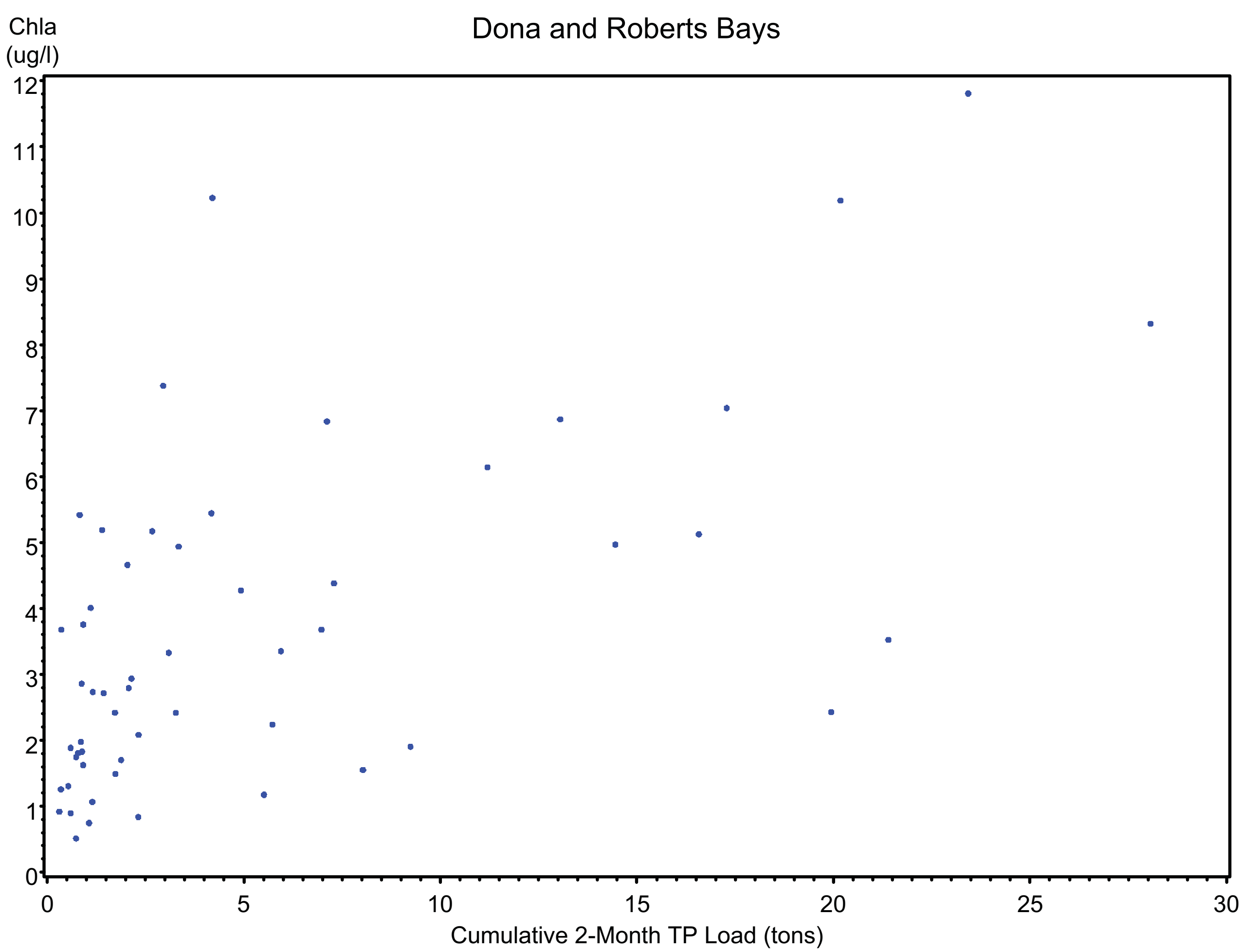

Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 2-Month TN Load (tons)


Estero Bay
ln Chla (ug/l)
2.75
2.50
2.25
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TN Load (tons)

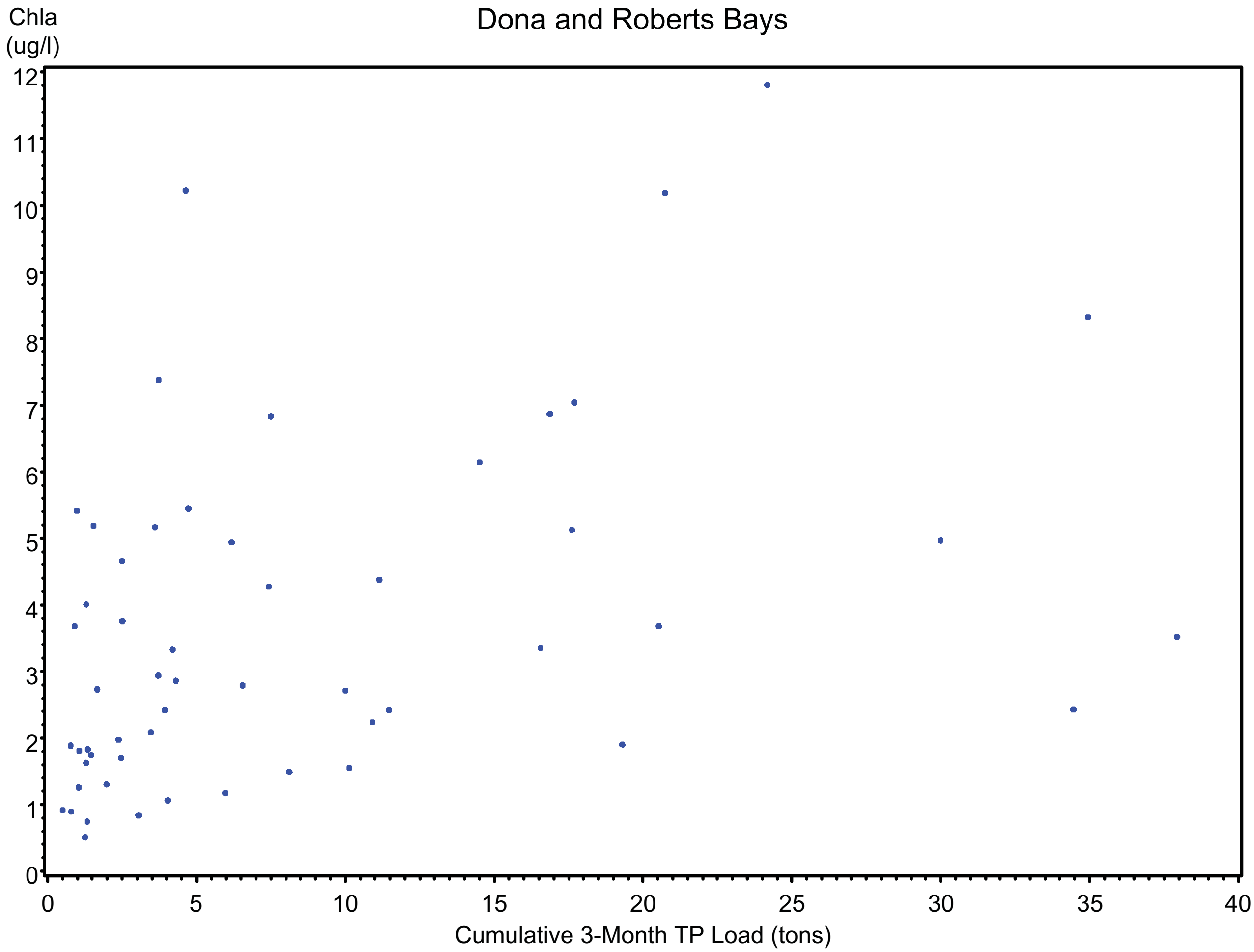
Attachment 6
Chlorophyll *a* concentration as a function of TP load

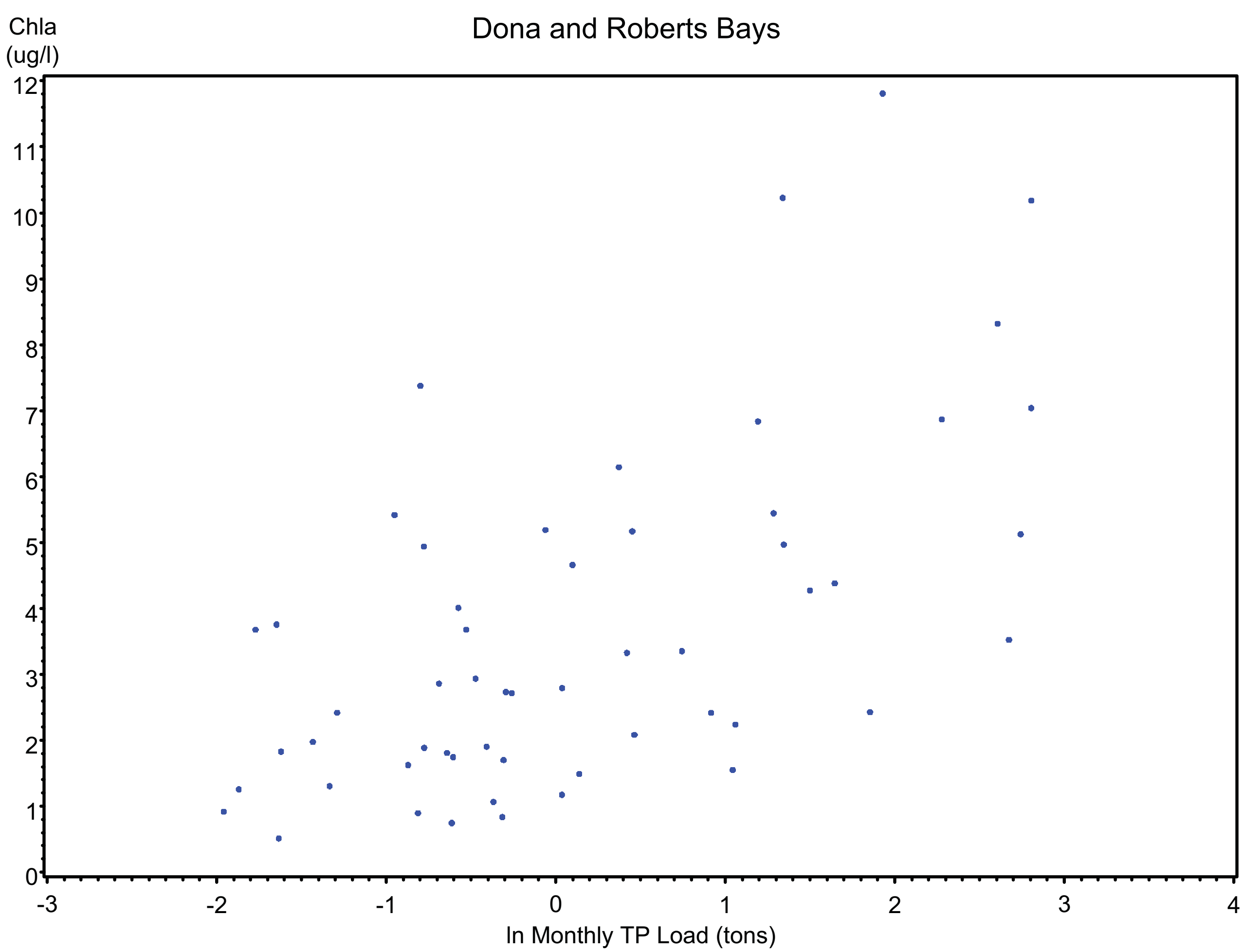


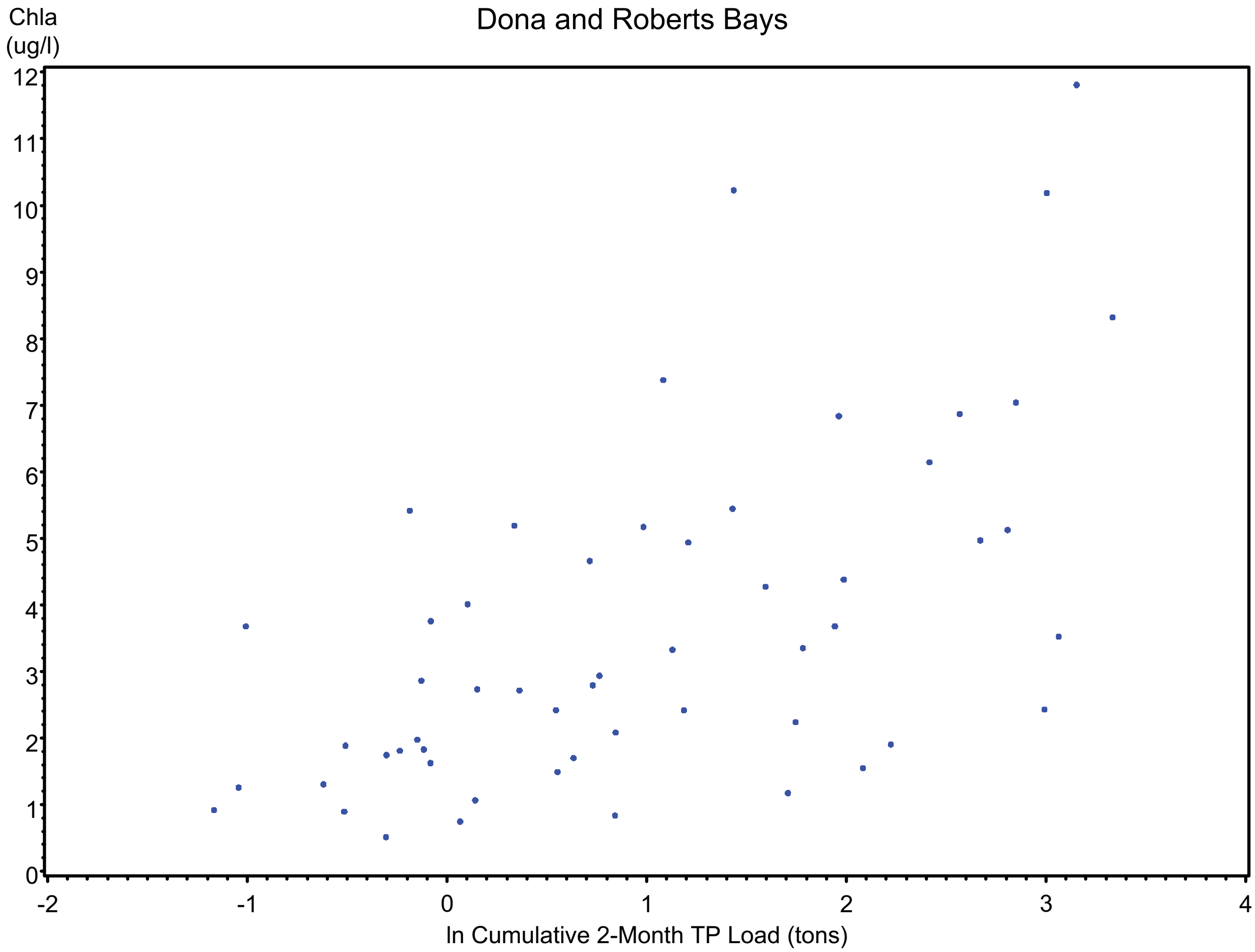
Dona and Roberts Bays
Chla (ug/l)
0 1 2 3 4 5 6 7 8 9 10 11 12
0 5 10 15 20
Monthly TP Load (tons)

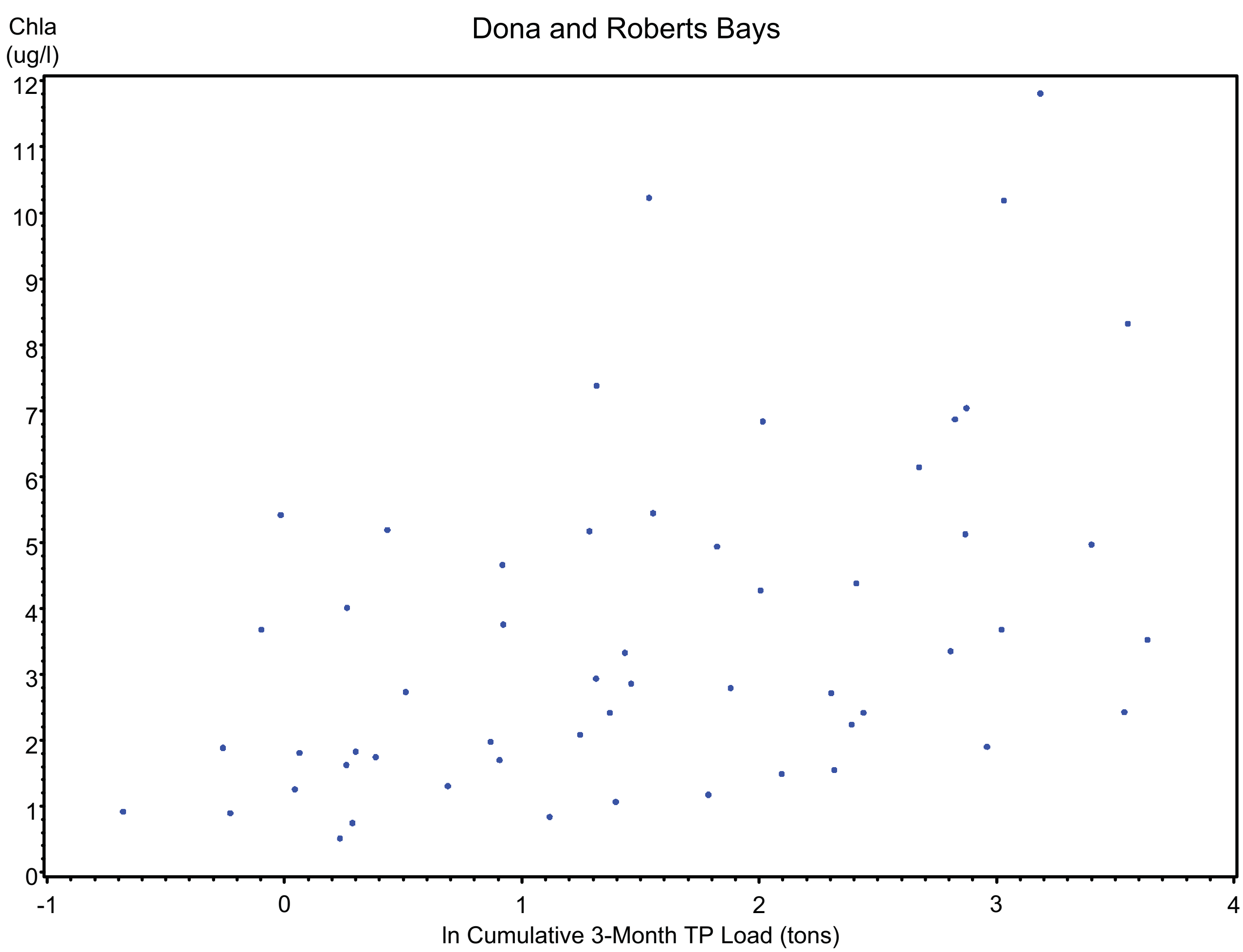


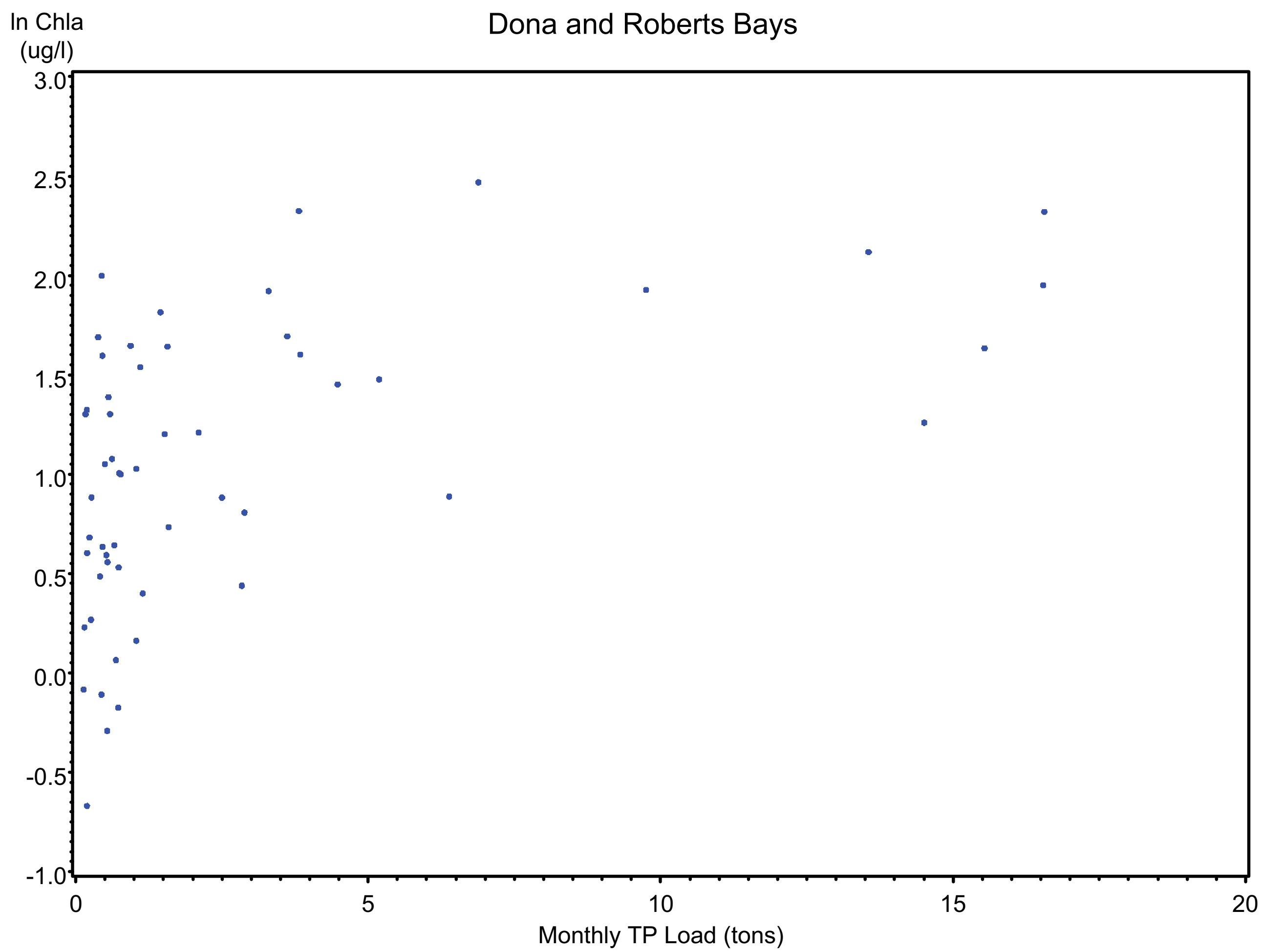
Dona and Roberts Bays
Chla (ug/l)
0 1 2 3 4 5 6 7 8 9 10 11 12
0 5 10 15 20 25 30
Cumulative 2-Month TP Load (tons)

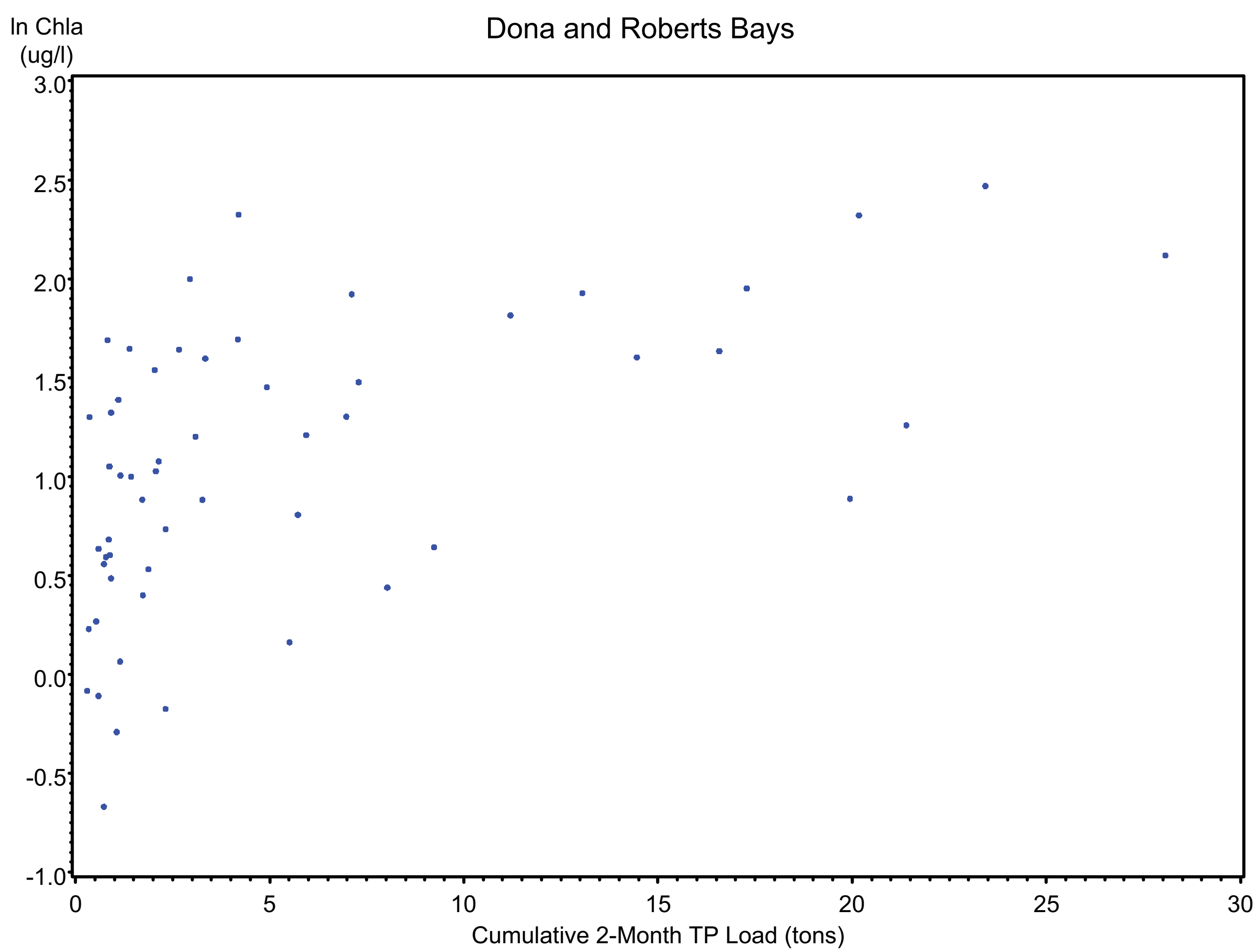

Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
5
10
15
20
25
30
35
40
Cumulative 3-Month TP Load (tons)

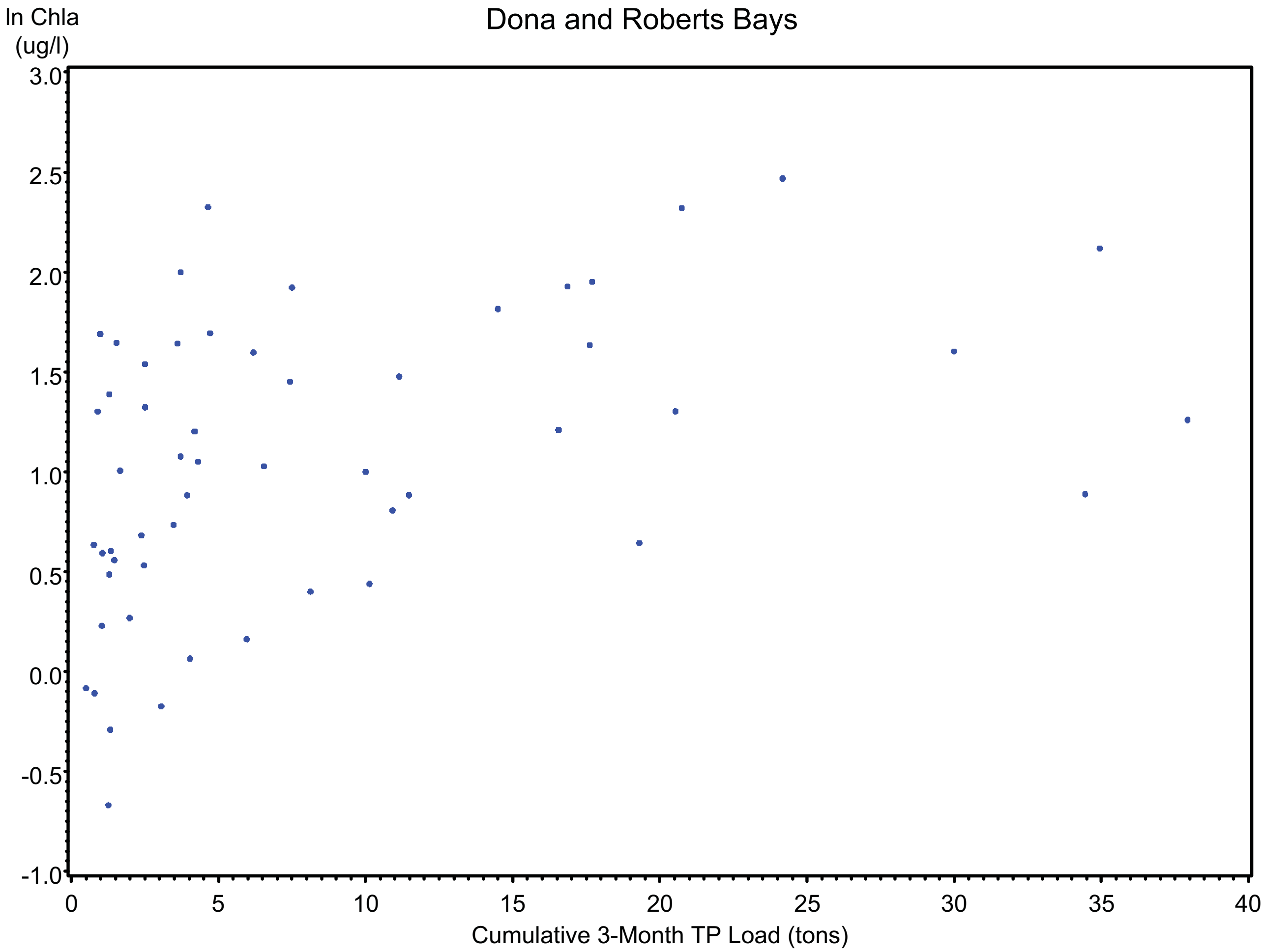

Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-3
-2
-1
0
1
2
3
4
ln Monthly TP Load (tons)


Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-2
-1
0
1
2
3
4
ln Cumulative 2-Month TP Load (tons)

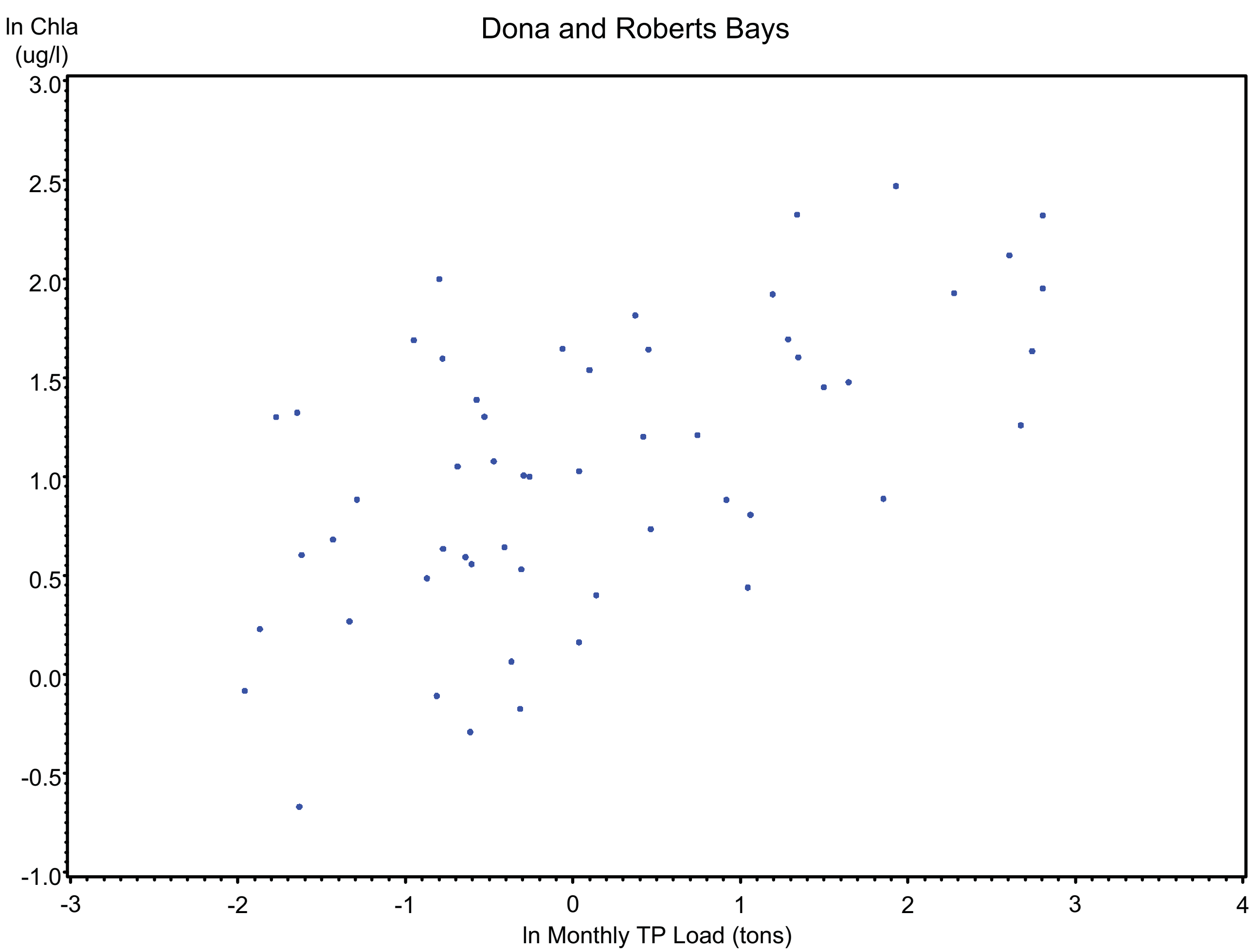

Dona and Roberts Bays
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-1
0
1
2
3
4
ln Cumulative 3-Month TP Load (tons)


Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
5
10
15
20
Monthly TP Load (tons)

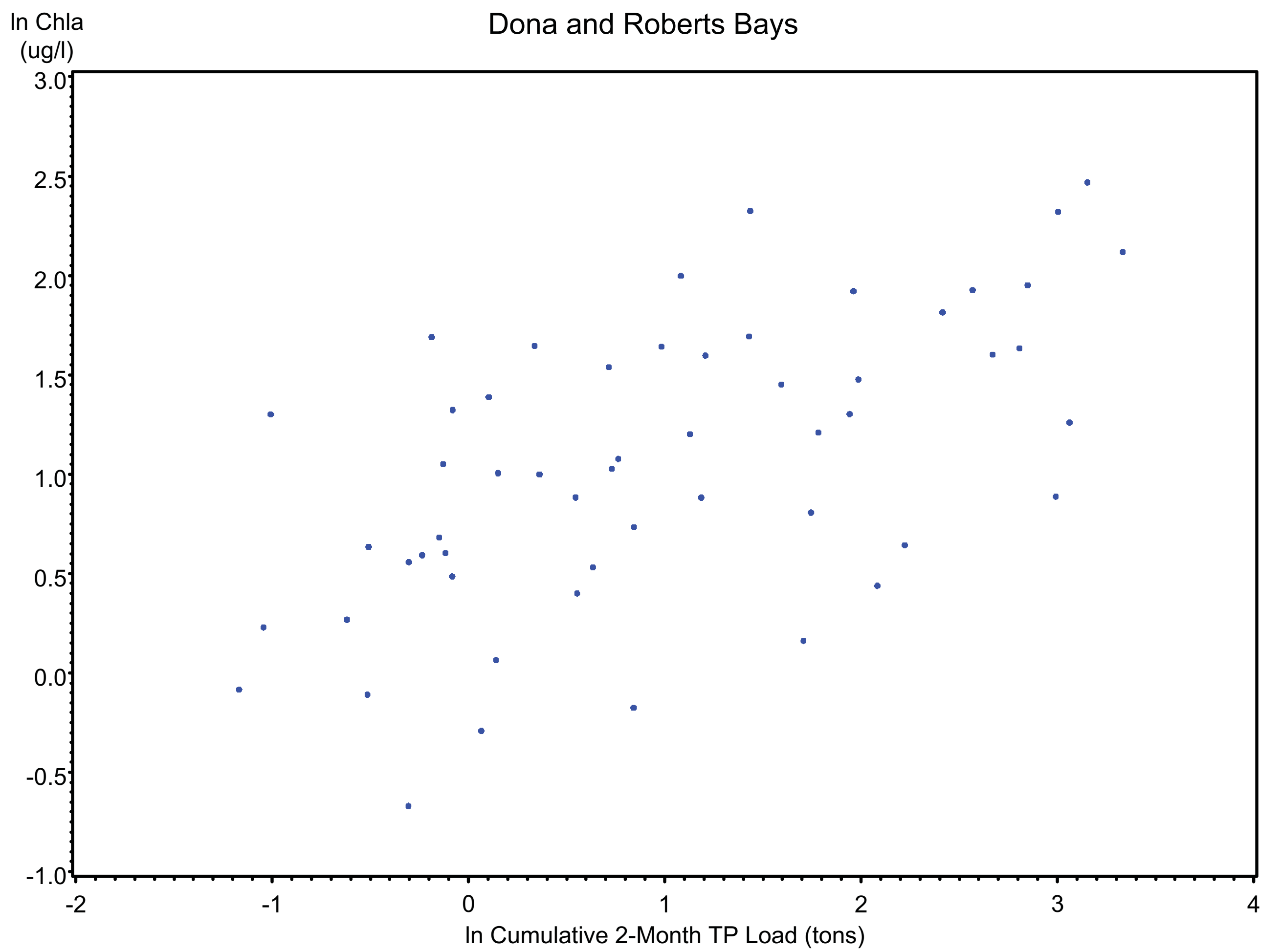

Dona and Roberts Bays
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
5
10
15
20
25
30
Cumulative 2-Month TP Load (tons)



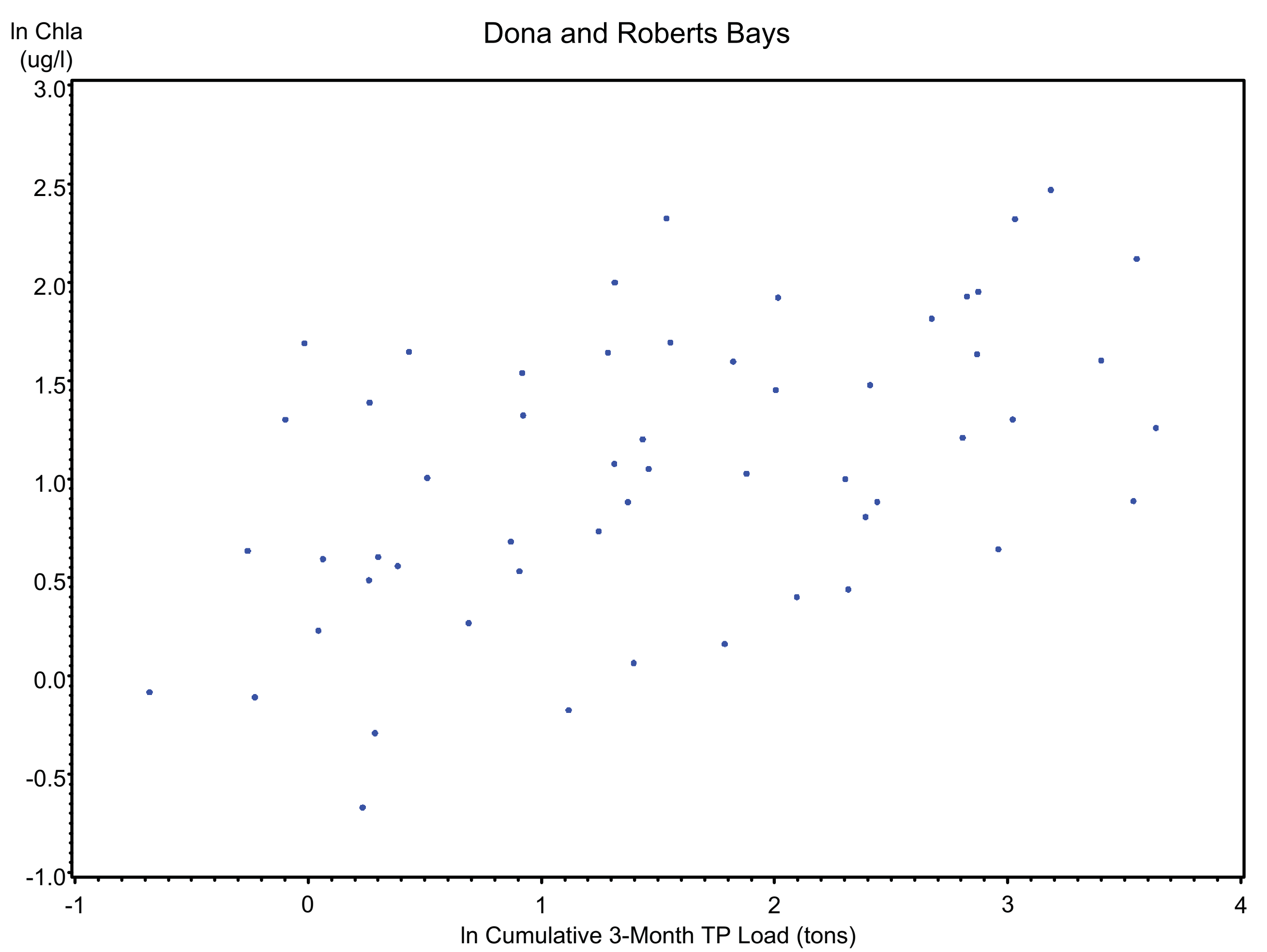
ln Chla
(ug/l)
Dona and Roberts Bays
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
5
10
15
20
25
30
35
40
Cumulative 3-Month TP Load (tons)



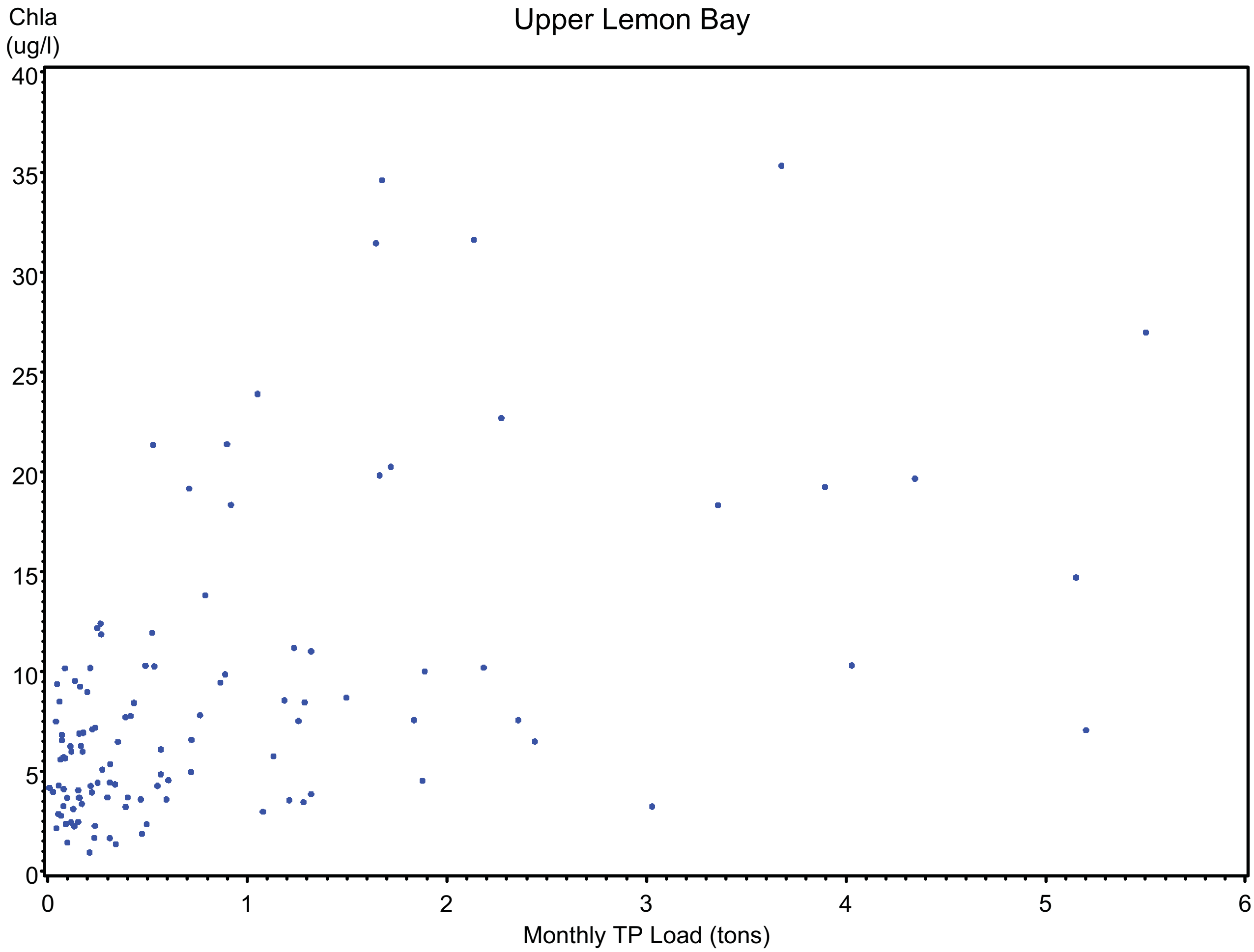
ln Chla
(ug/l)
Dona and Roberts Bays
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-3
-2
-1
0
1
2
3
4
ln Monthly TP Load (tons)

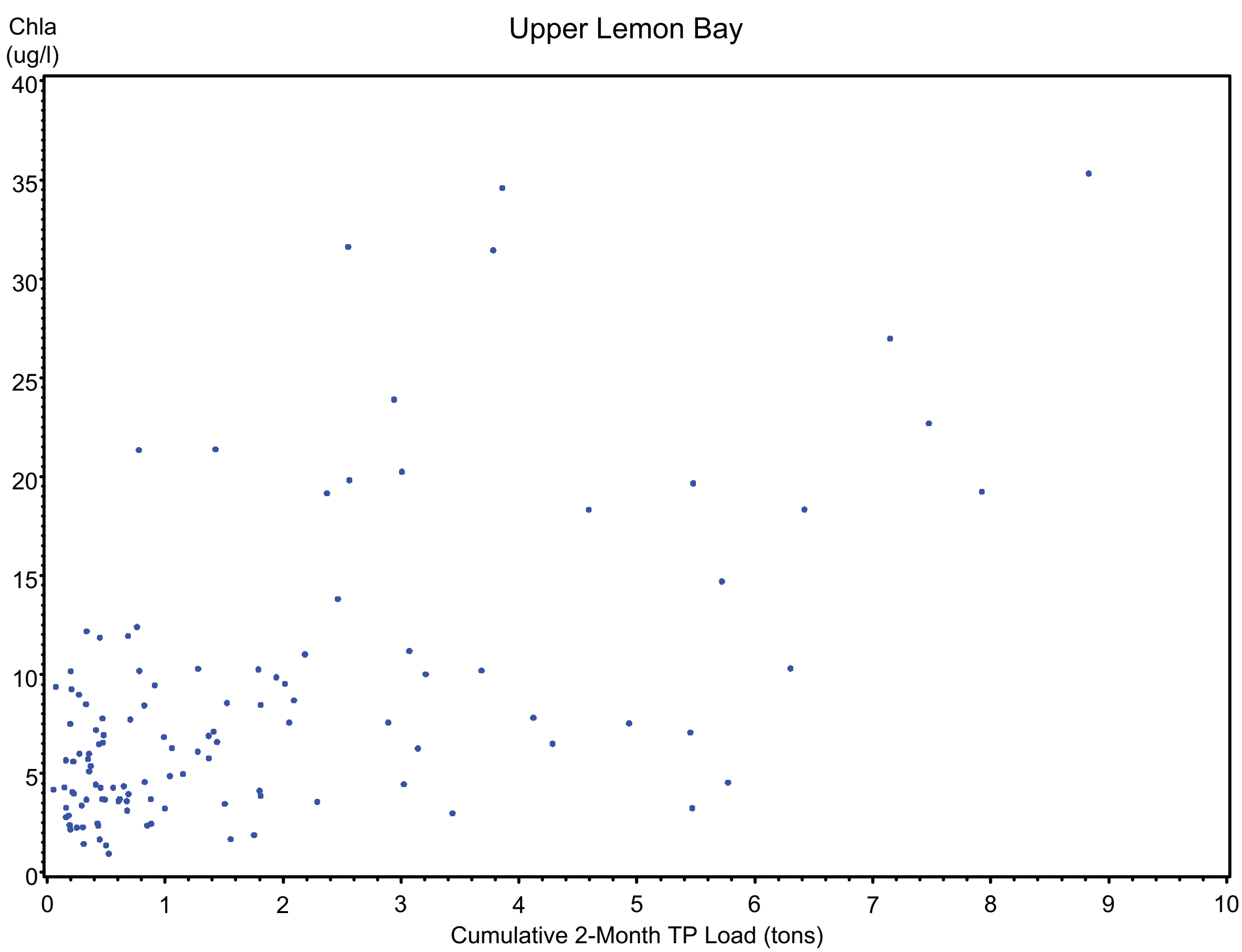


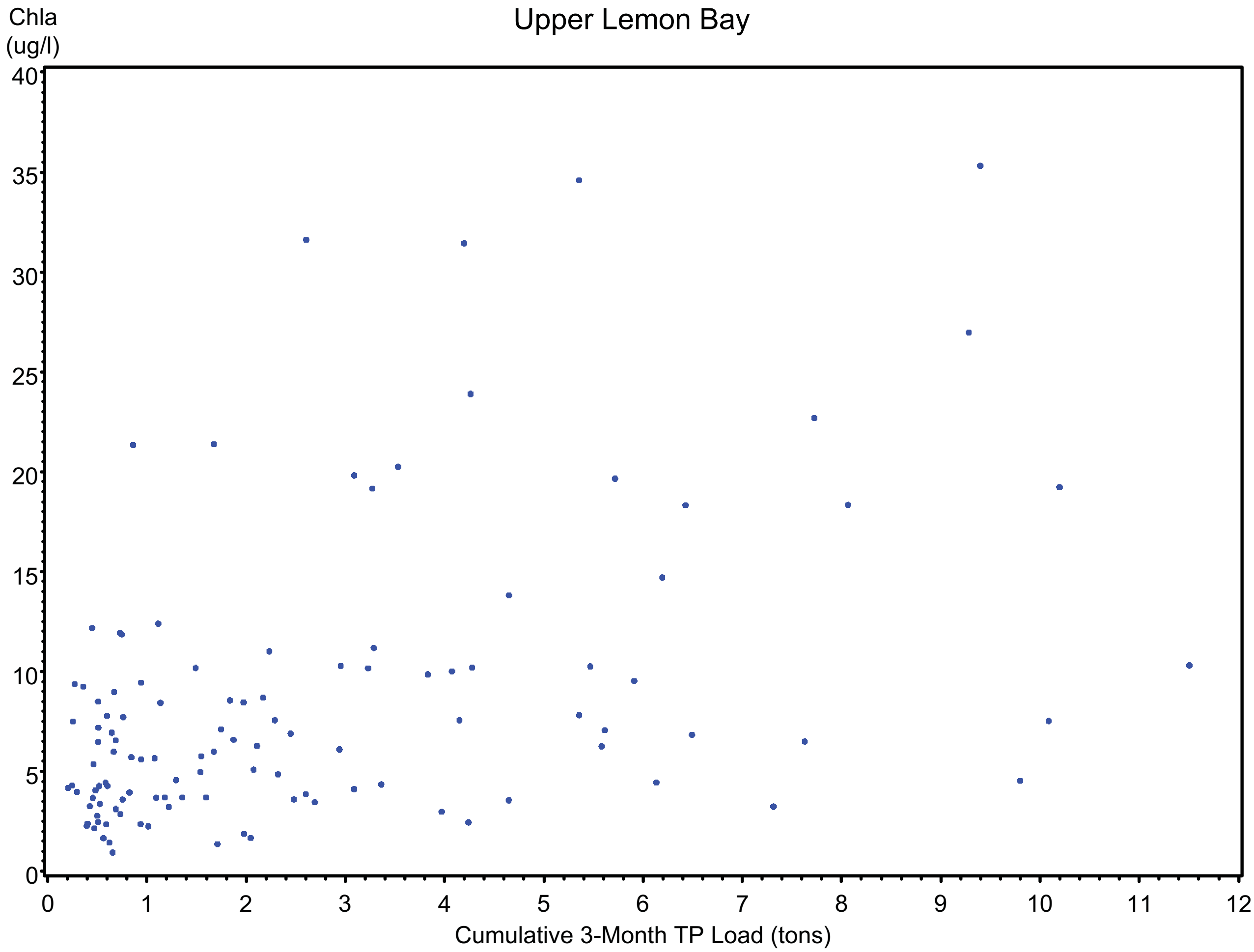
Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-2
-1
0
1
2
3
4
ln Cumulative 2-Month TP Load (tons)



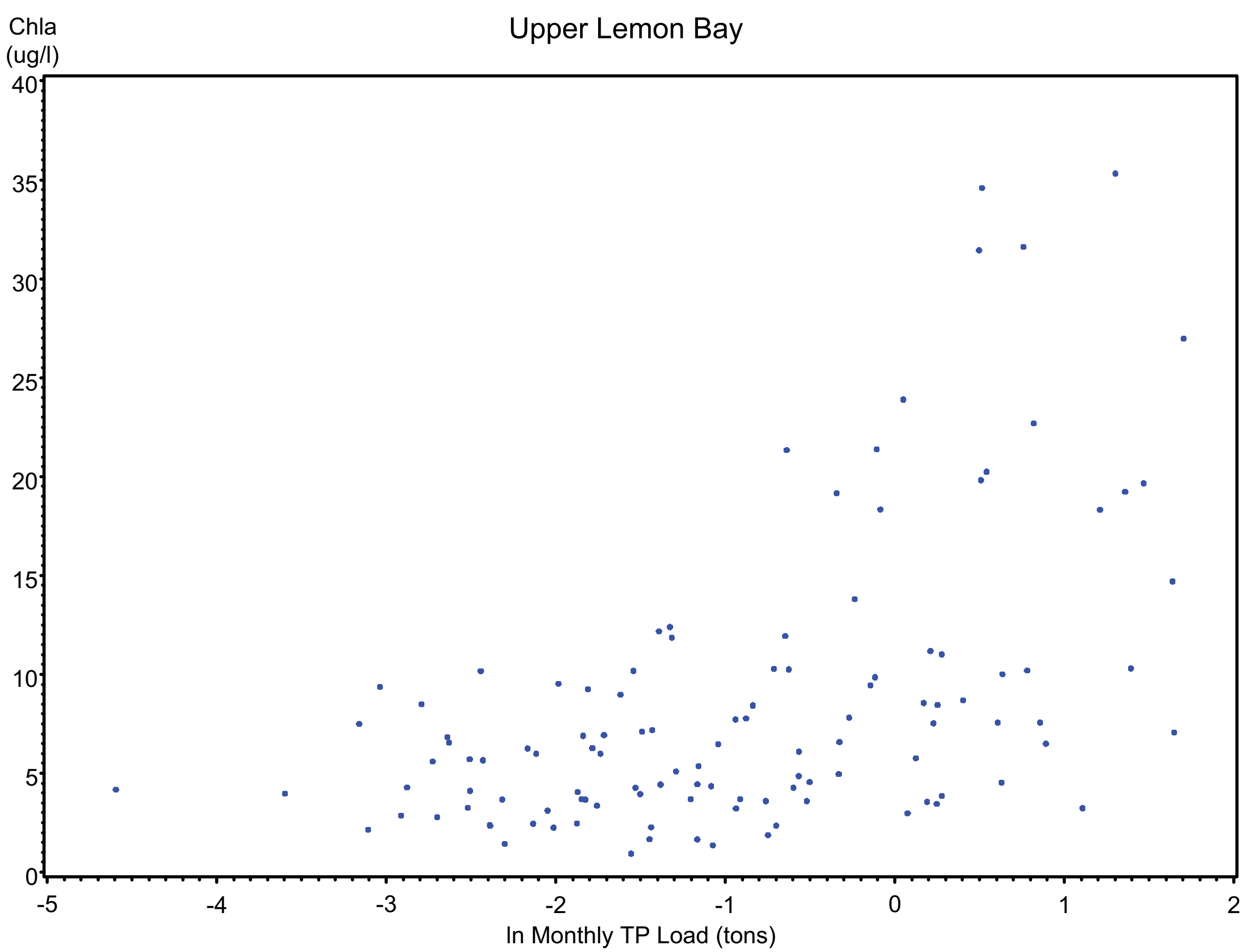
Dona and Roberts Bays
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1
0
1
2
3
4
ln Cumulative 3-Month TP Load (tons)


Upper Lemon Bay
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
0
1
2
3
4
5
6
Monthly TP Load (tons)

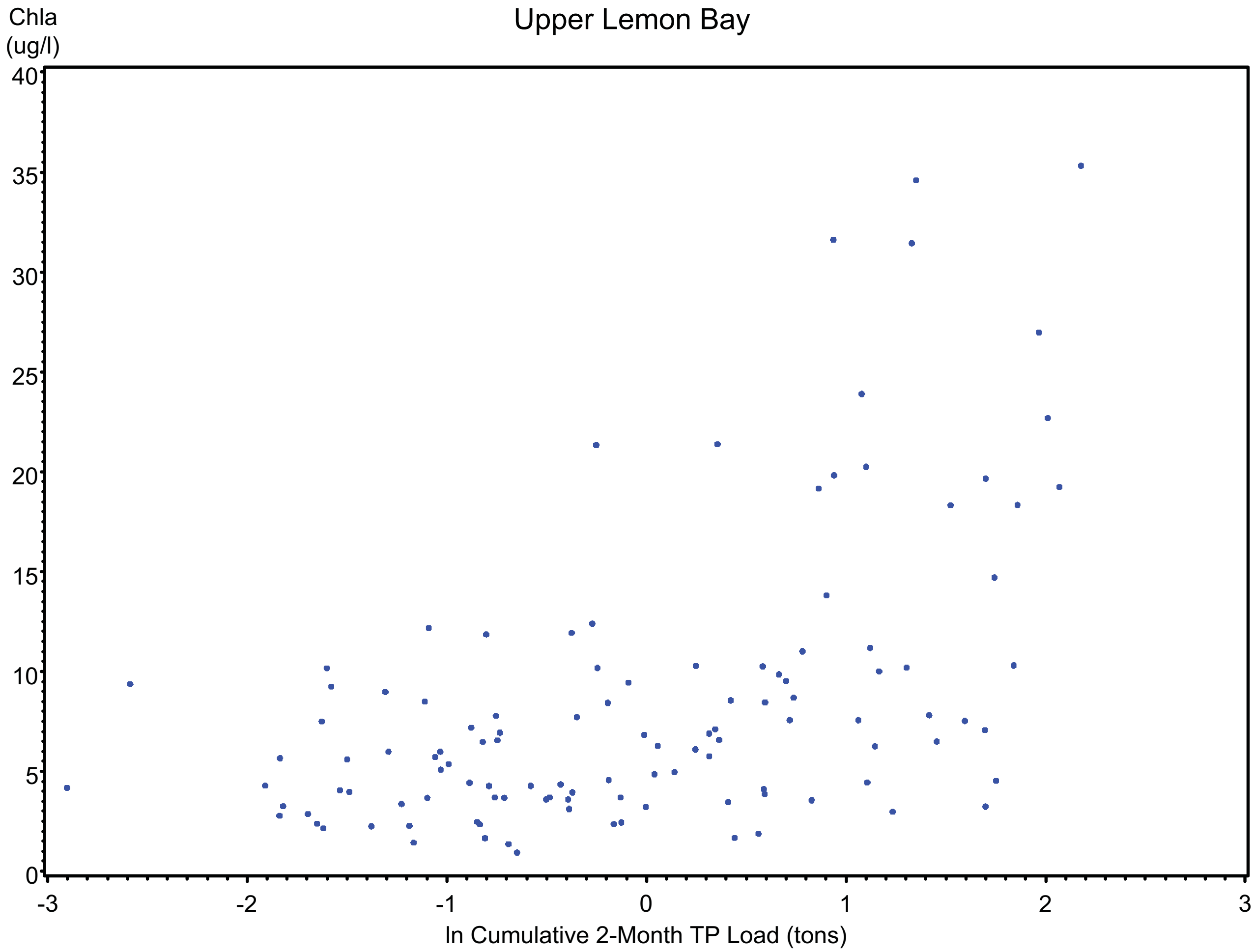

Upper Lemon Bay
Chla
(ug/l)
40
35
30
25
20
15
10
5
0
0
1
2
3
4
5
6
7
8
9
10
Cumulative 2-Month TP Load (tons)

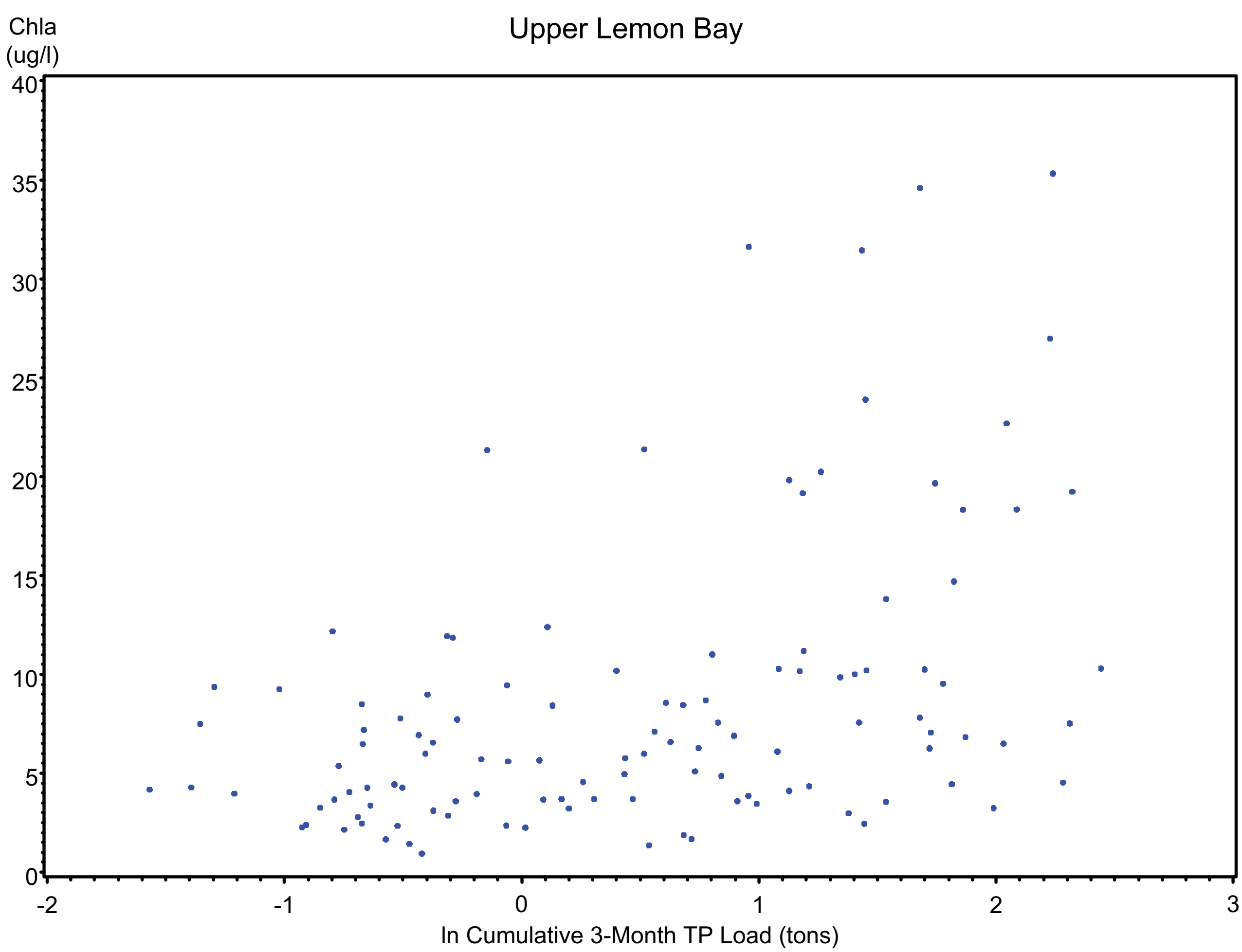


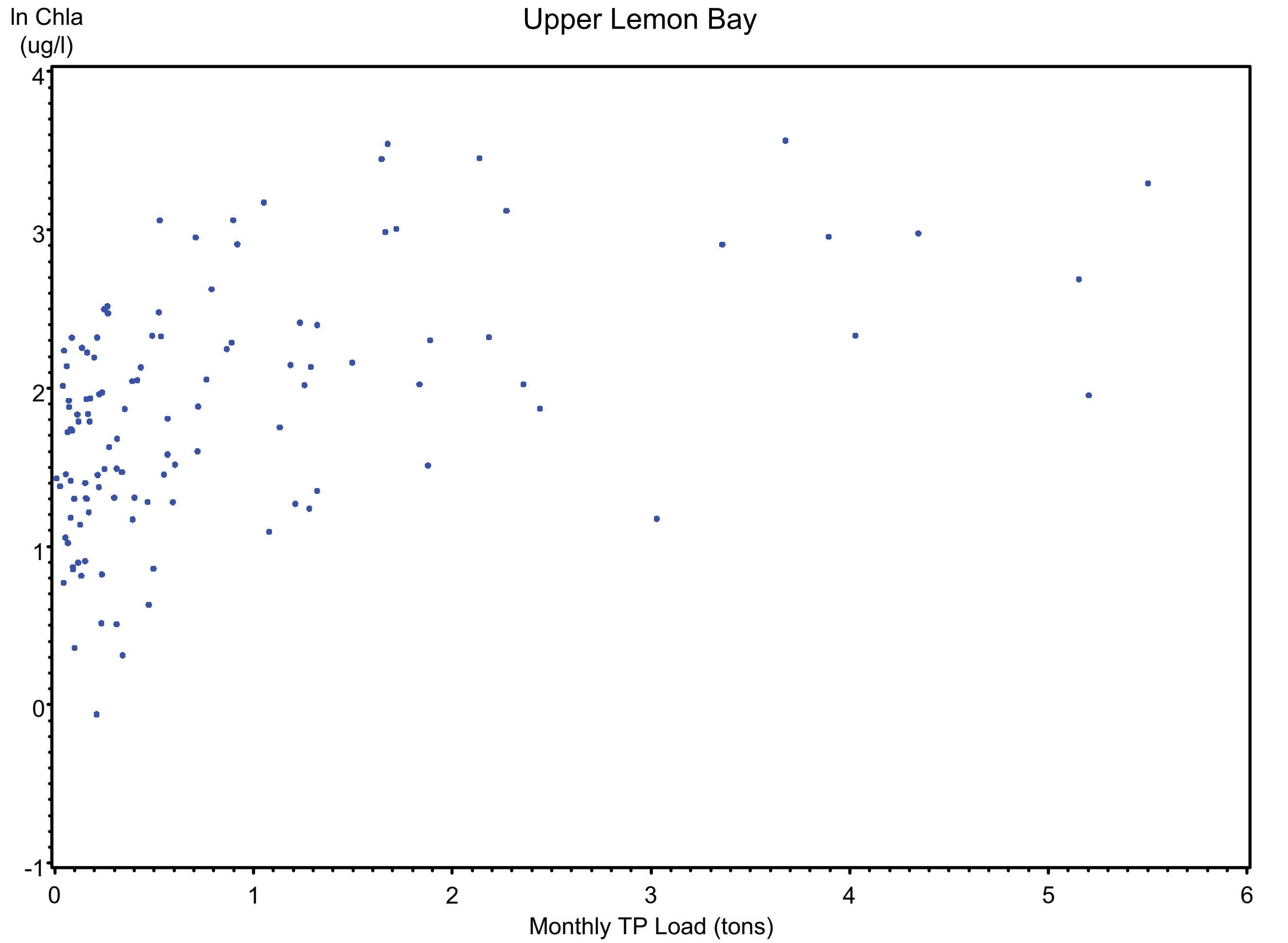
Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0 1 2 3 4 5 6 7 8 9 10 11 12
Cumulative 3-Month TP Load (tons)

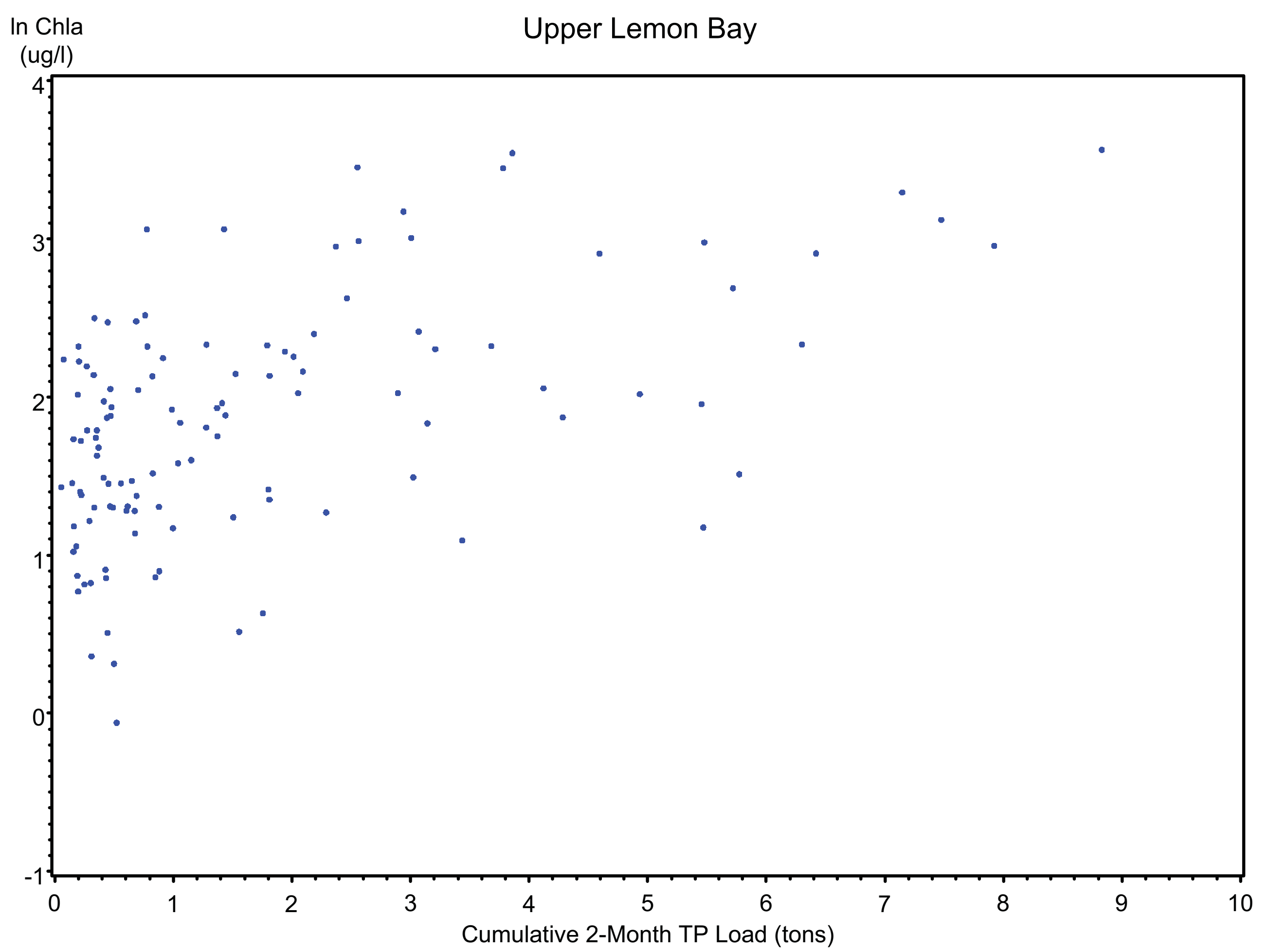


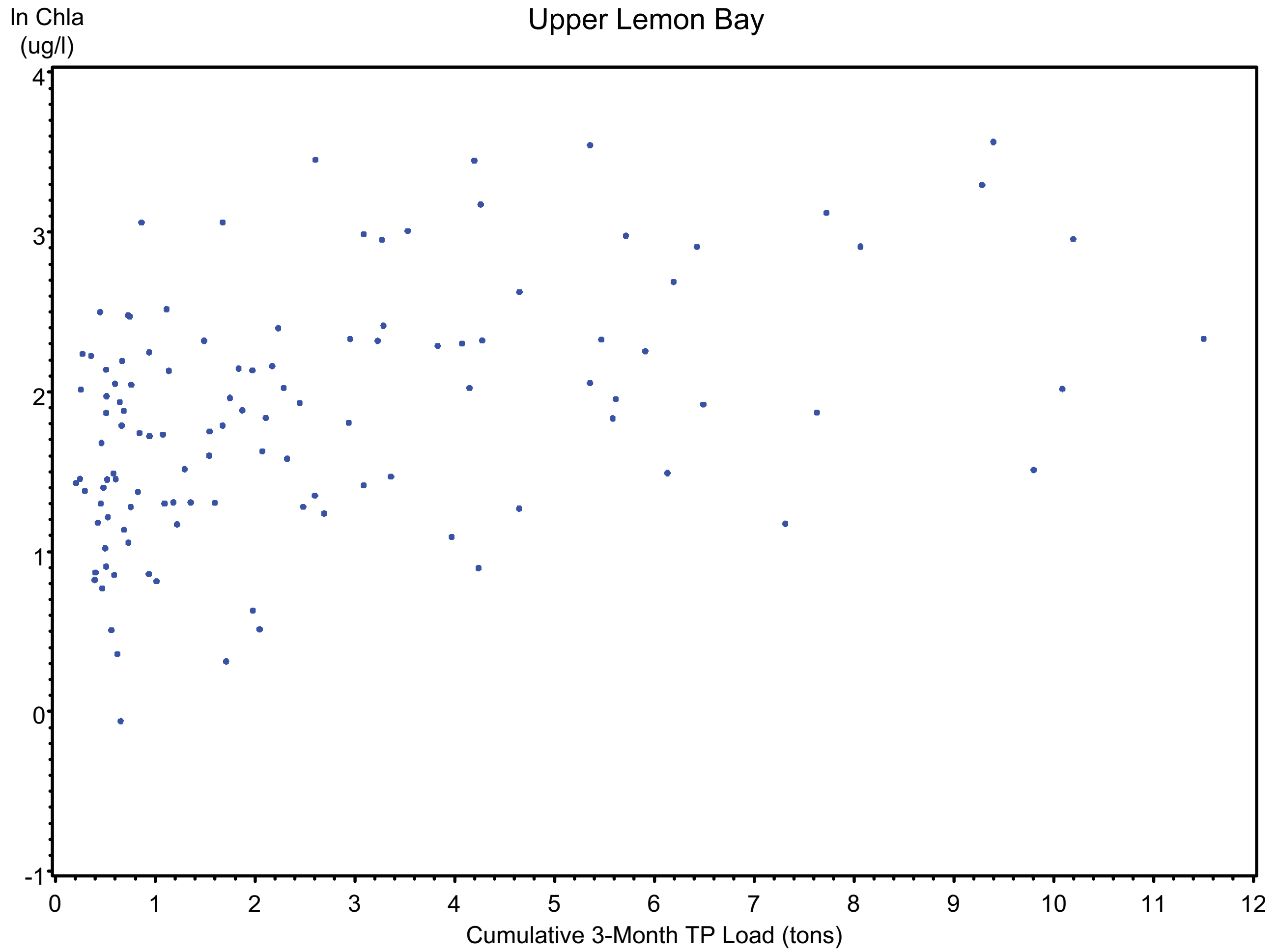
Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-5 -4 -3 -2 -1 0 1 2
ln Monthly TP Load (tons)

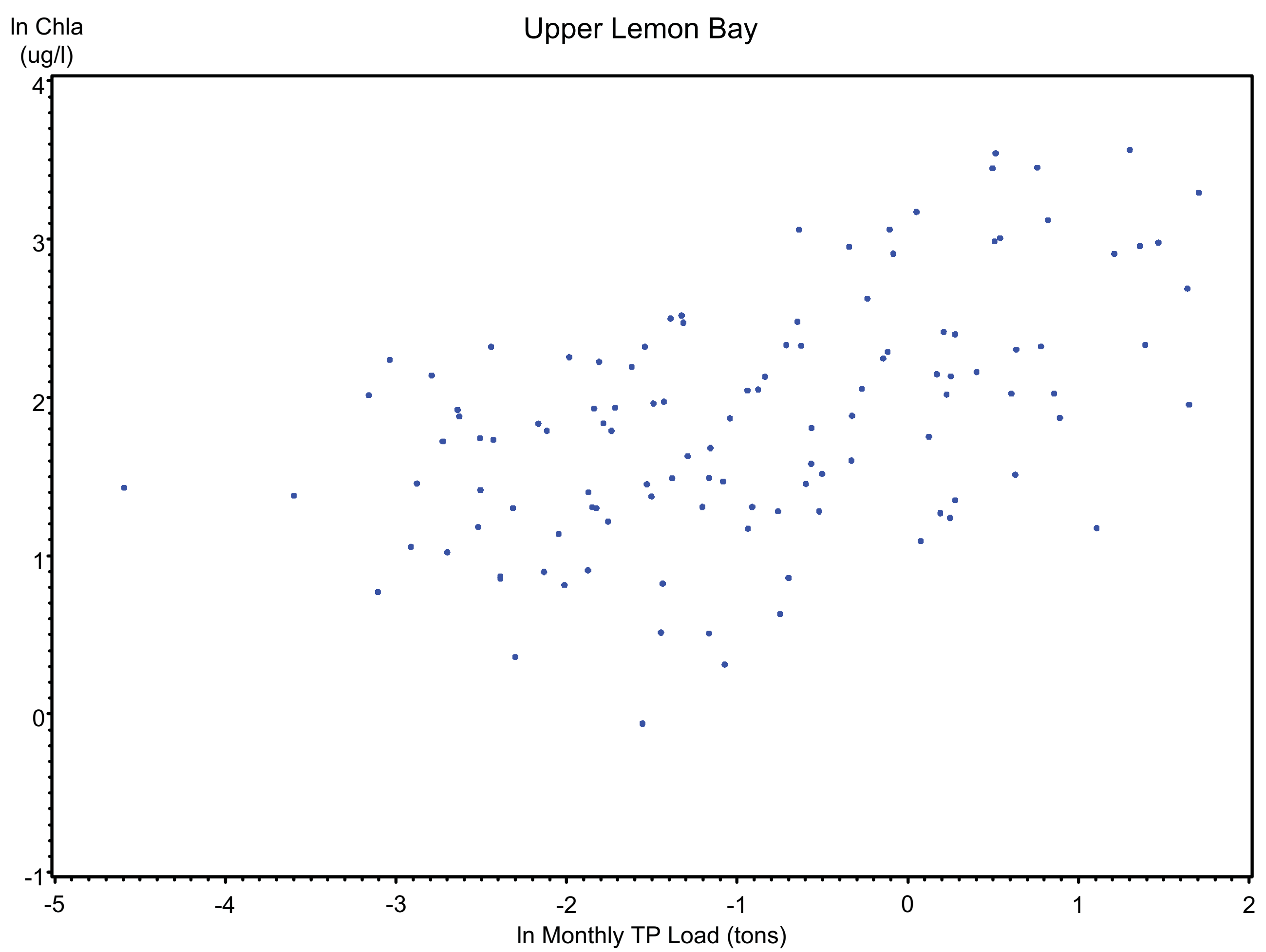

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-3
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

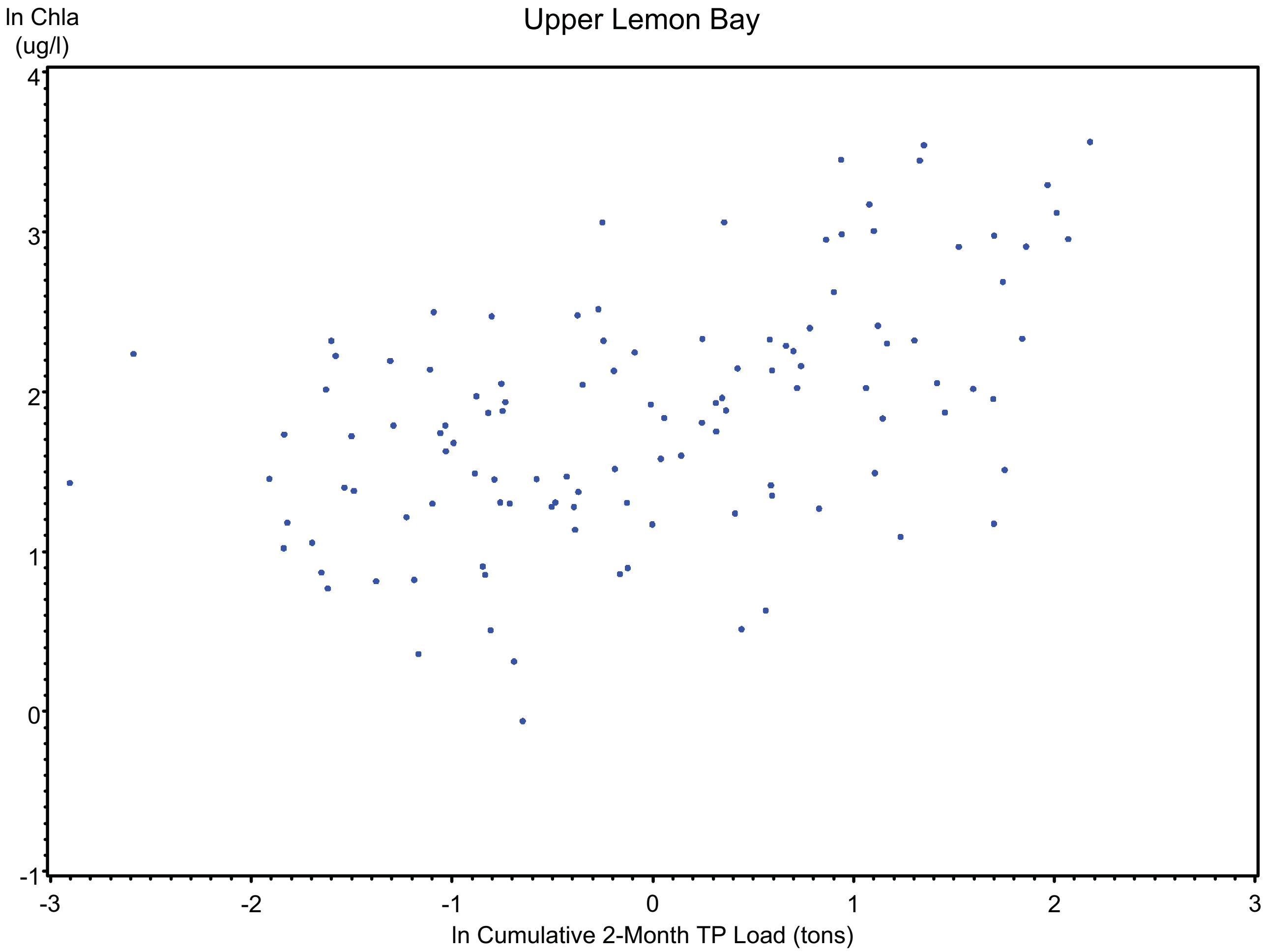

Upper Lemon Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
-2
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)


Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
0
1
2
3
4
5
6
Monthly TP Load (tons)

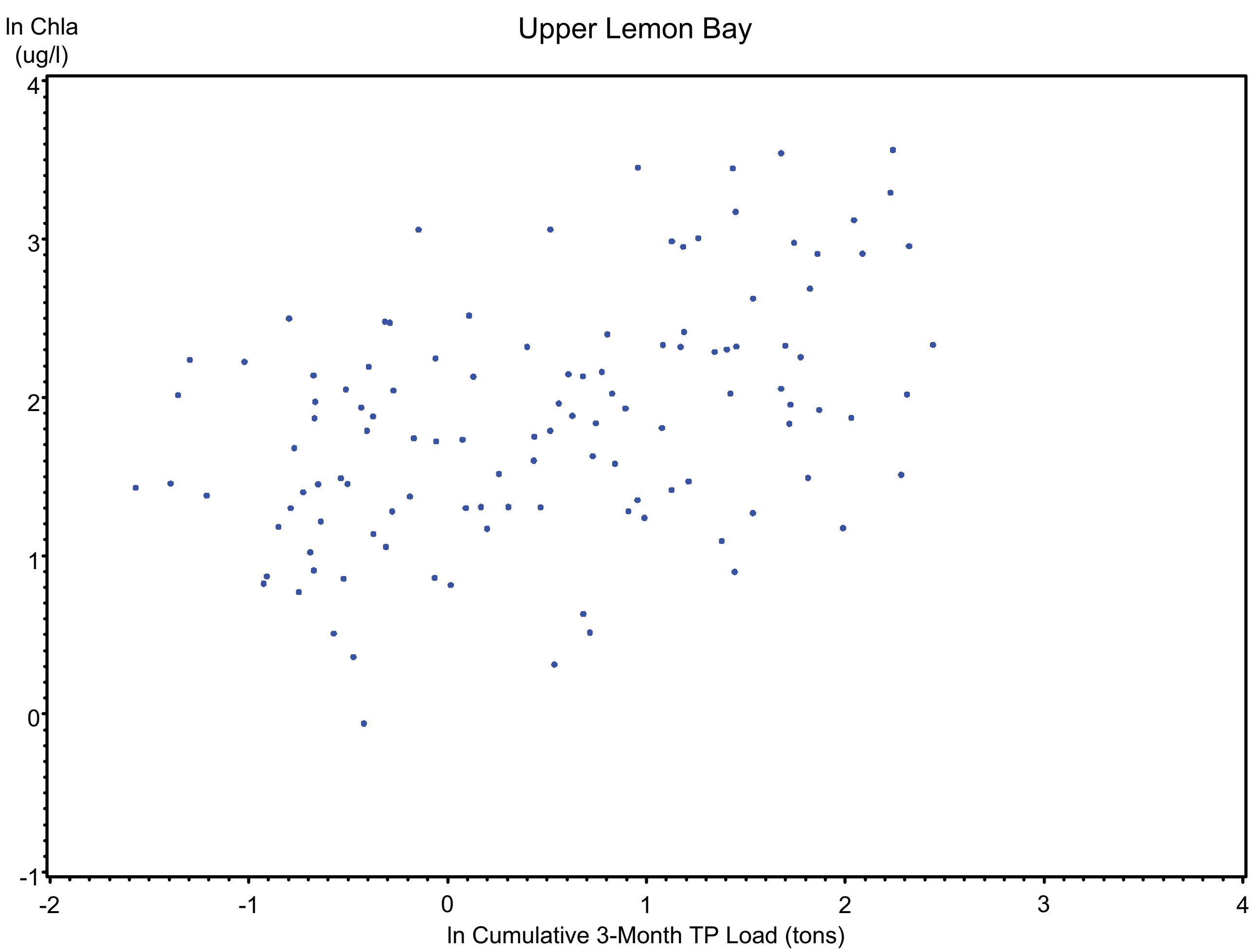

Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
0
1
2
3
4
5
6
7
8
9
10
Cumulative 2-Month TP Load (tons)


Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
0
1
2
3
4
5
6
7
8
9
10
11
12
Cumulative 3-Month TP Load (tons)

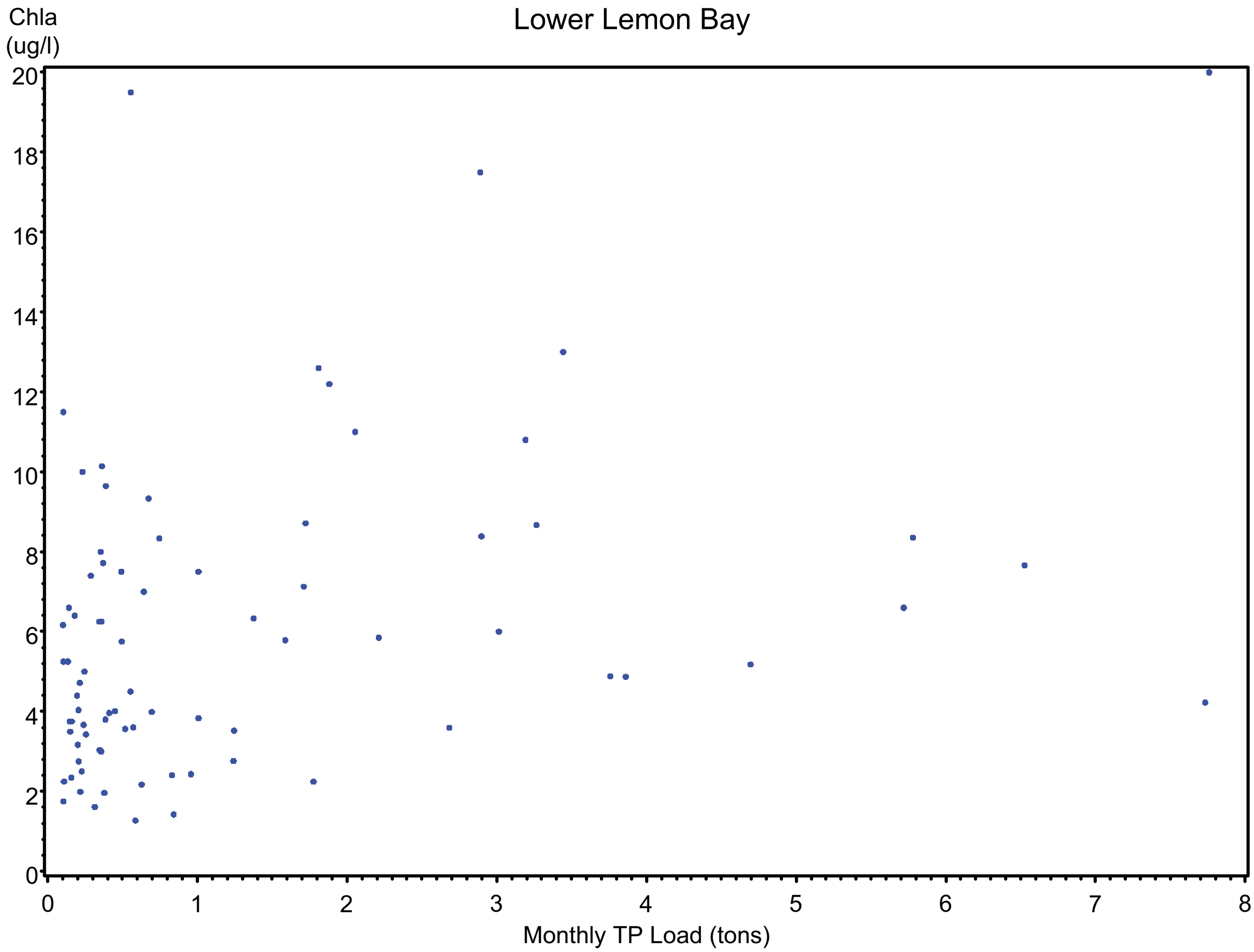

Upper Lemon Bay
ln Chla
(ug/l)
4
3
2
1
0
-1
-5
-4
-3
-2
-1
0
1
2
ln Monthly TP Load (tons)

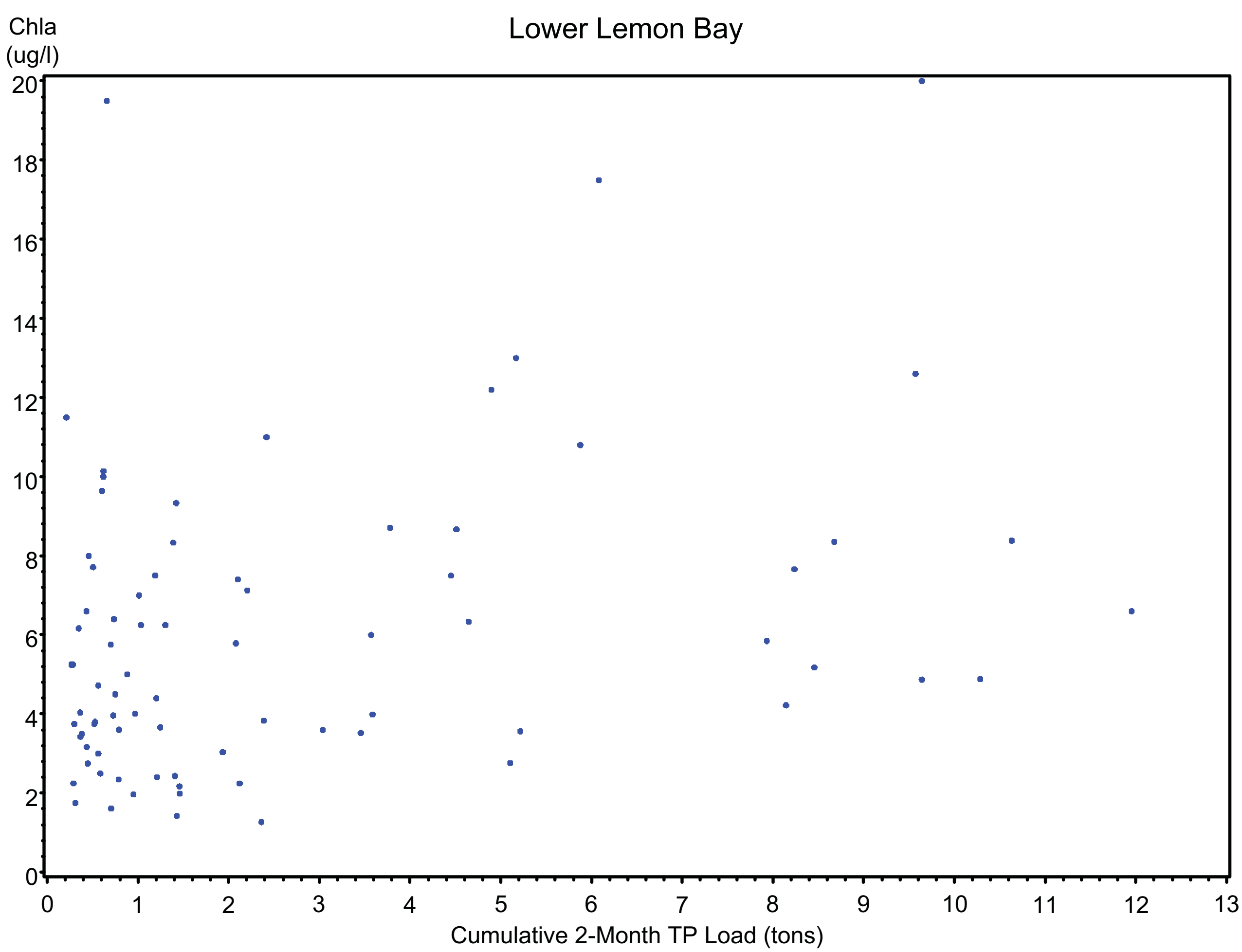


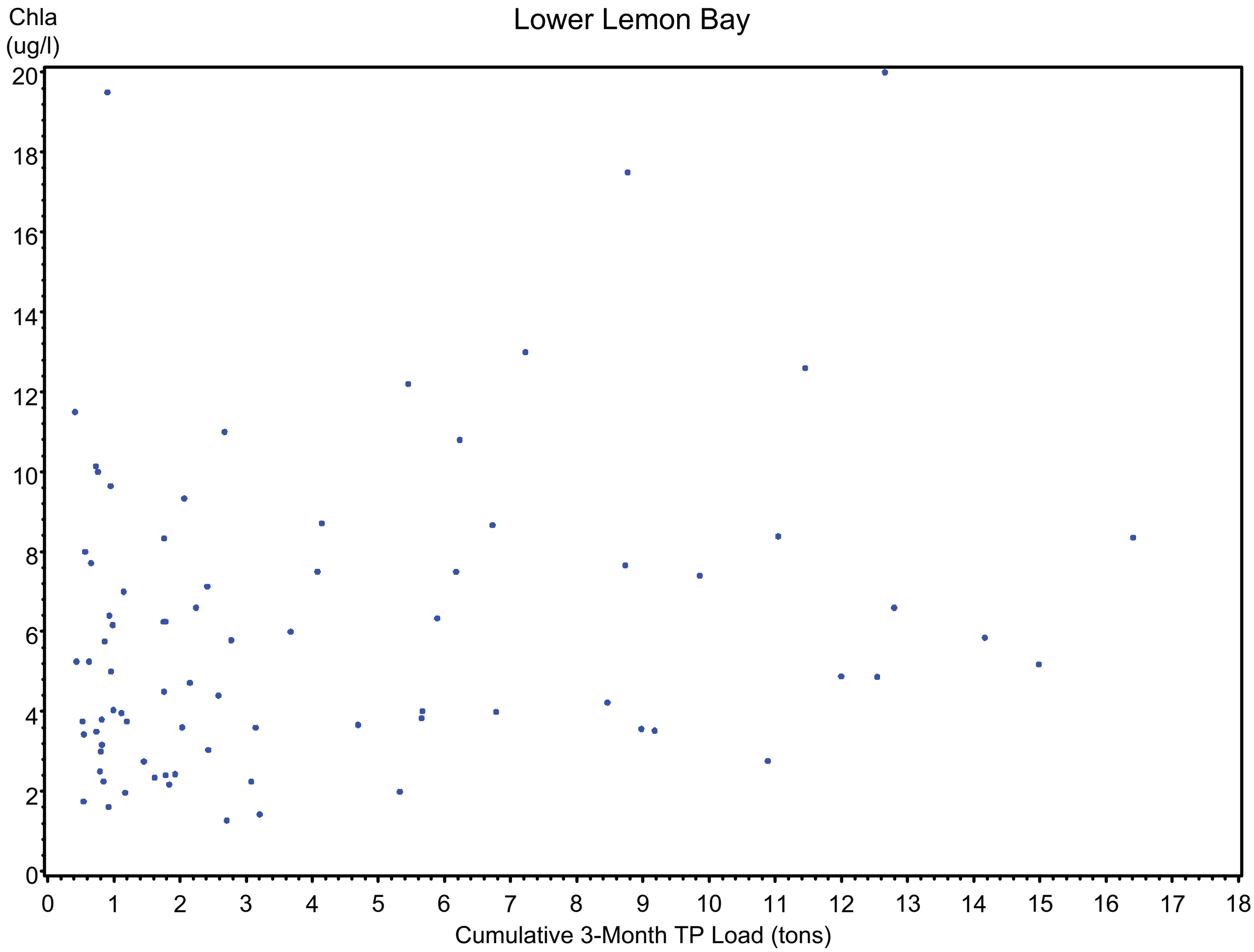
Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
-3
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

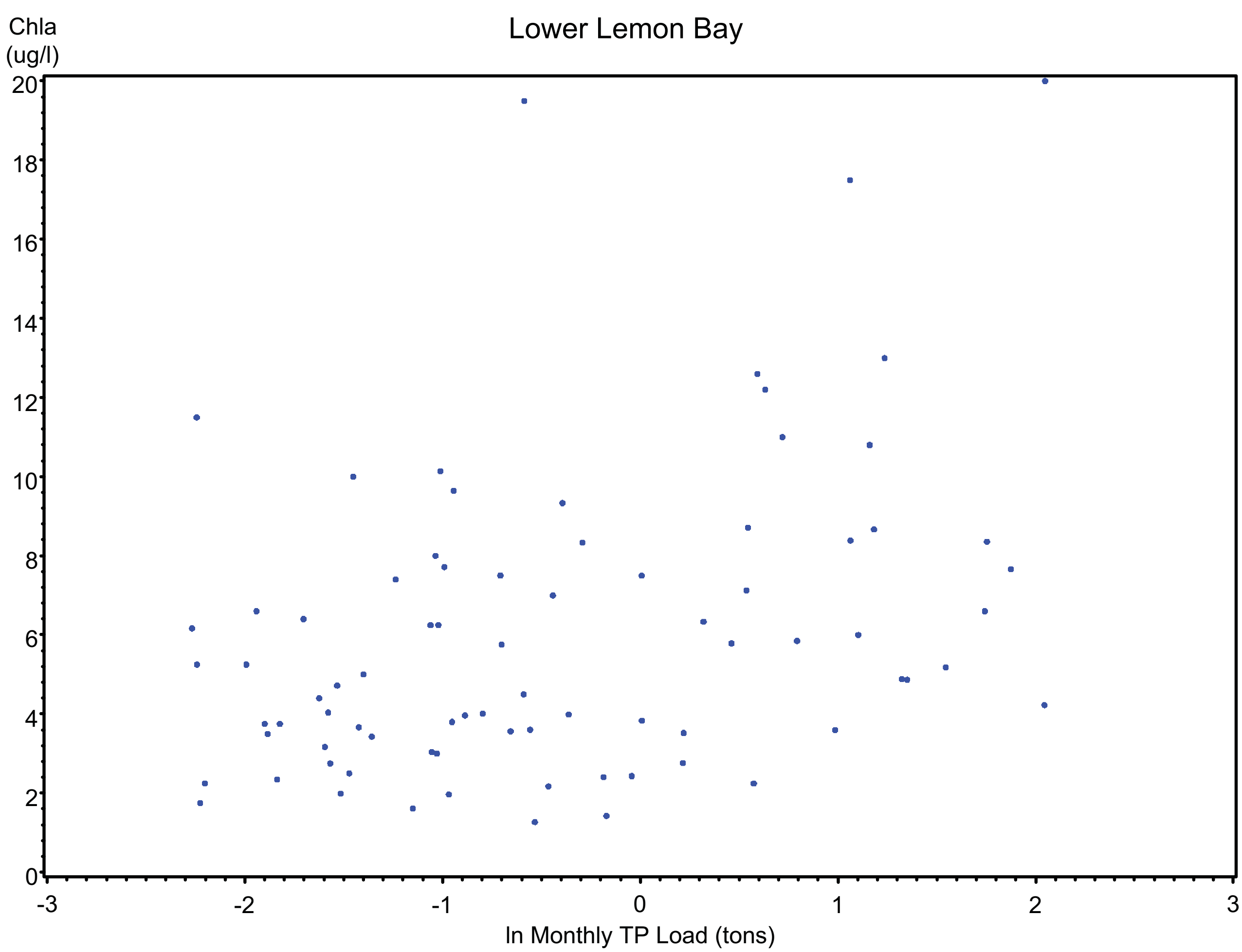


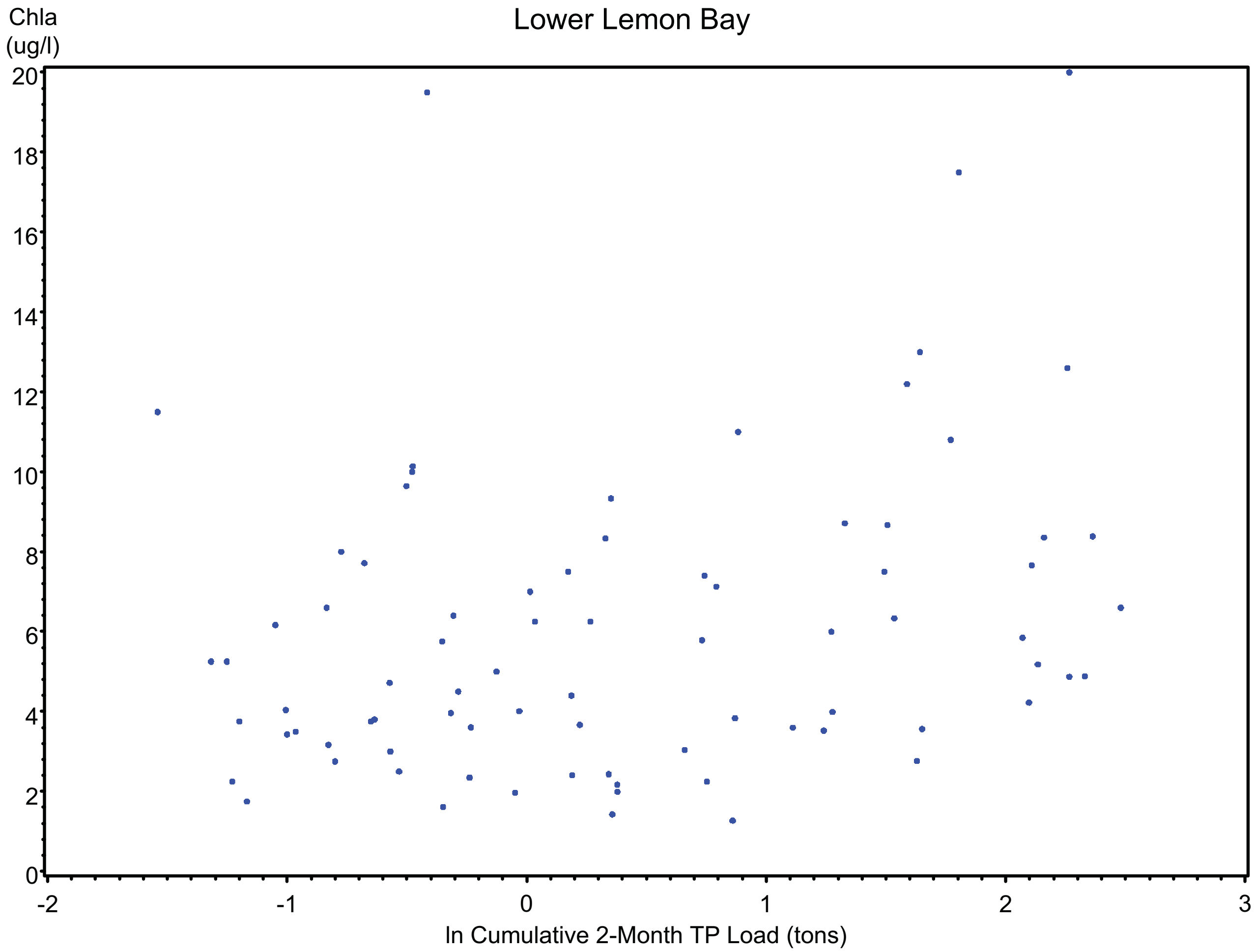
Upper Lemon Bay
ln Chla (ug/l)
4
3
2
1
0
-1
-2
-1
0
1
2
3
4
ln Cumulative 3-Month TP Load (tons)

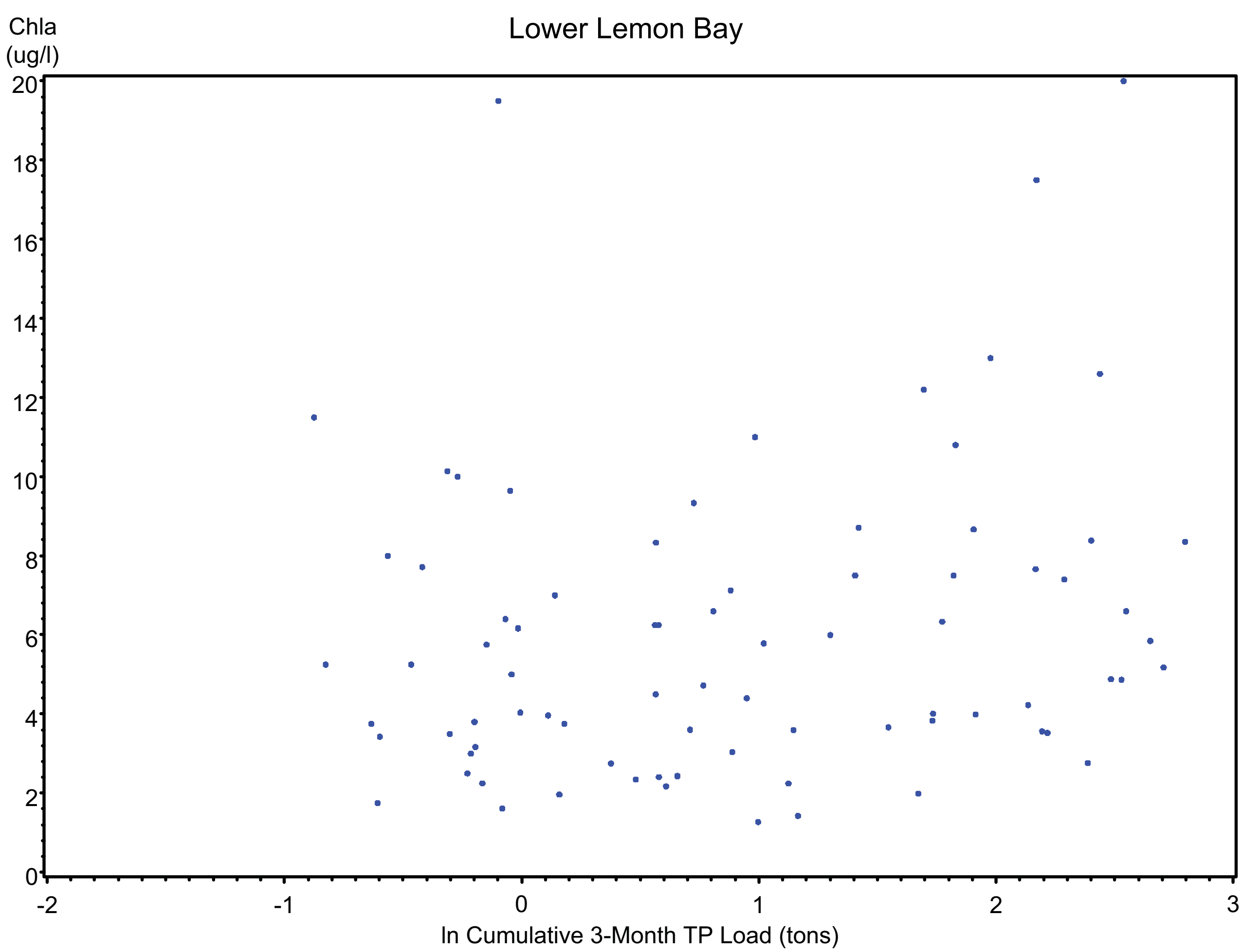

Lower Lemon Bay
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
1
2
3
4
5
6
7
8
Monthly TP Load (tons)

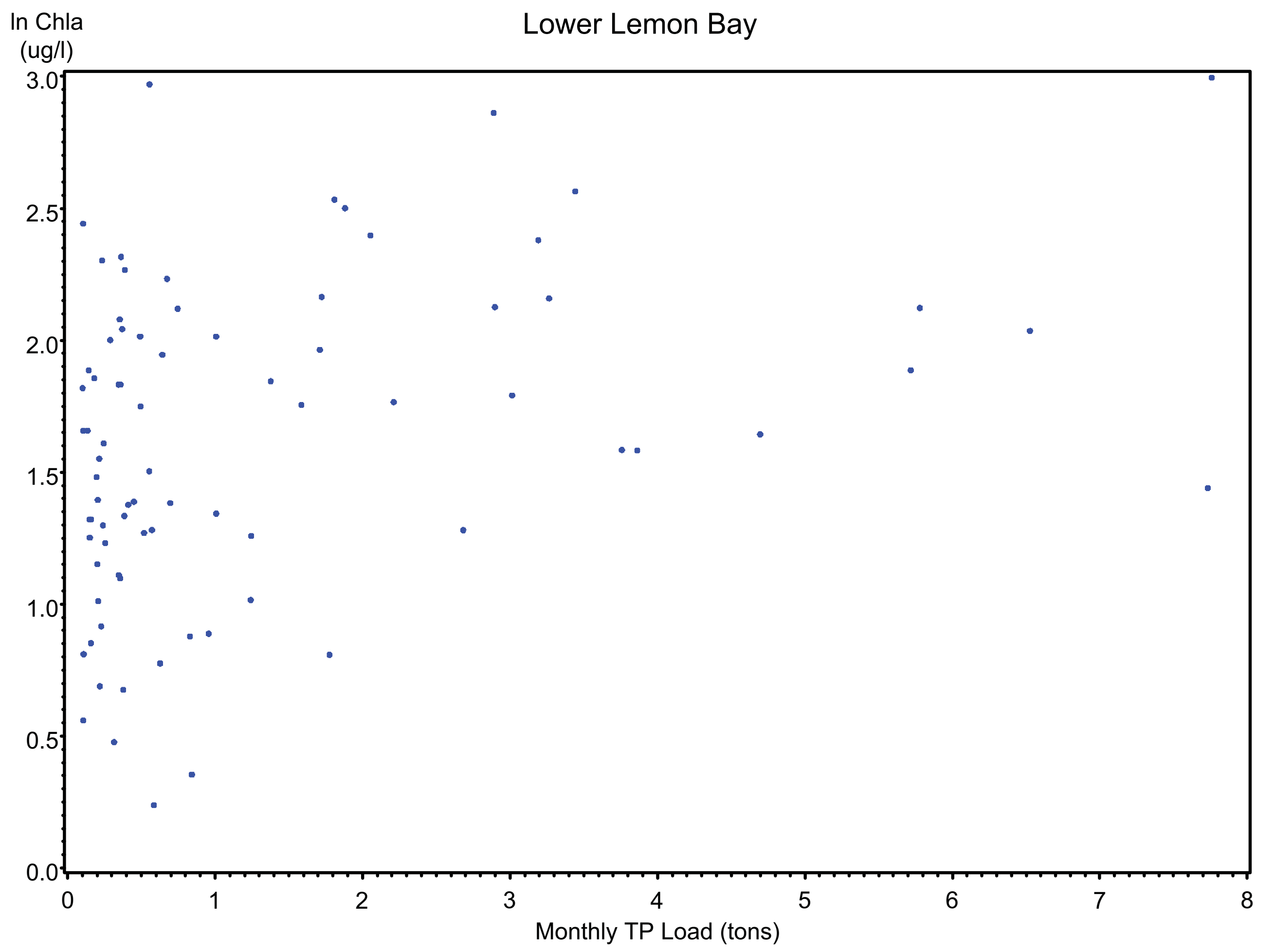

Lower Lemon Bay
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Cumulative 2-Month TP Load (tons)


Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Cumulative 3-Month TP Load (tons)

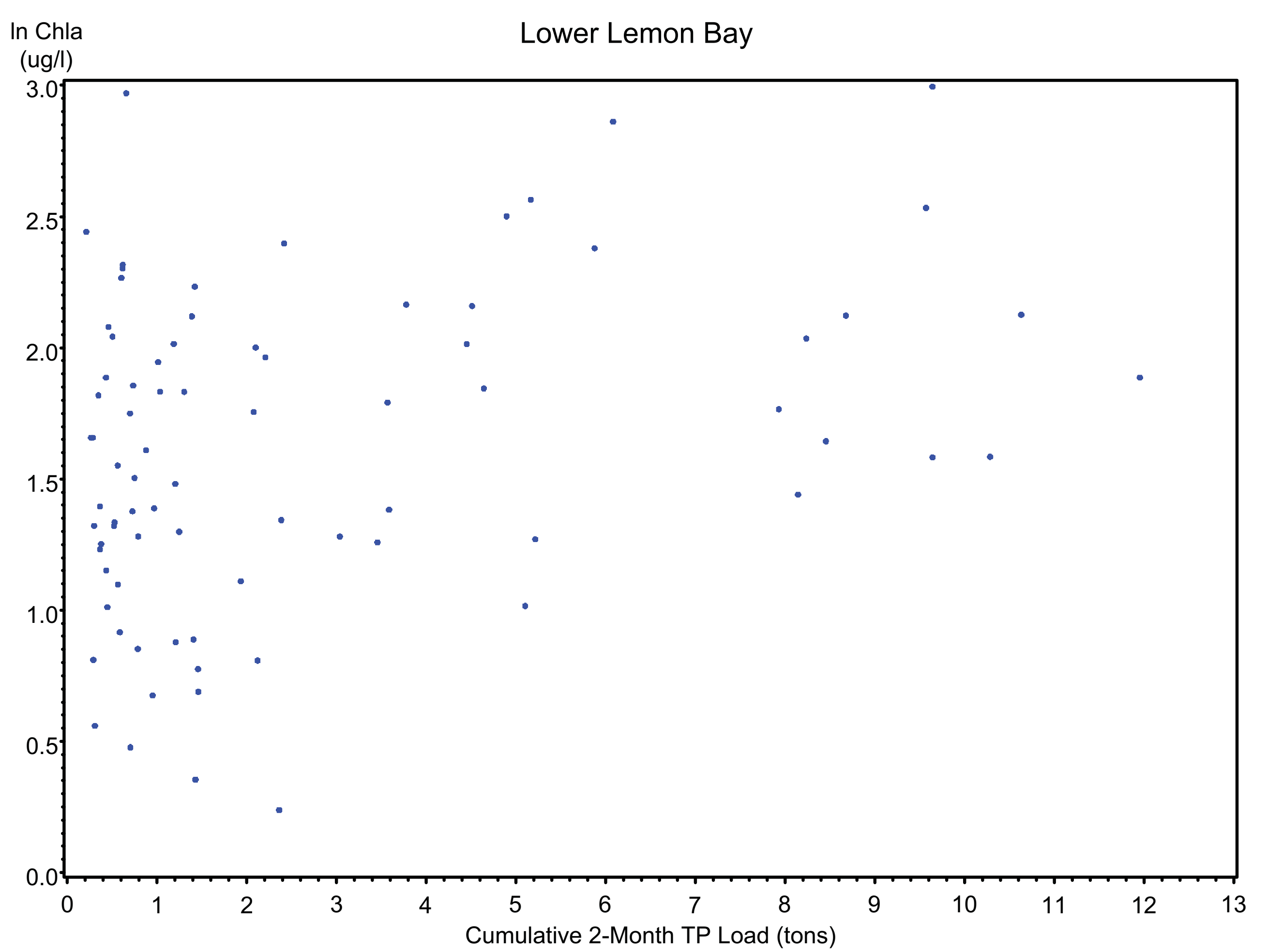

Lower Lemon Bay
Chla
(ug/l)
0
2
4
6
8
10
12
14
16
18
20
-3 -2 -1 0 1 2 3
ln Monthly TP Load (tons)


Lower Lemon Bay
Chla (ug/l)
20
18
16
14
12
10
8
6
4
2
0
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

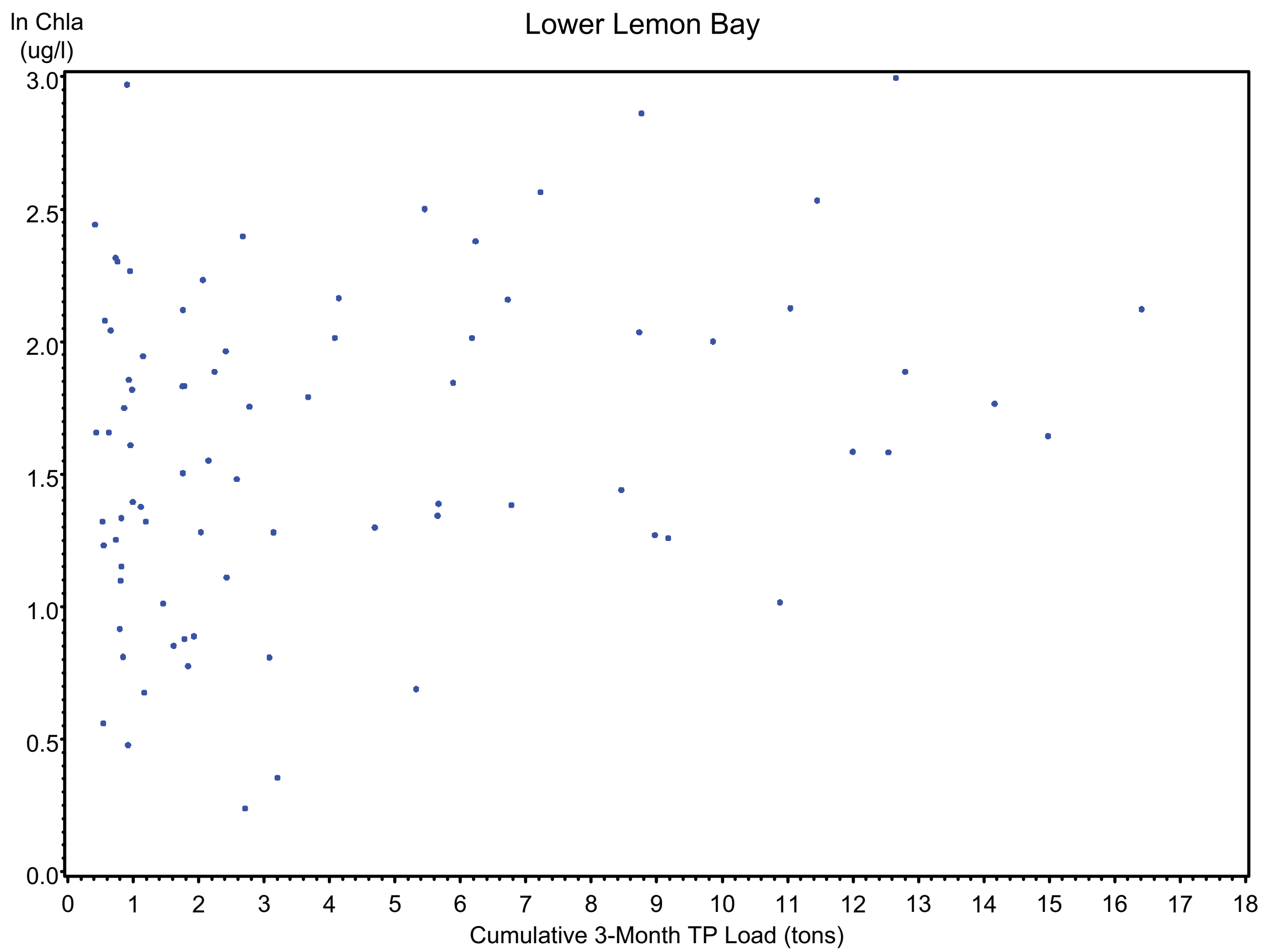

Lower Lemon Bay
Chla (ug/l)
20
18
16
14
12
10
8
6
4
2
0
-2
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)



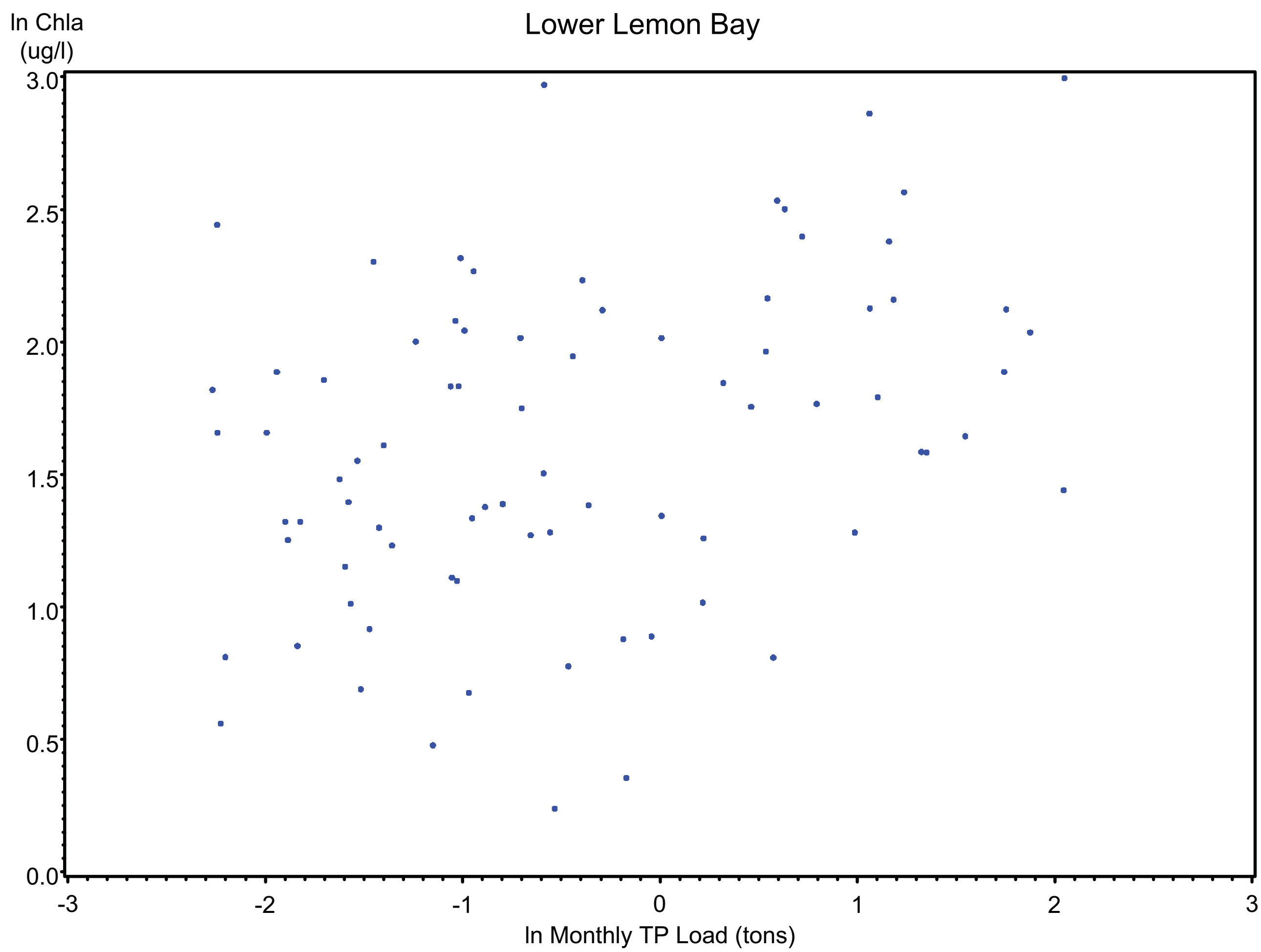
Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
1
2
3
4
5
6
7
8
Monthly TP Load (tons)



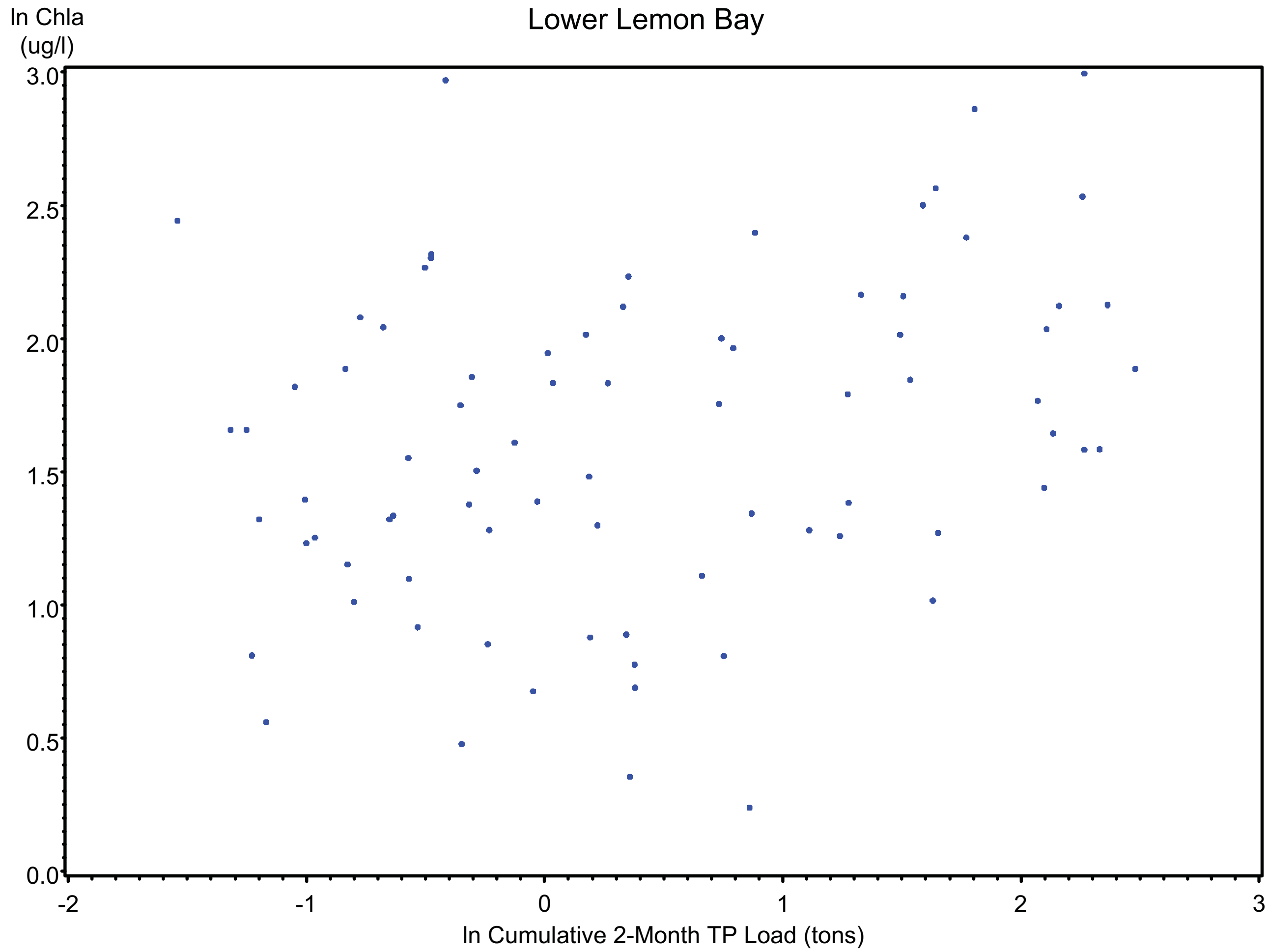
Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Cumulative 2-Month TP Load (tons)



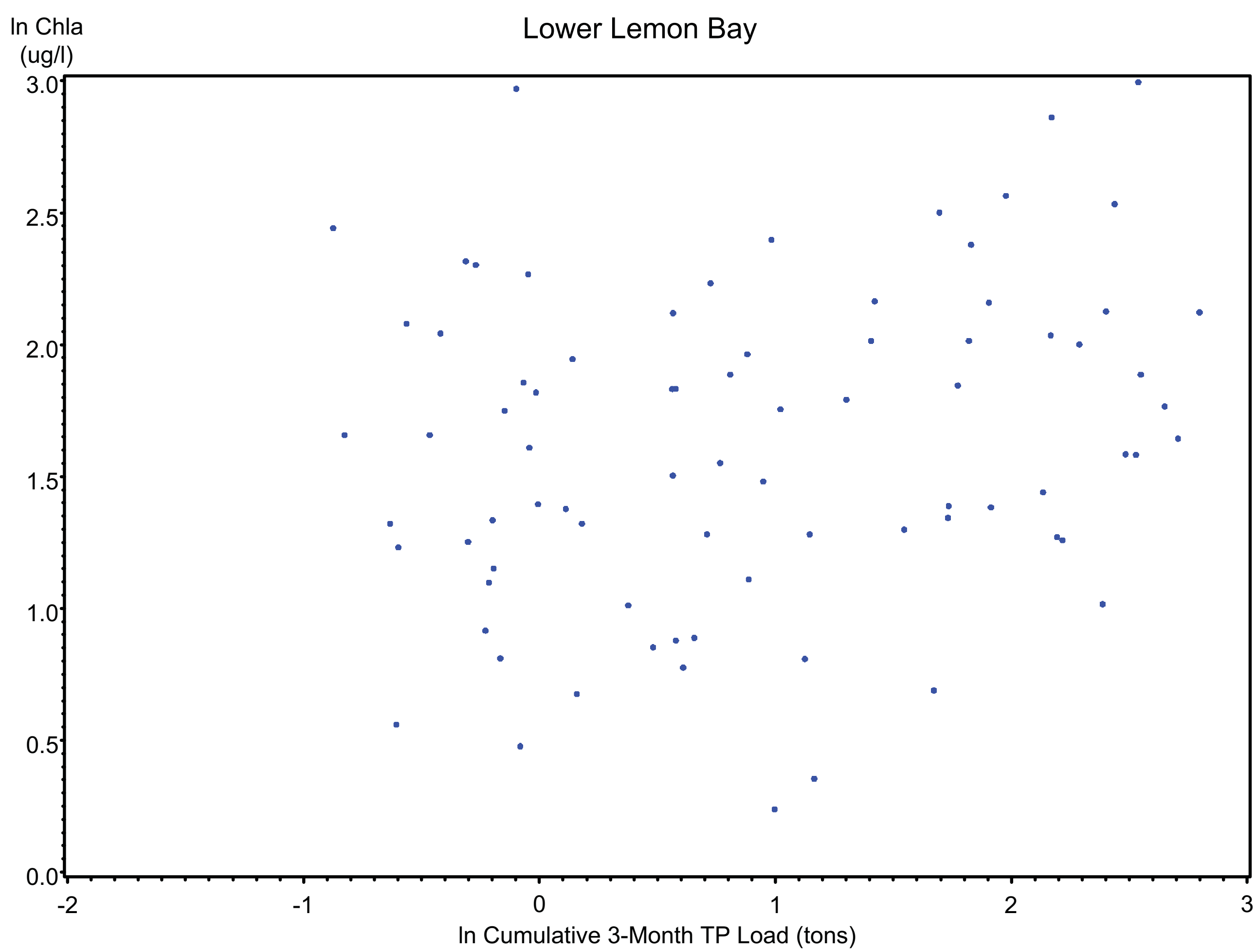
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
Cumulative 3-Month TP Load (tons)



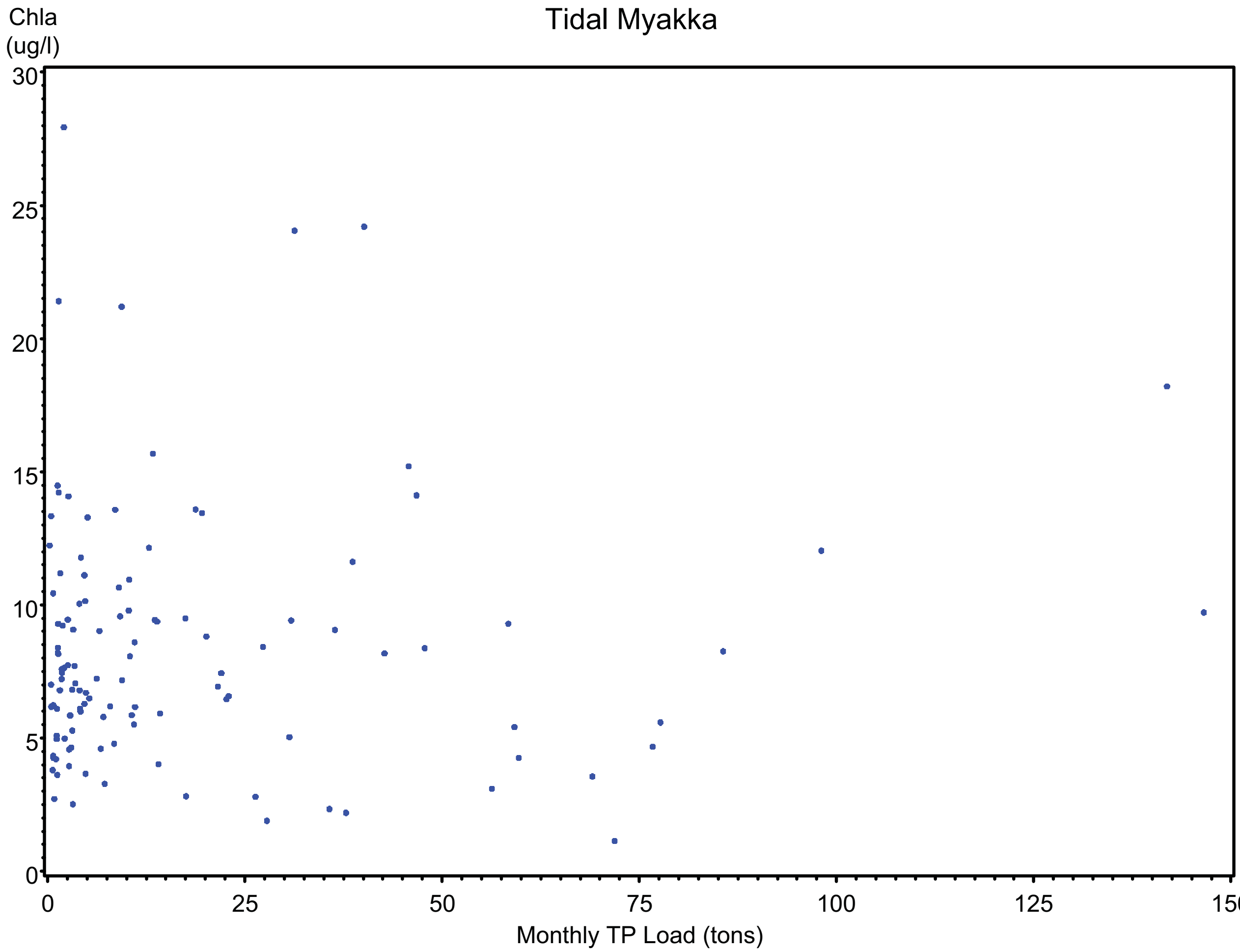
Lower Lemon Bay
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3 -2 -1 0 1 2 3
ln Monthly TP Load (tons)

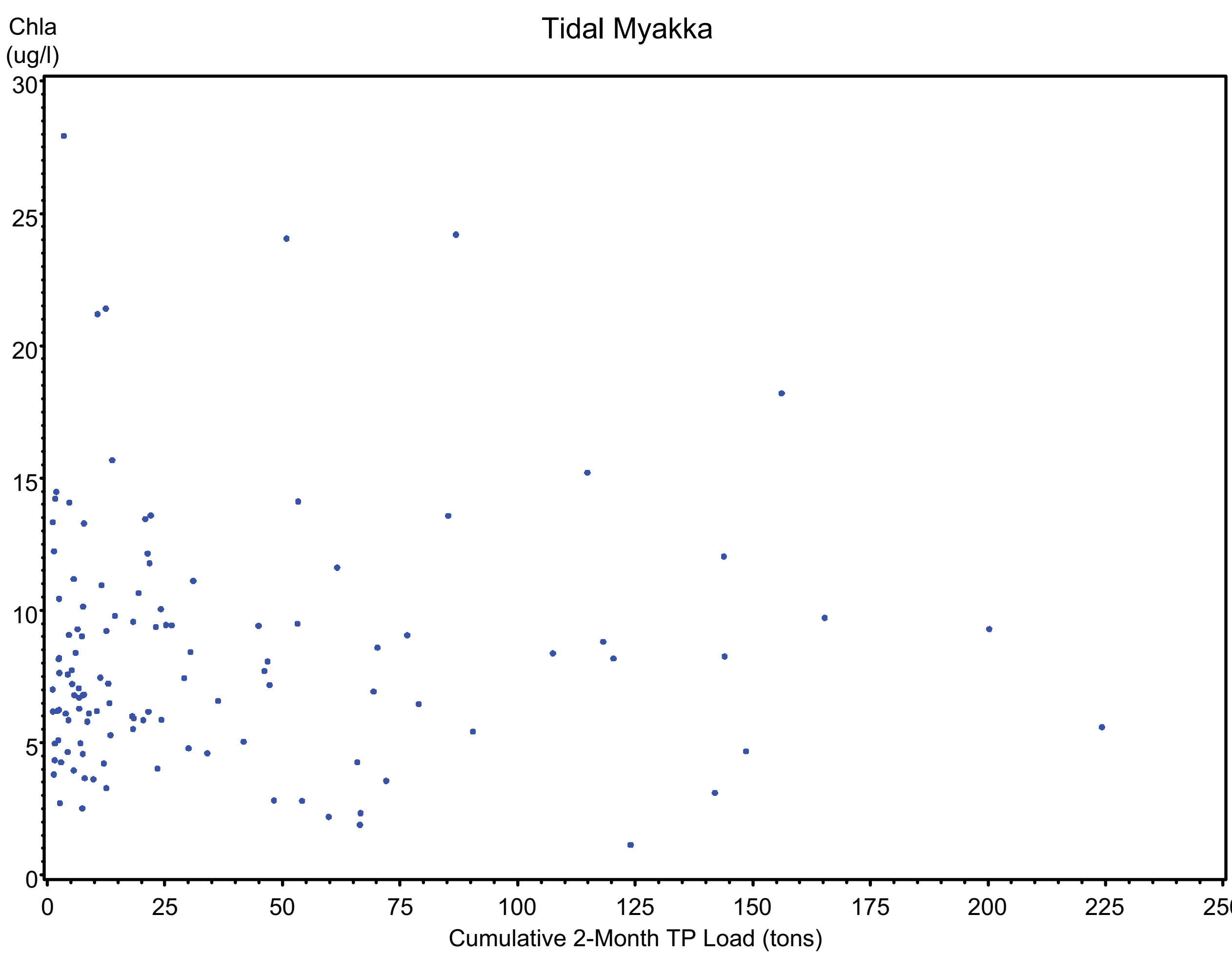


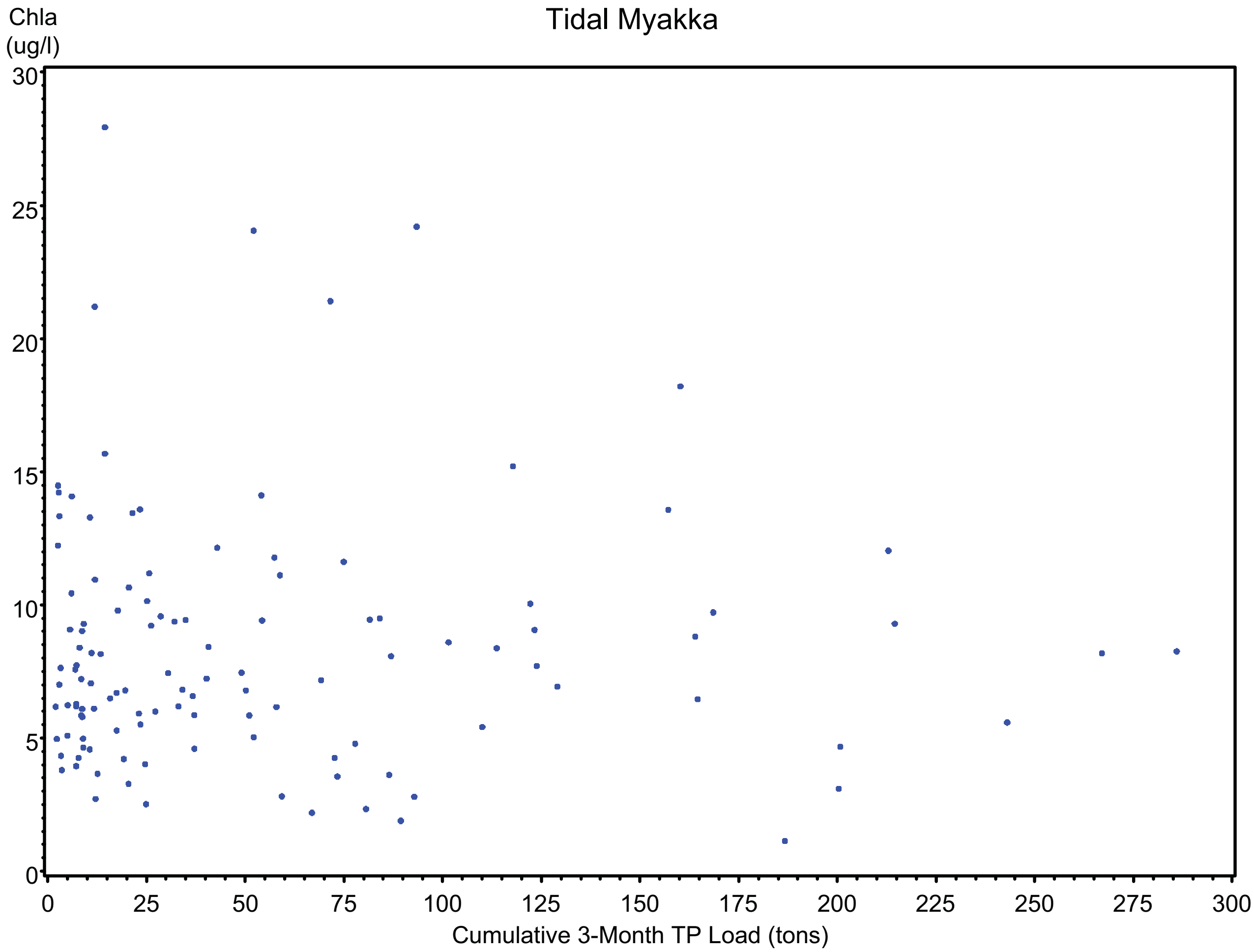
Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

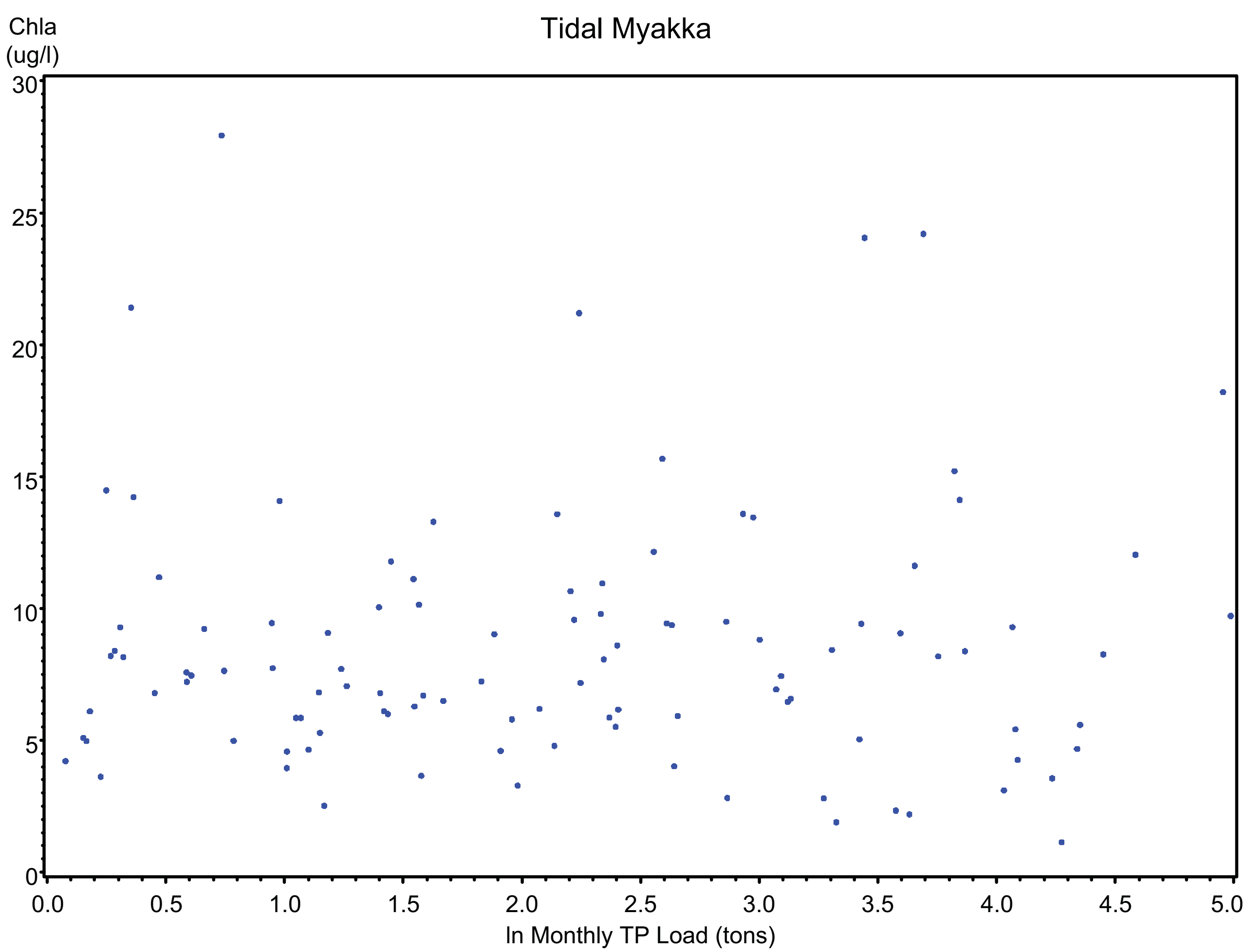


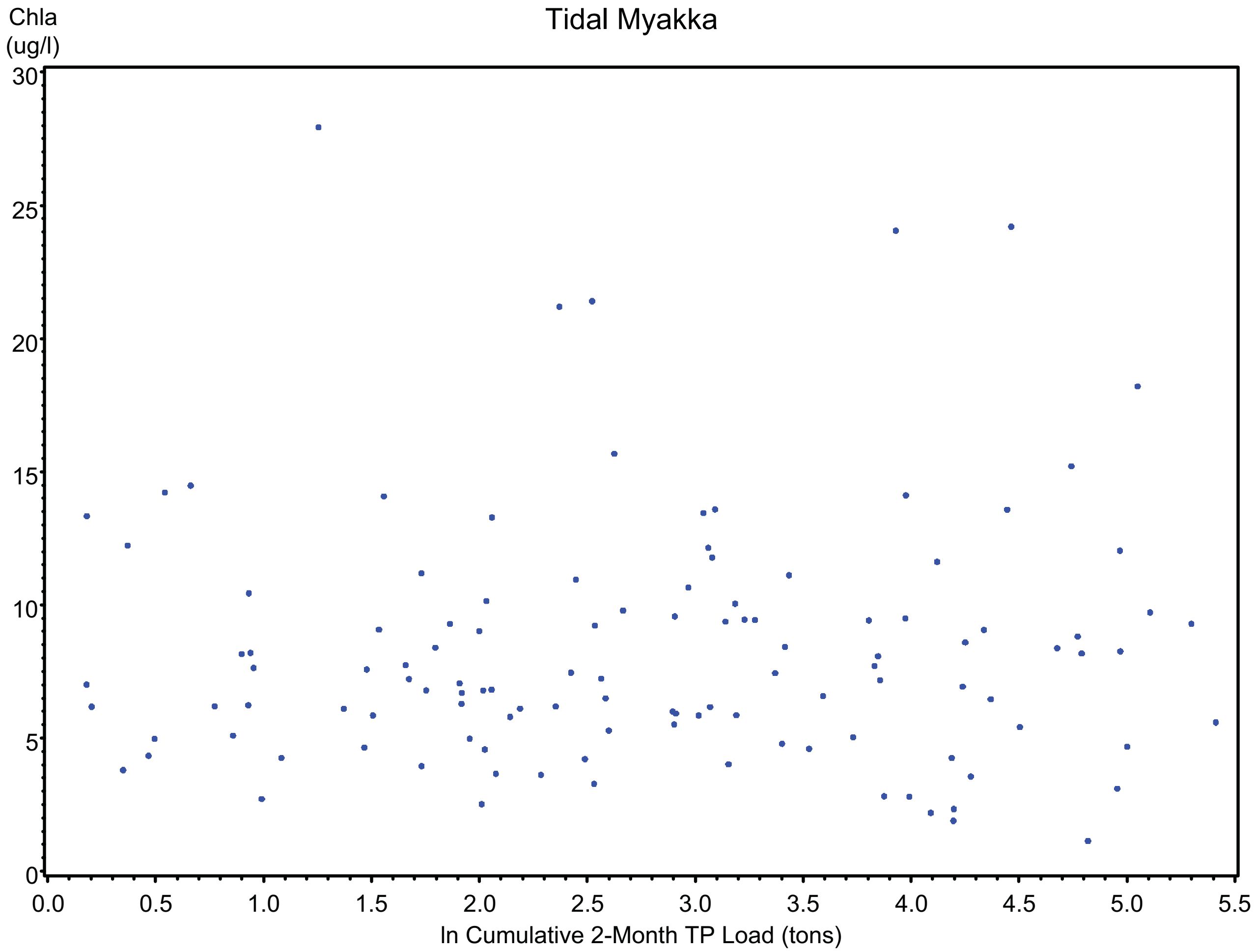
Lower Lemon Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-2
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)

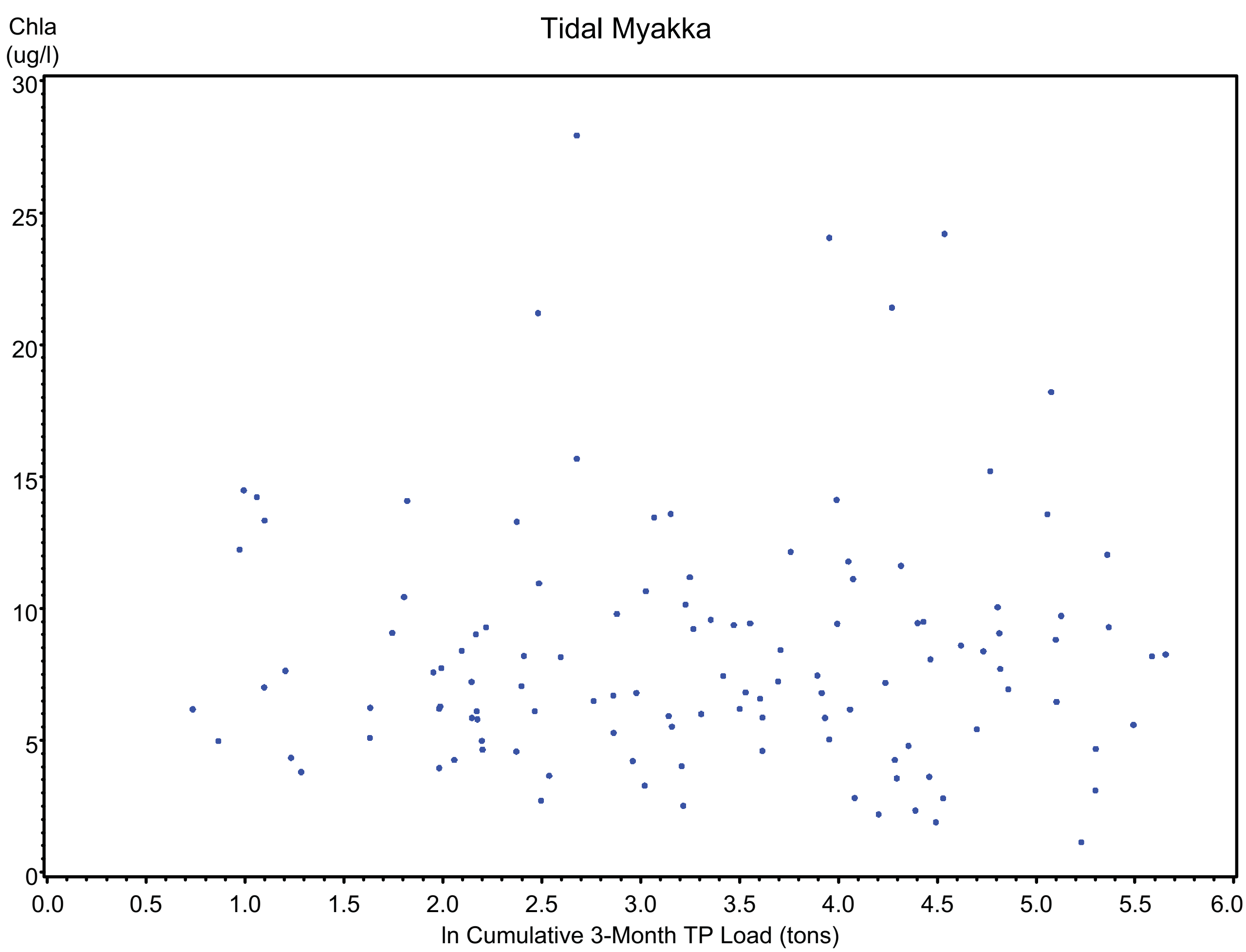

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
0
25
50
75
100
125
150
Monthly TP Load (tons)

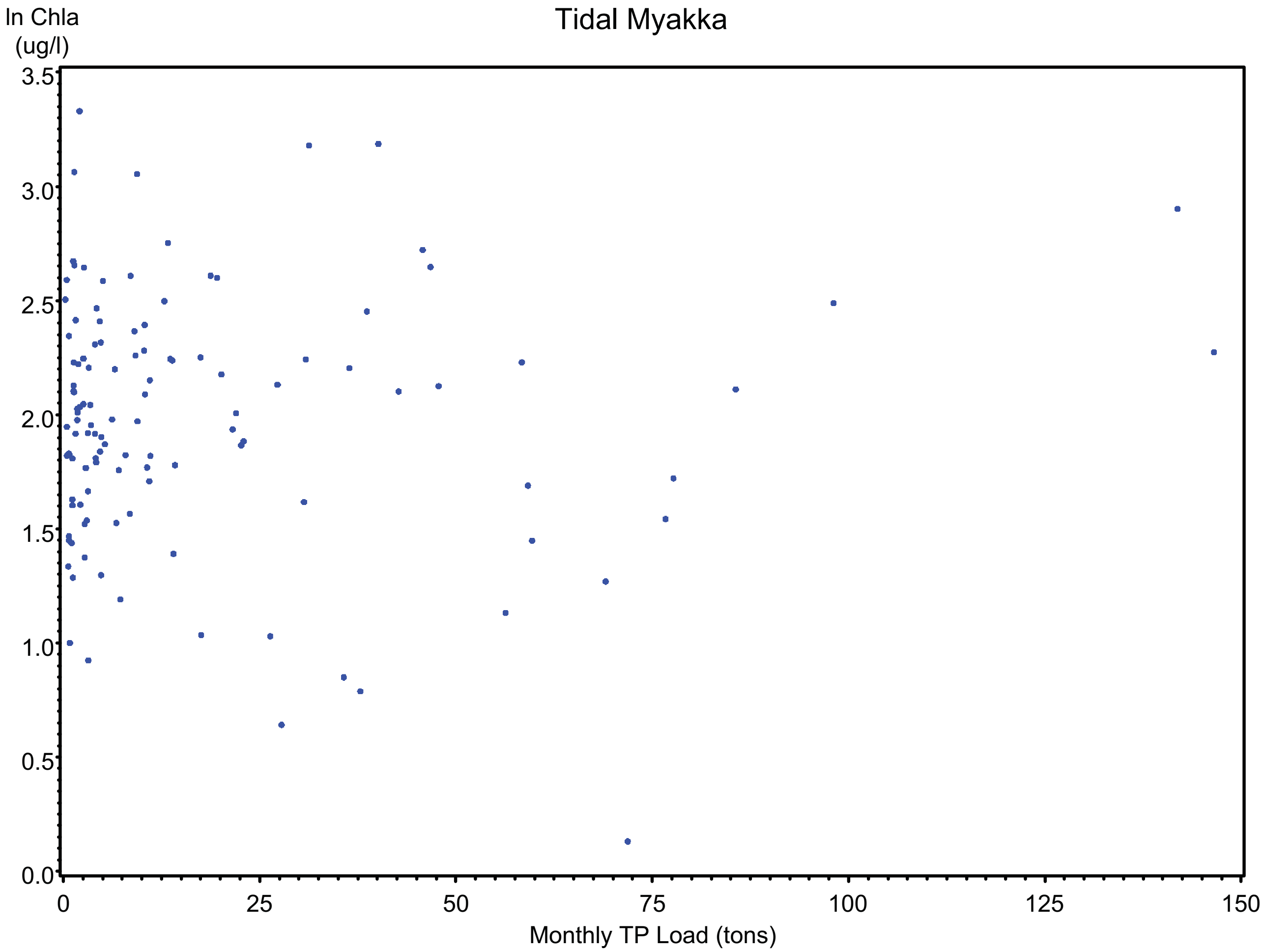

Tidal Myakka
Chla
(ug/l)
30
25
20
15
10
5
0
0
25
50
75
100
125
150
175
200
225
250
Cumulative 2-Month TP Load (tons)


Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
0
25
50
75
100
125
150
175
200
225
250
275
300
Cumulative 3-Month TP Load (tons)

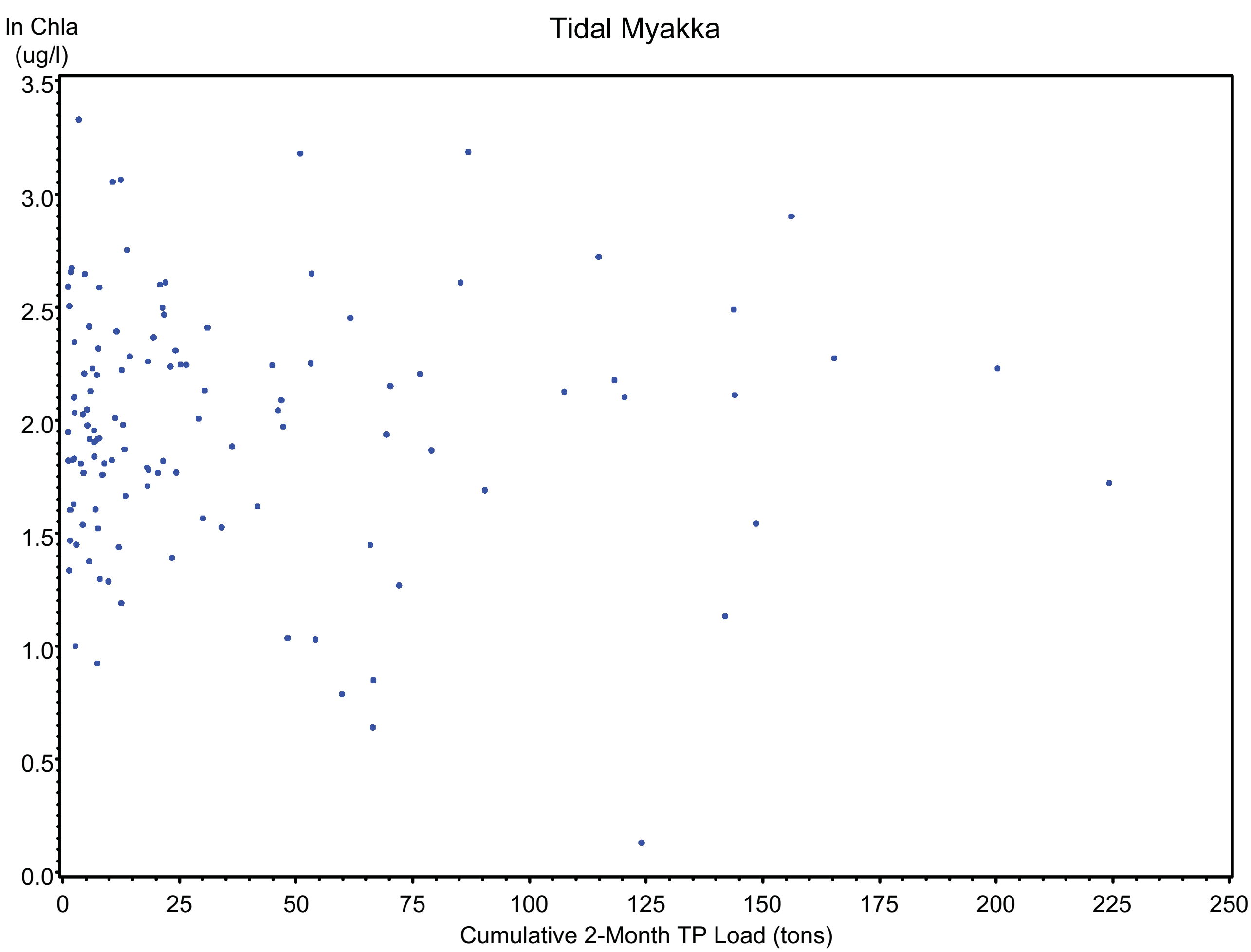

Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TP Load (tons)


Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TP Load (tons)

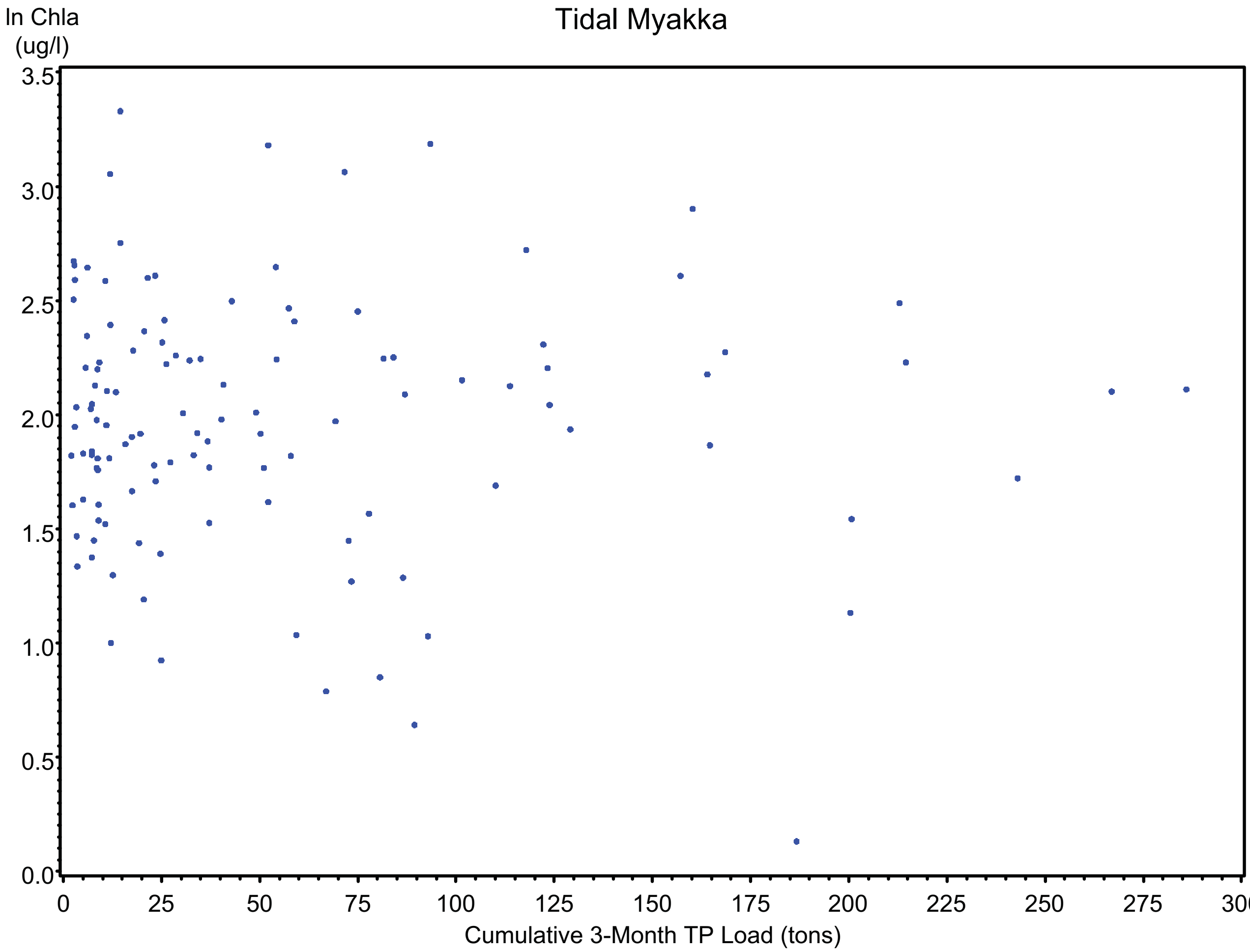

Tidal Myakka
Chla
(ug/l)
0
5
10
15
20
25
30
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TP Load (tons)



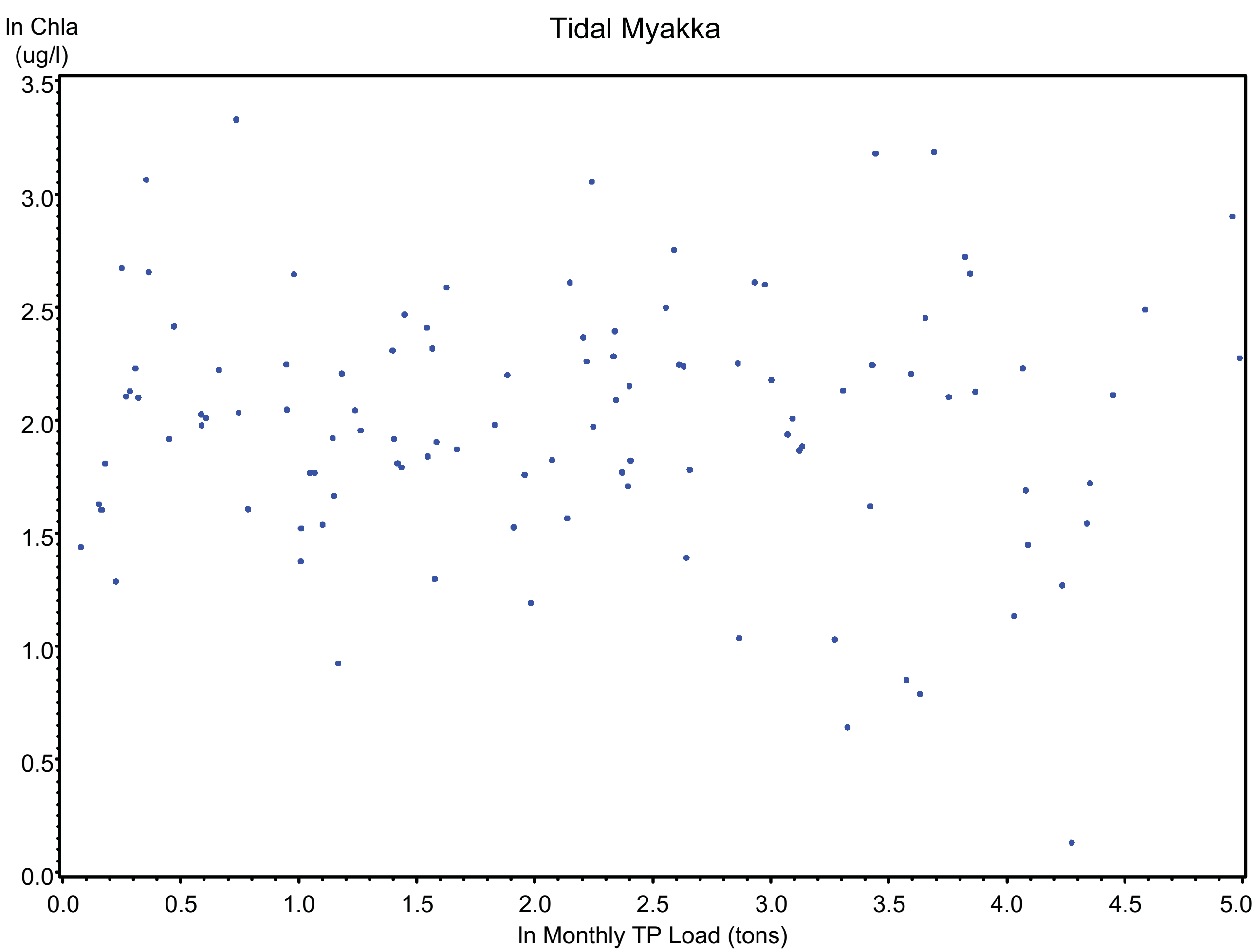
Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
Monthly TP Load (tons)



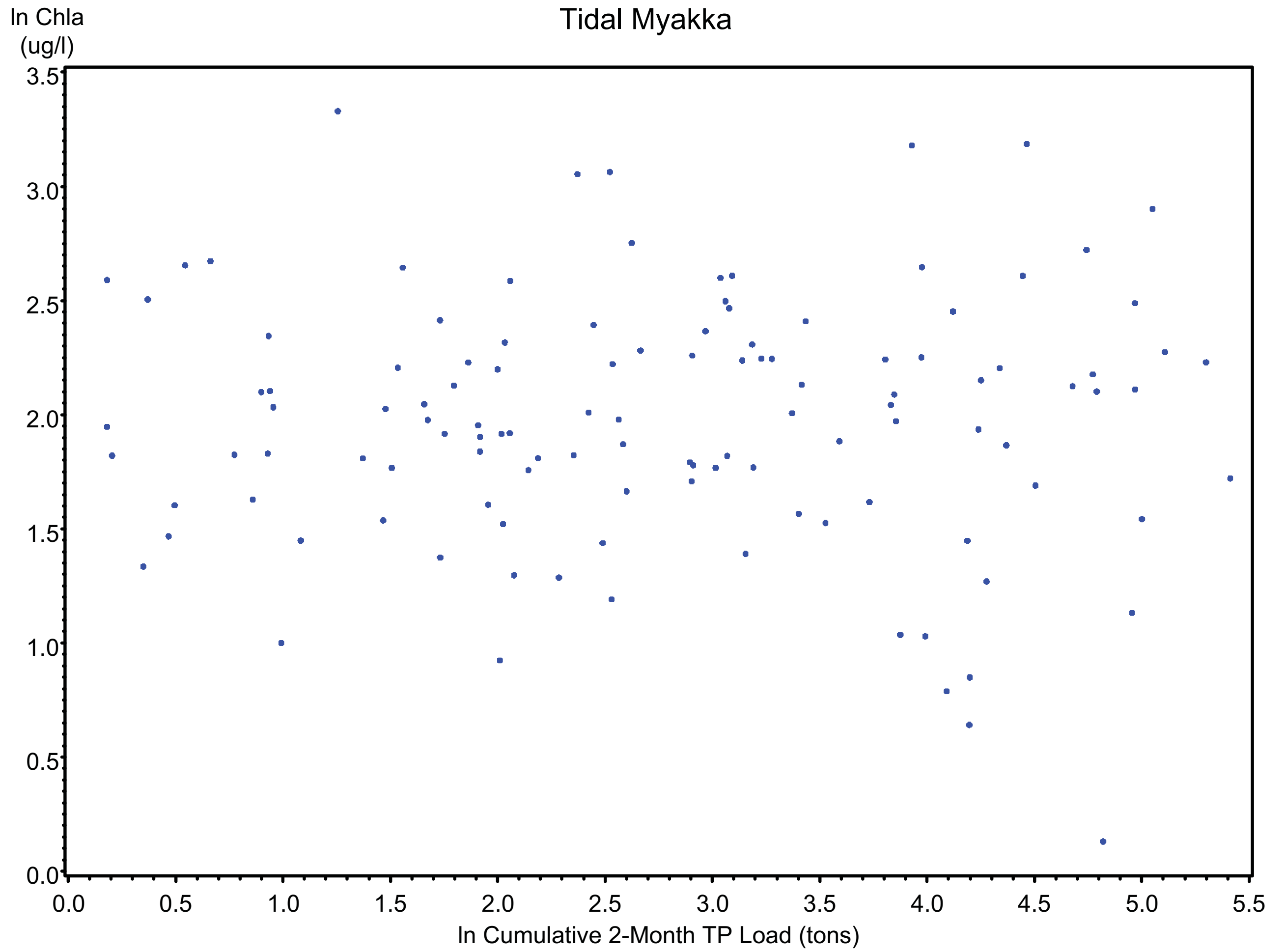
Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
Cumulative 2-Month TP Load (tons)

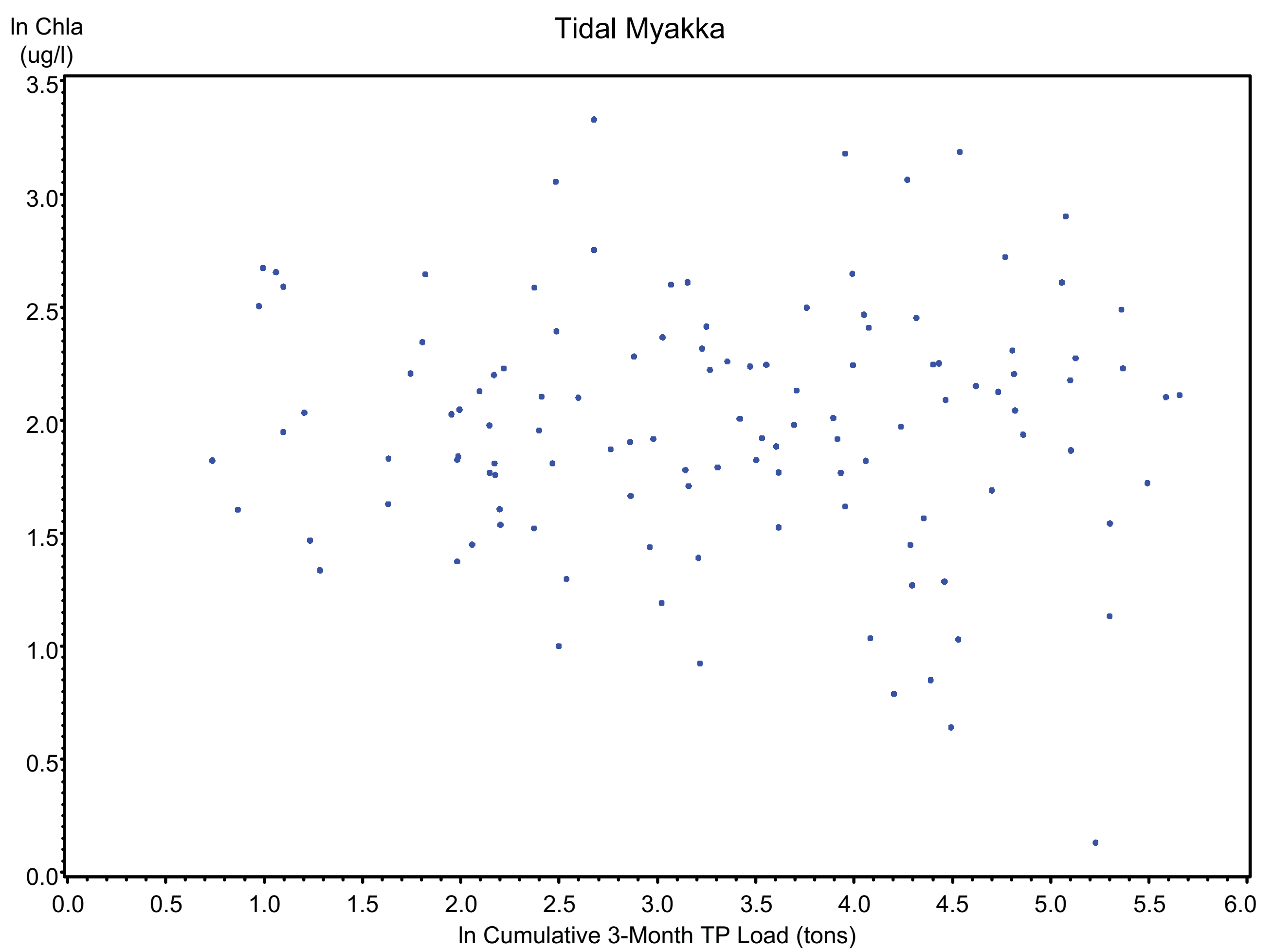


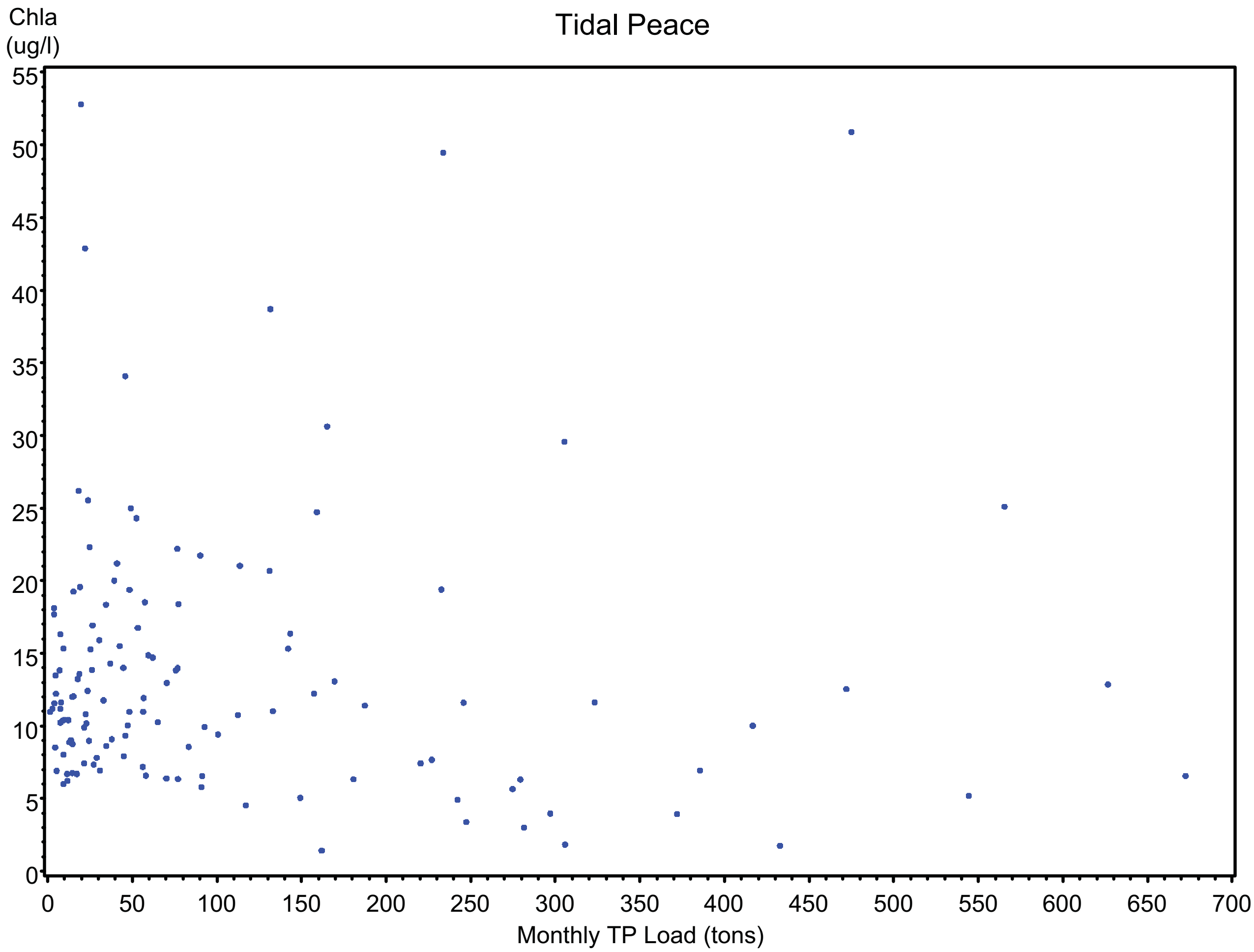
Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
275
300
Cumulative 3-Month TP Load (tons)

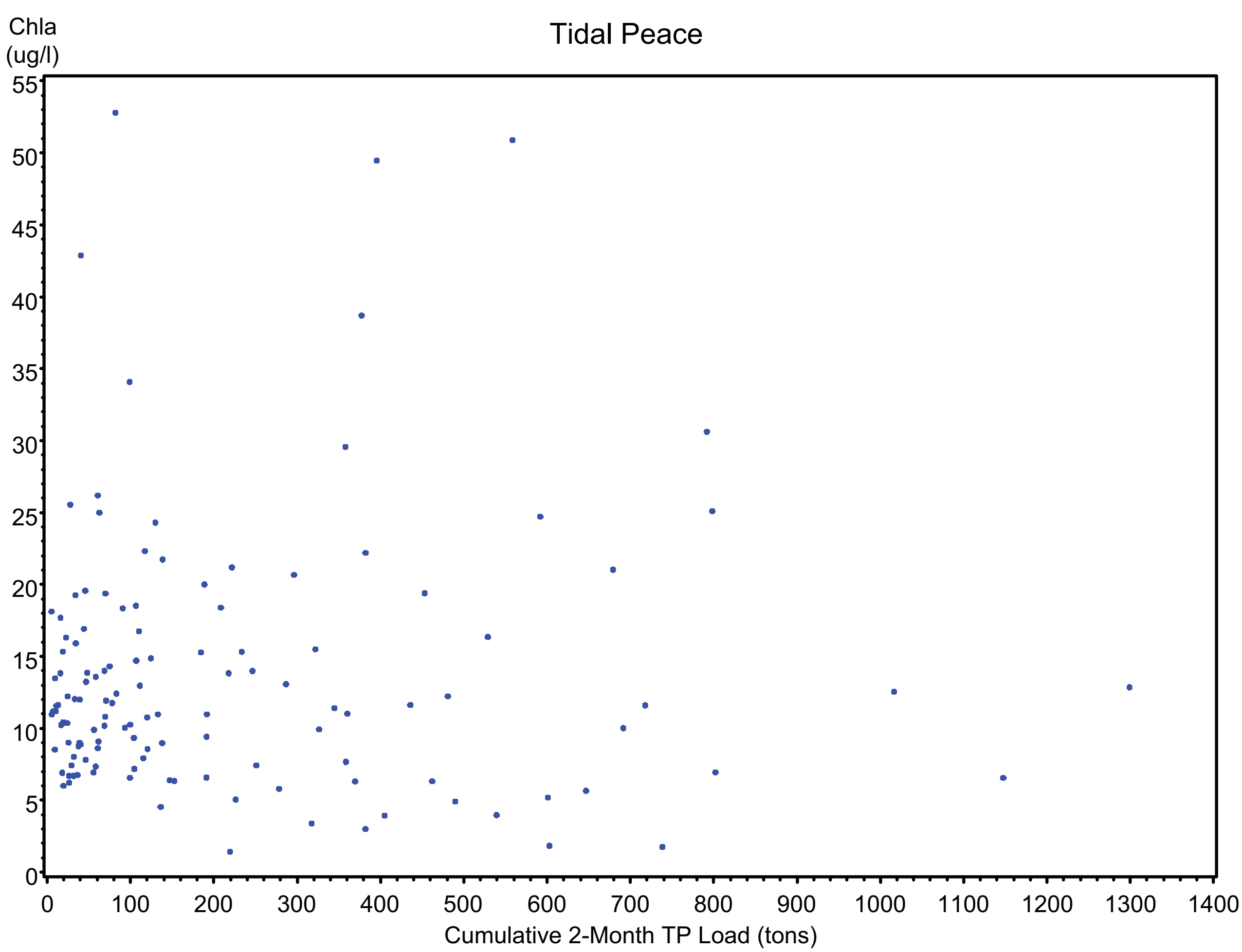


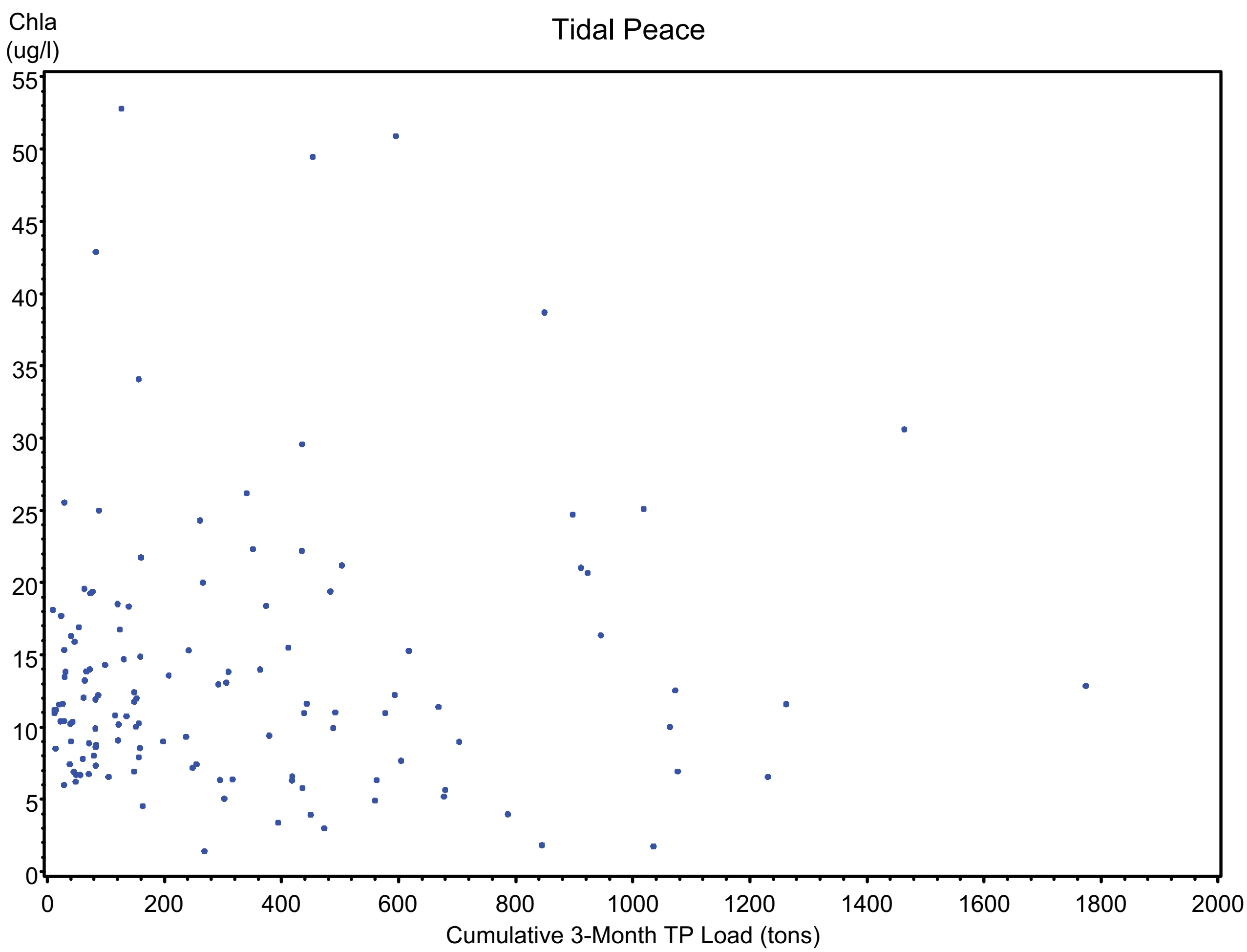
Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TP Load (tons)

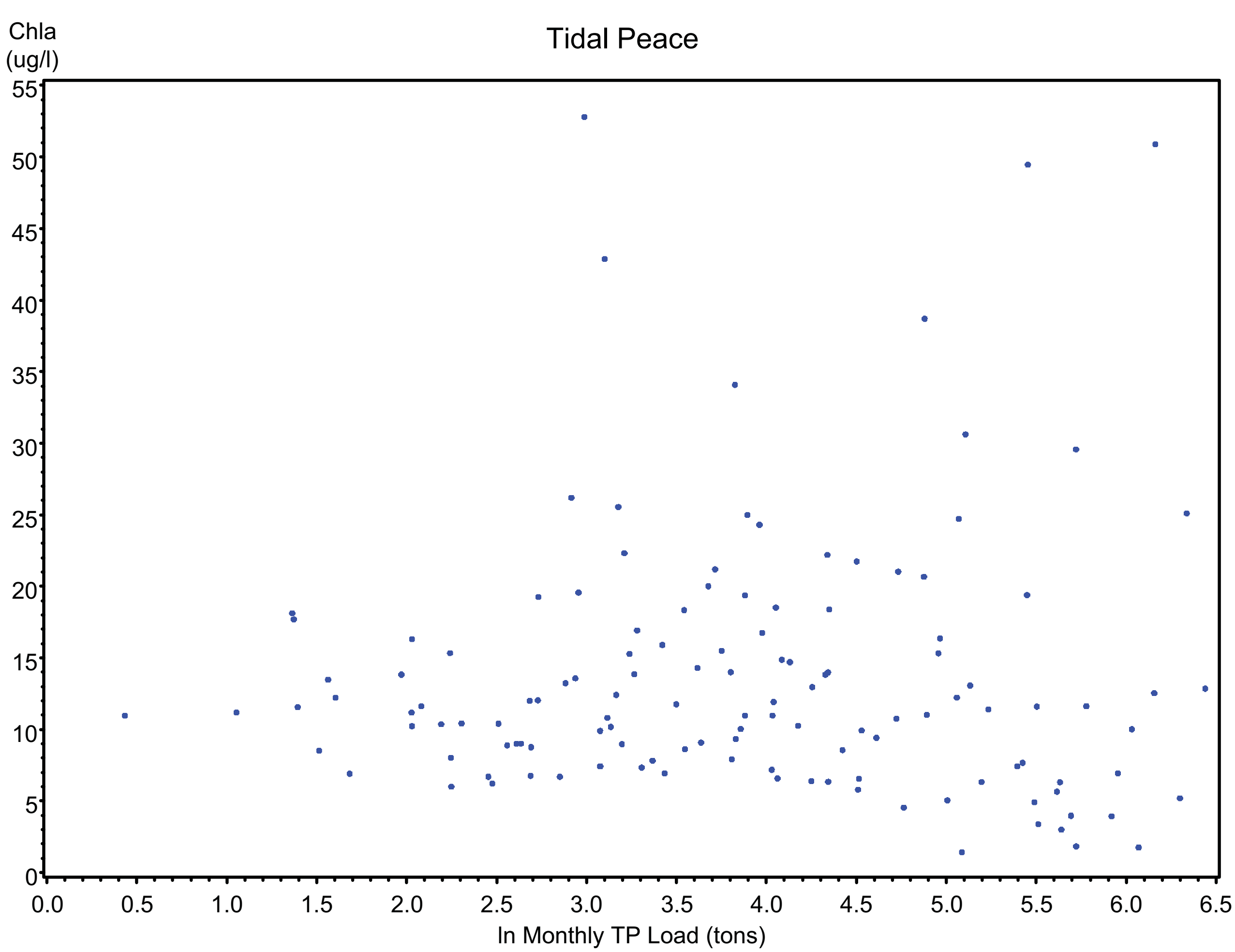

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TP Load (tons)

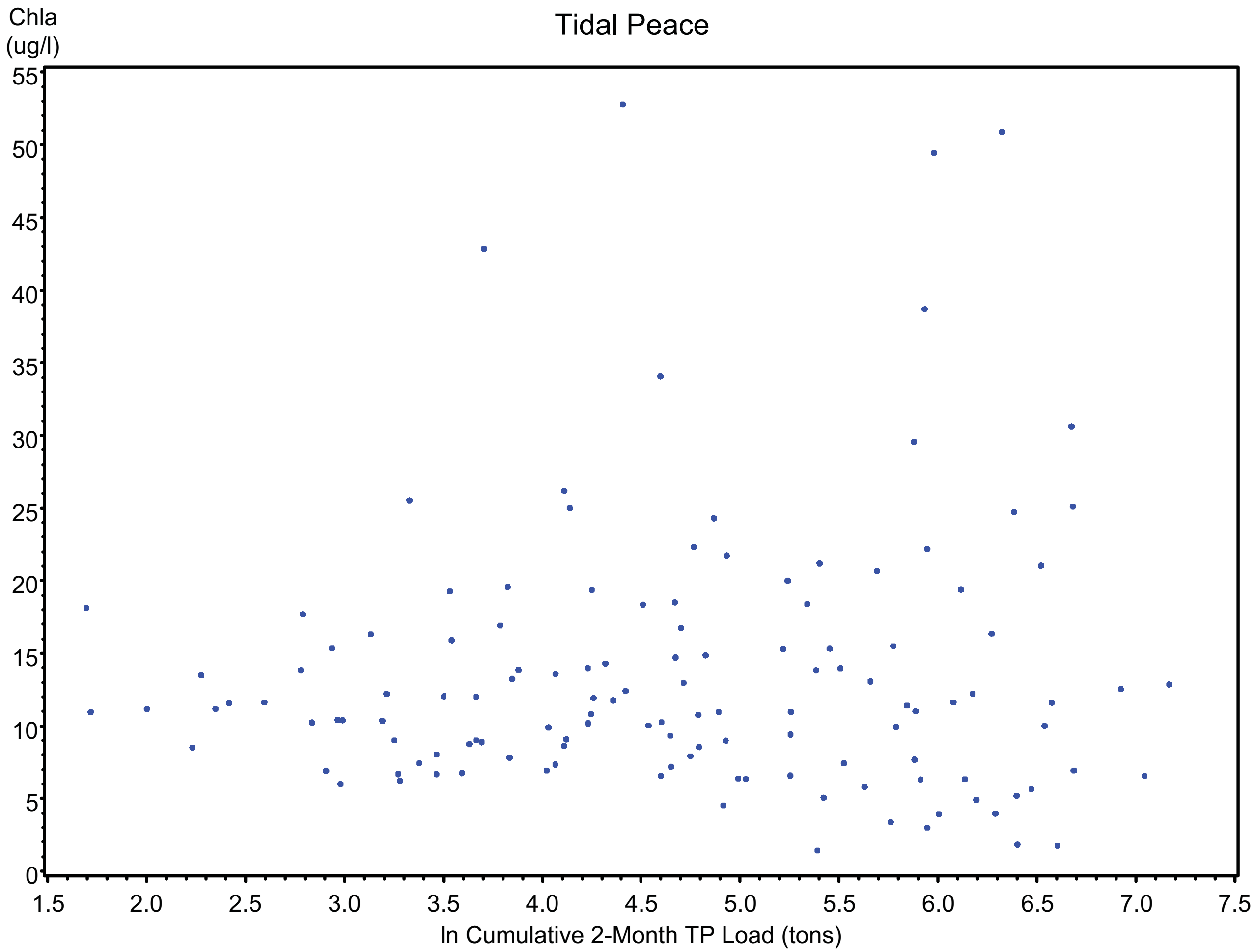

Tidal Myakka
ln Chla
(ug/l)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TP Load (tons)

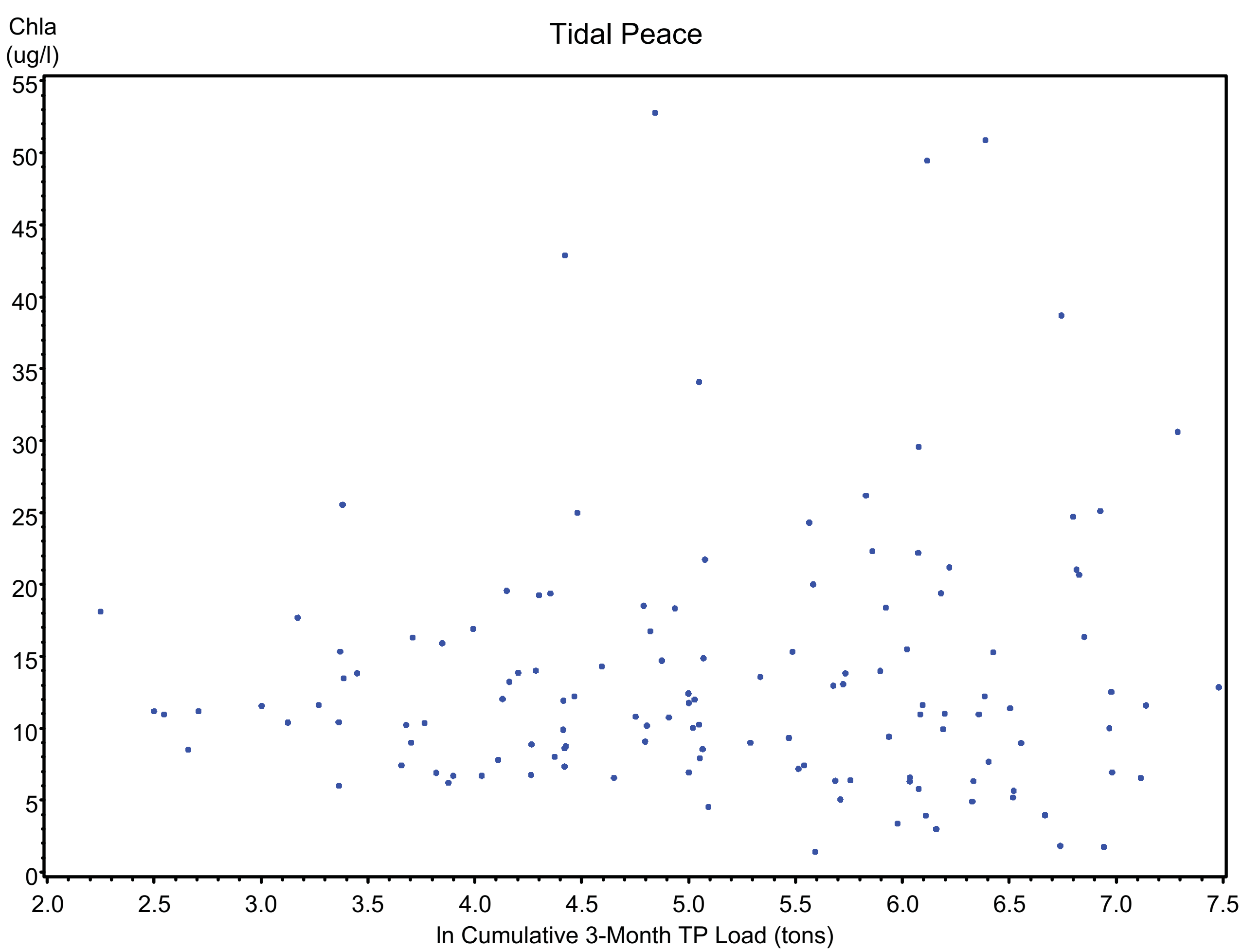

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
Monthly TP Load (tons)

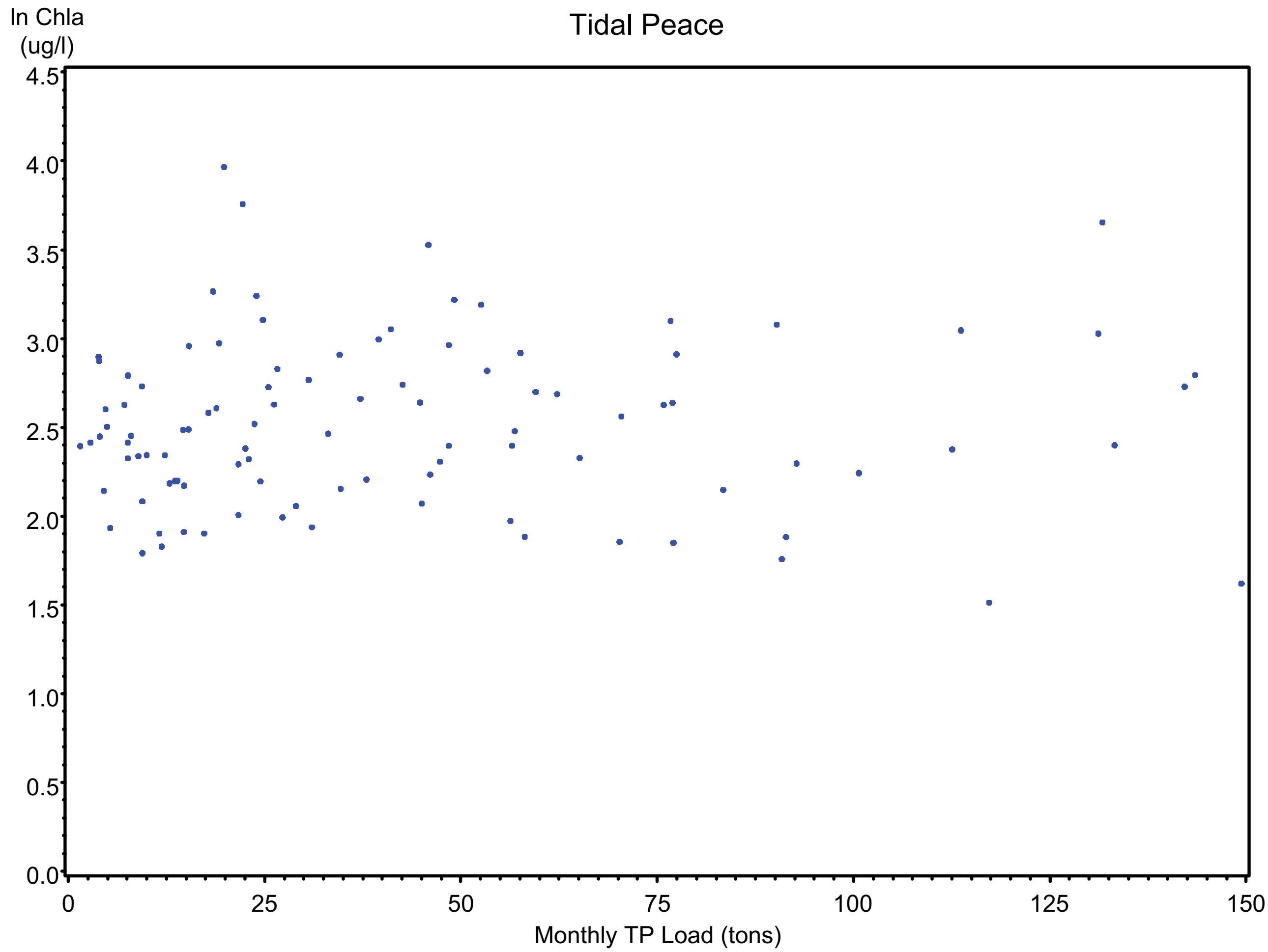

Tidal Peace
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
45
50
55
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
Cumulative 2-Month TP Load (tons)


Chla
(ug/l)
Tidal Peace
55
50
45
40
35
30
25
20
15
10
5
0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
Cumulative 3-Month TP Load (tons)

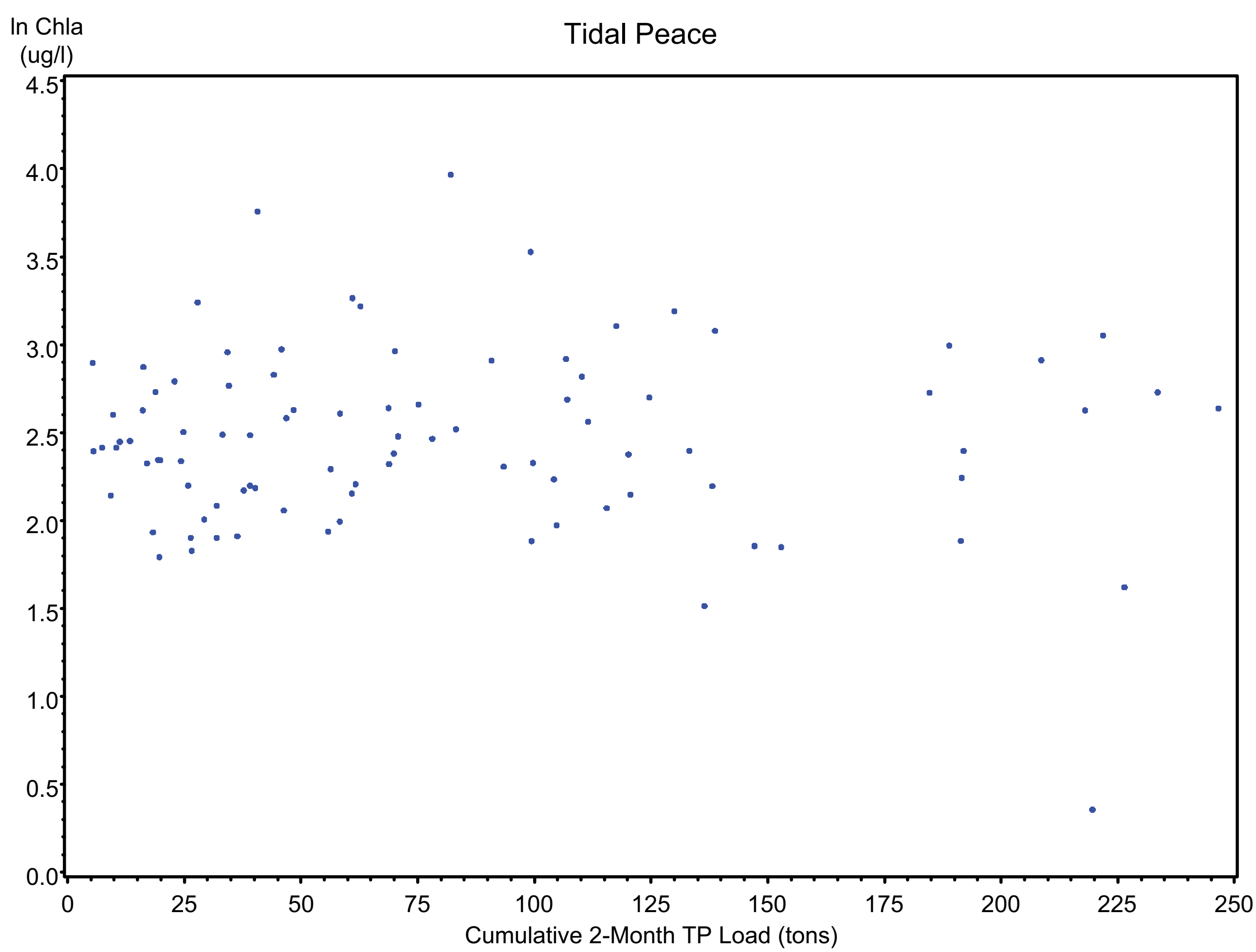

Chla
(ug/l)
Tidal Peace
55
50
45
40
35
30
25
20
15
10
5
0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
ln Monthly TP Load (tons)


Tidal Peace
Chla
(ug/l)
55
50
45
40
35
30
25
20
15
10
5
0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
ln Cumulative 2-Month TP Load (tons)

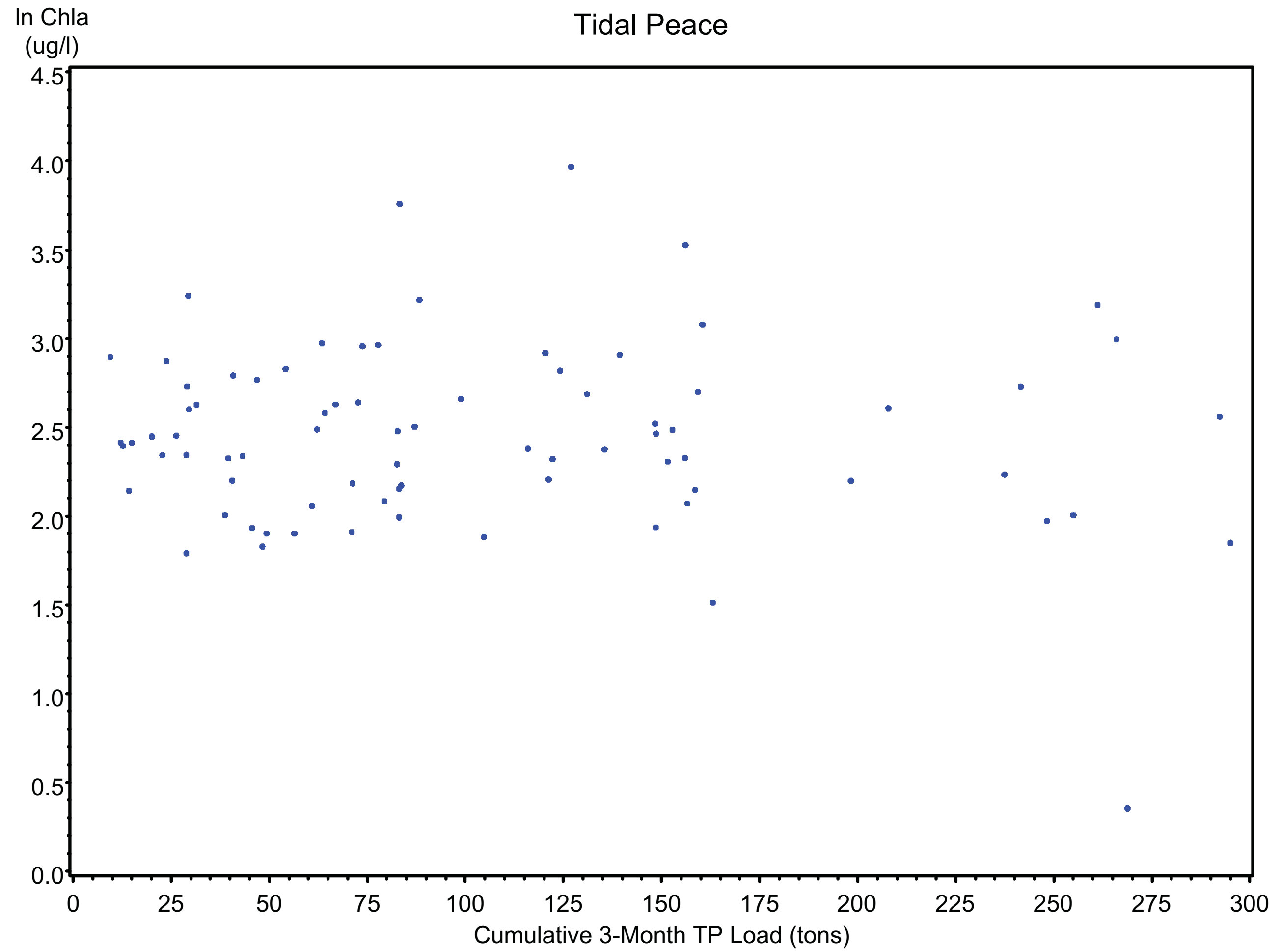

Tidal Peace
Chla
(ug/l)
55
50
45
40
35
30
25
20
15
10
5
0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
ln Cumulative 3-Month TP Load (tons)

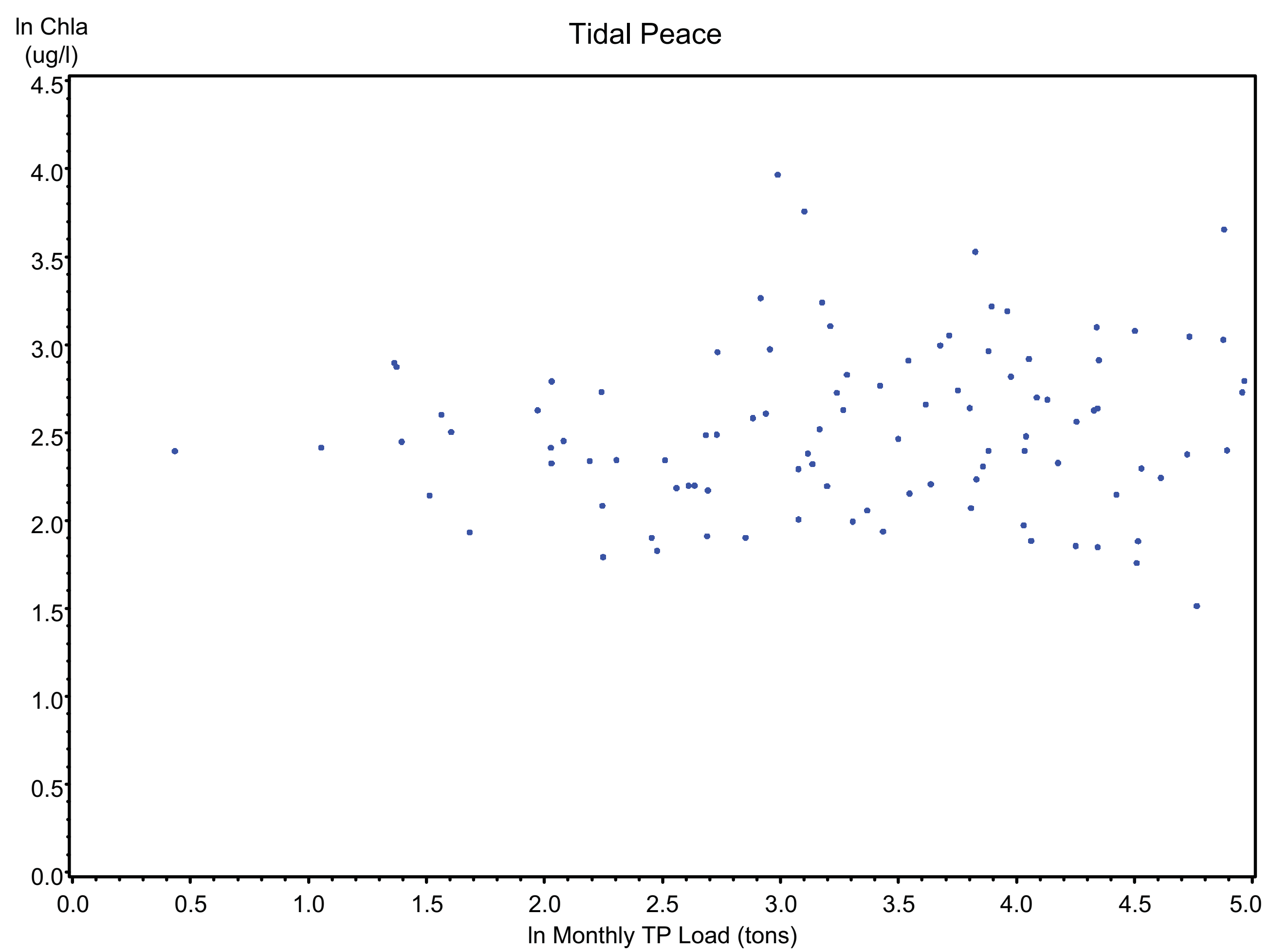


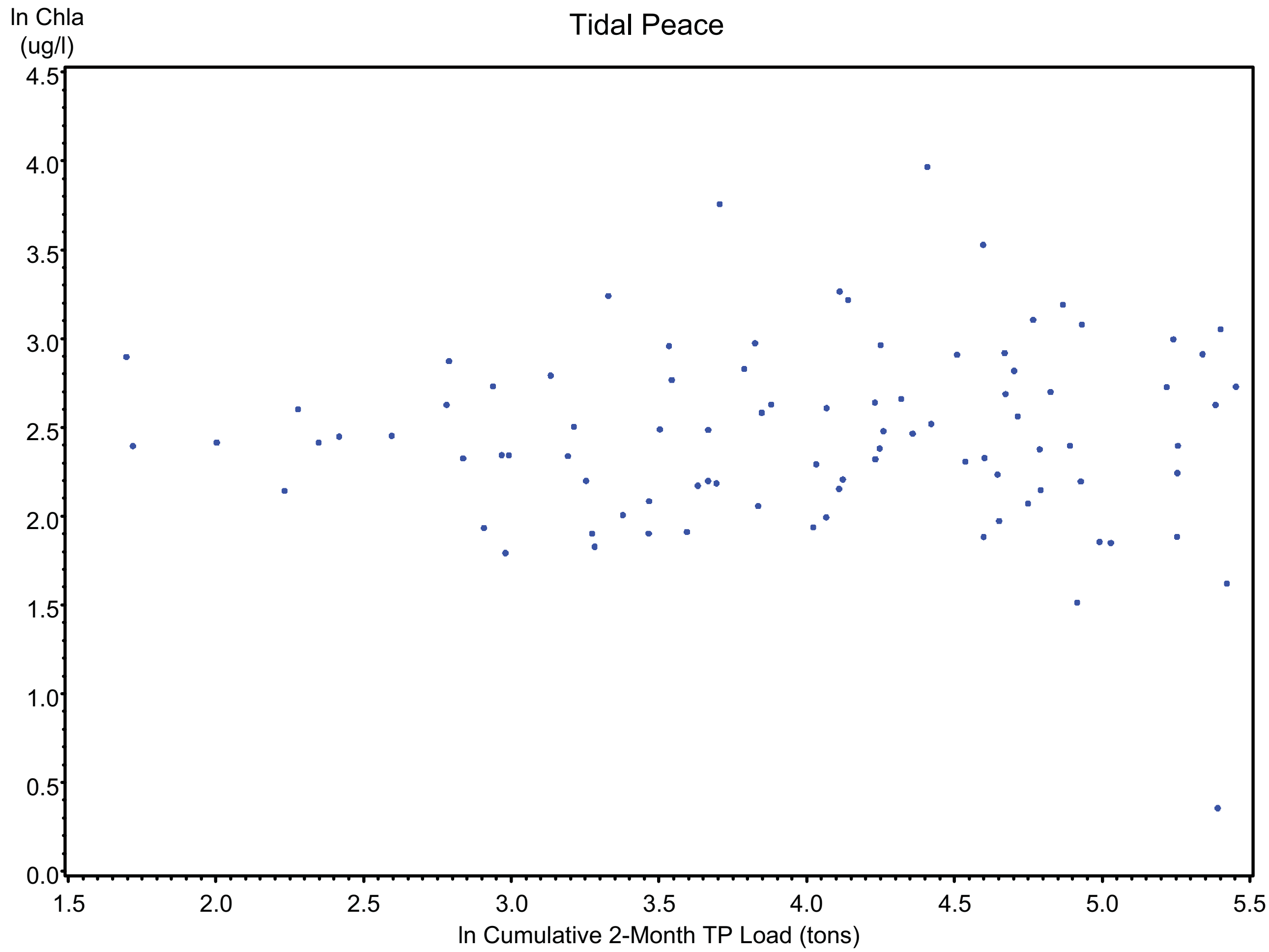
Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
Monthly TP Load (tons)

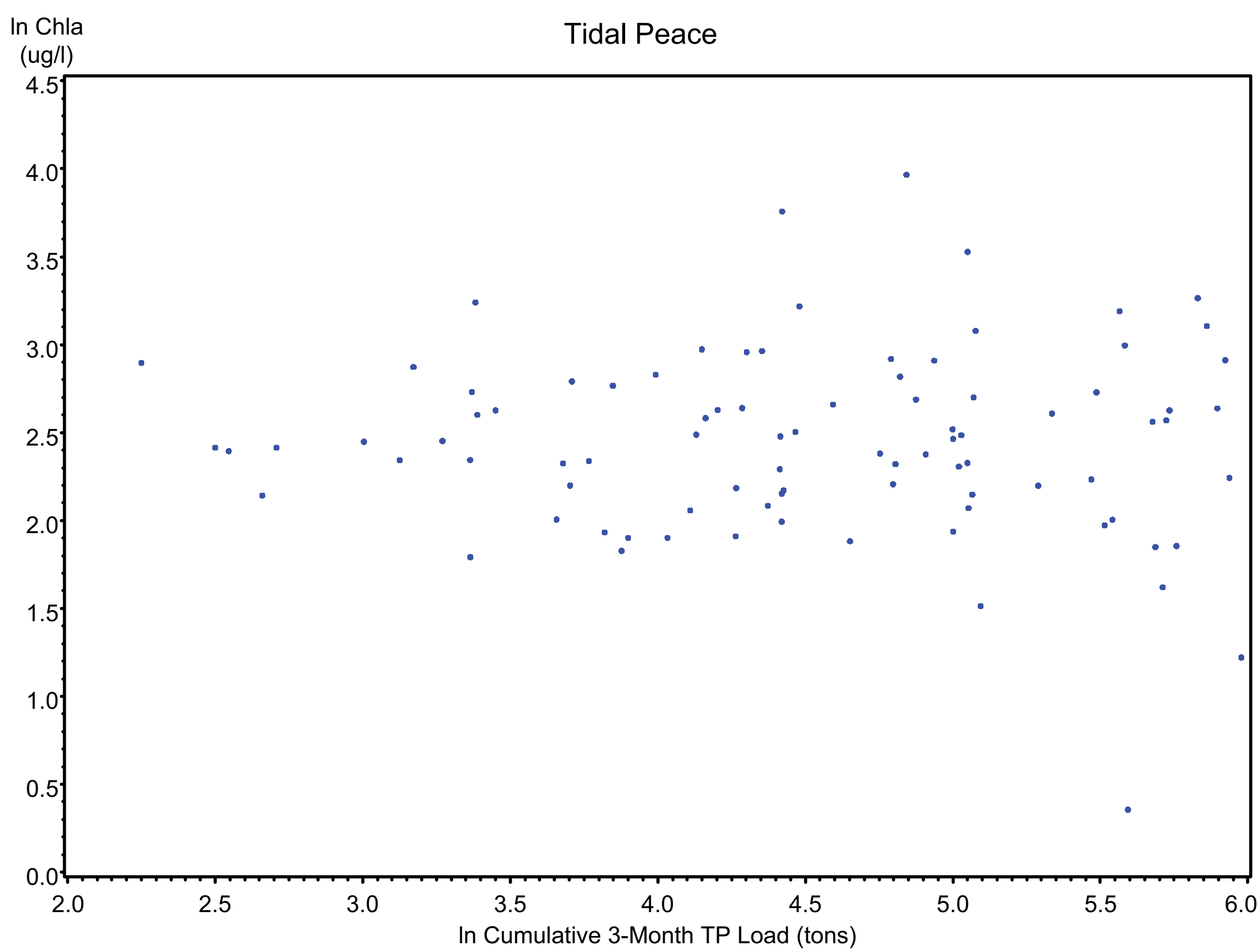


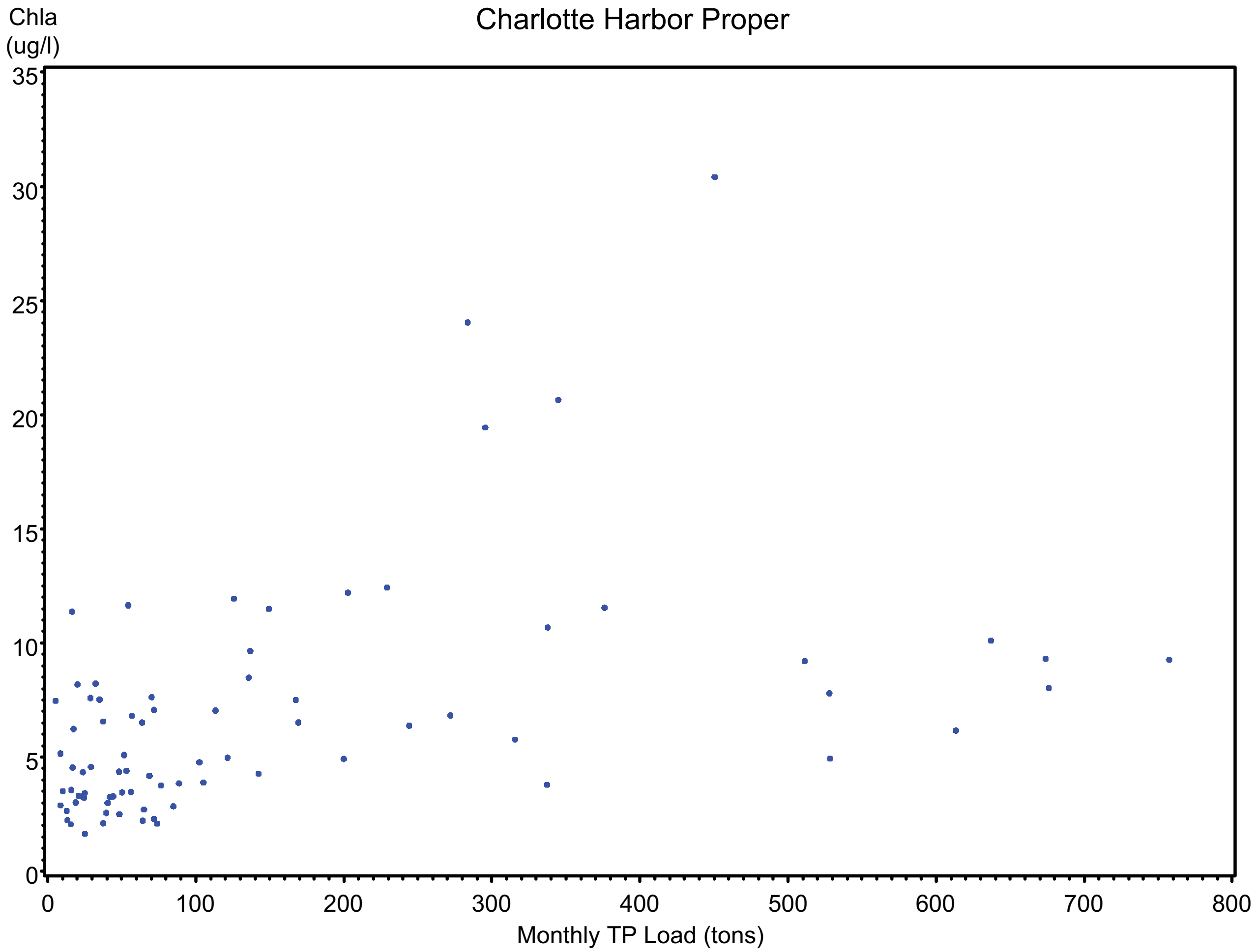
Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
Cumulative 2-Month TP Load (tons)

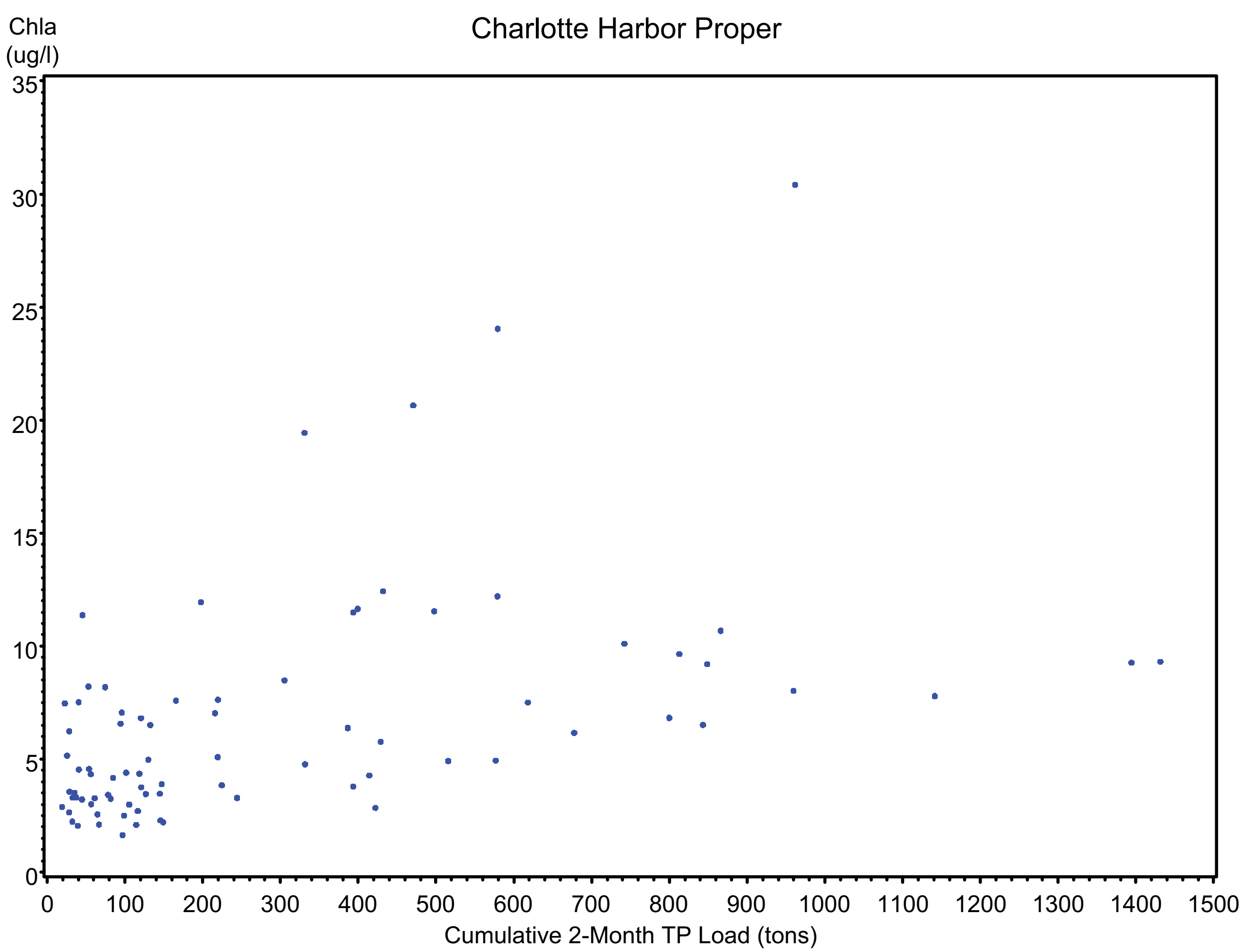

Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
275
300
Cumulative 3-Month TP Load (tons)

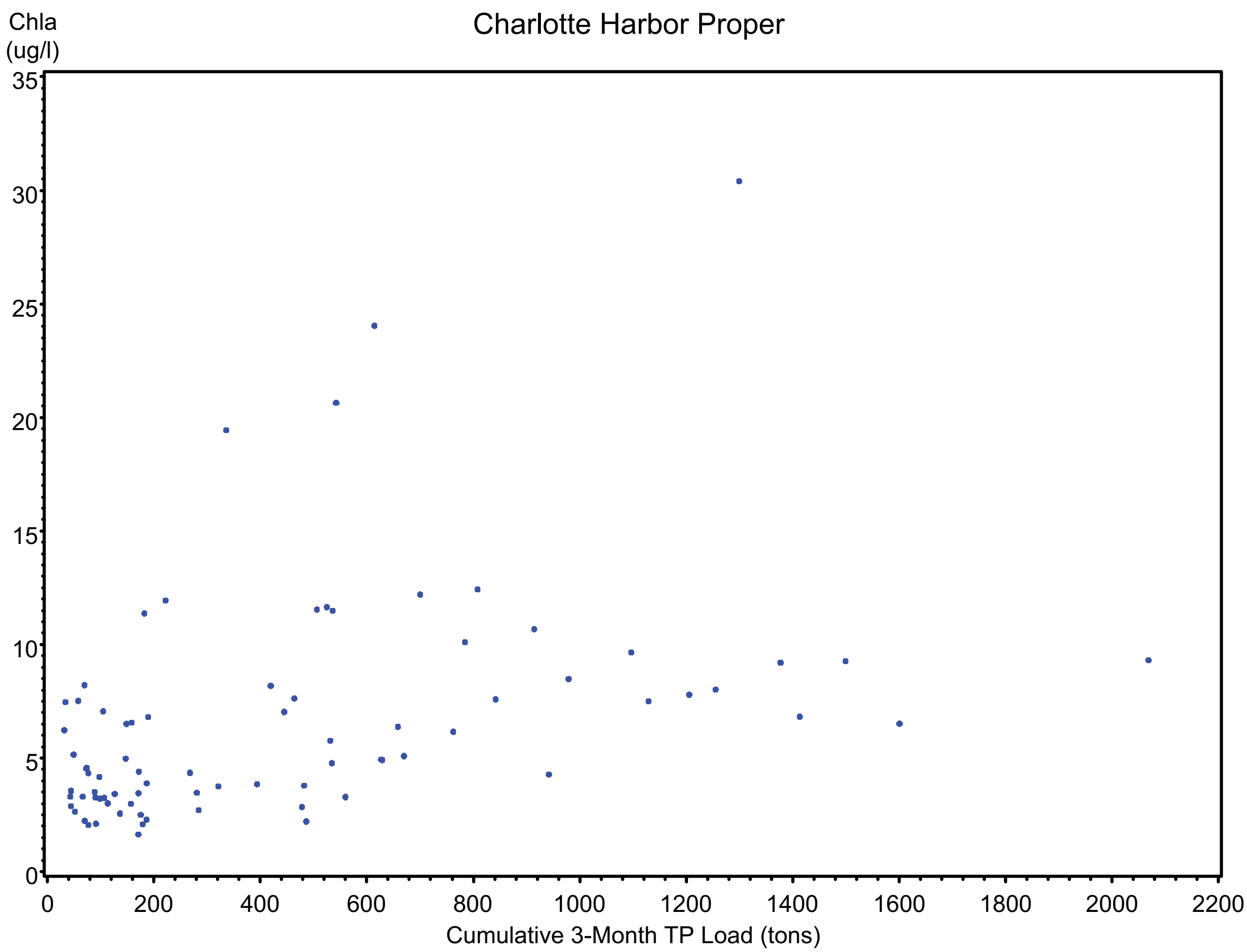

Tidal Peace
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TP Load (tons)

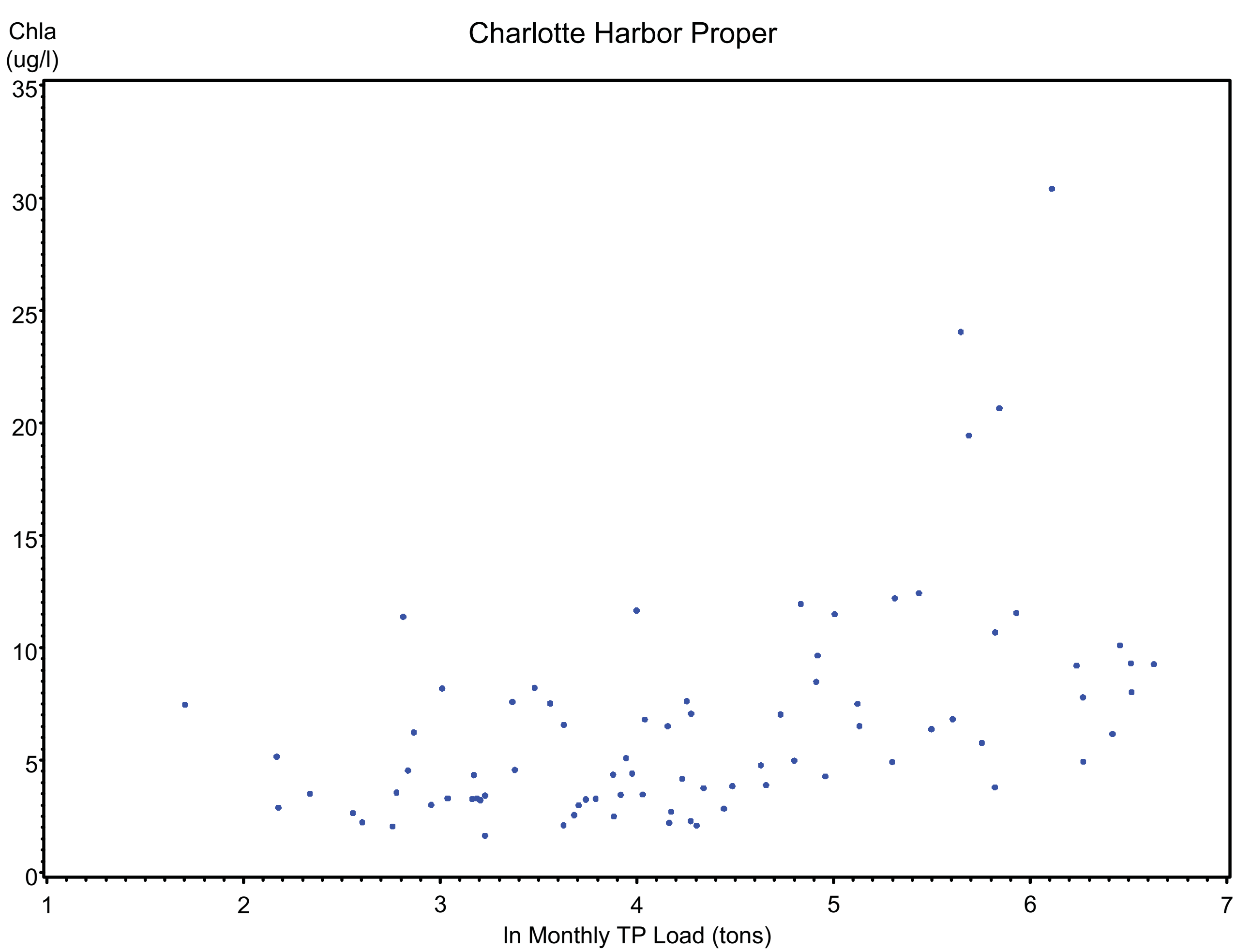

Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TP Load (tons)

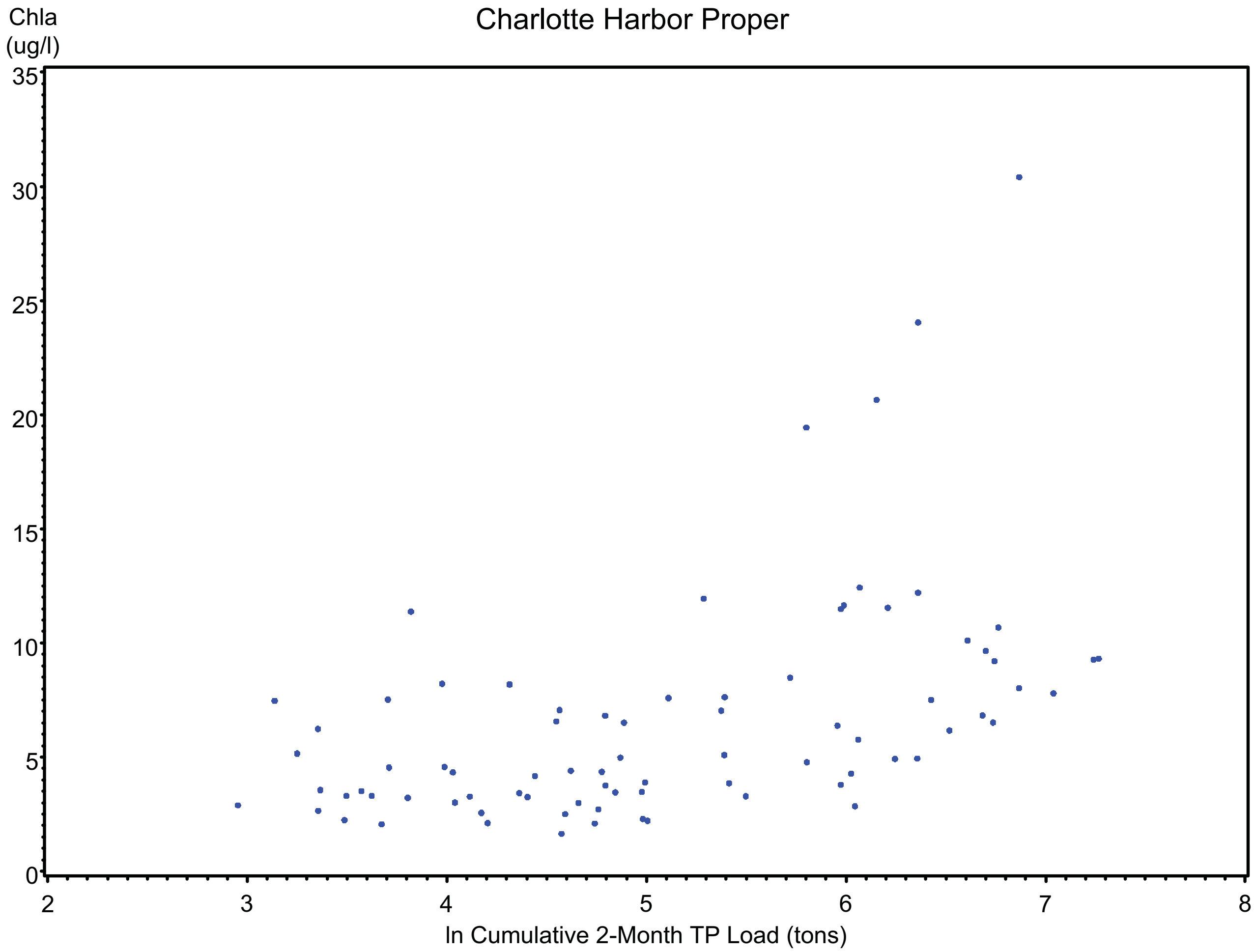

Tidal Peace
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TP Load (tons)

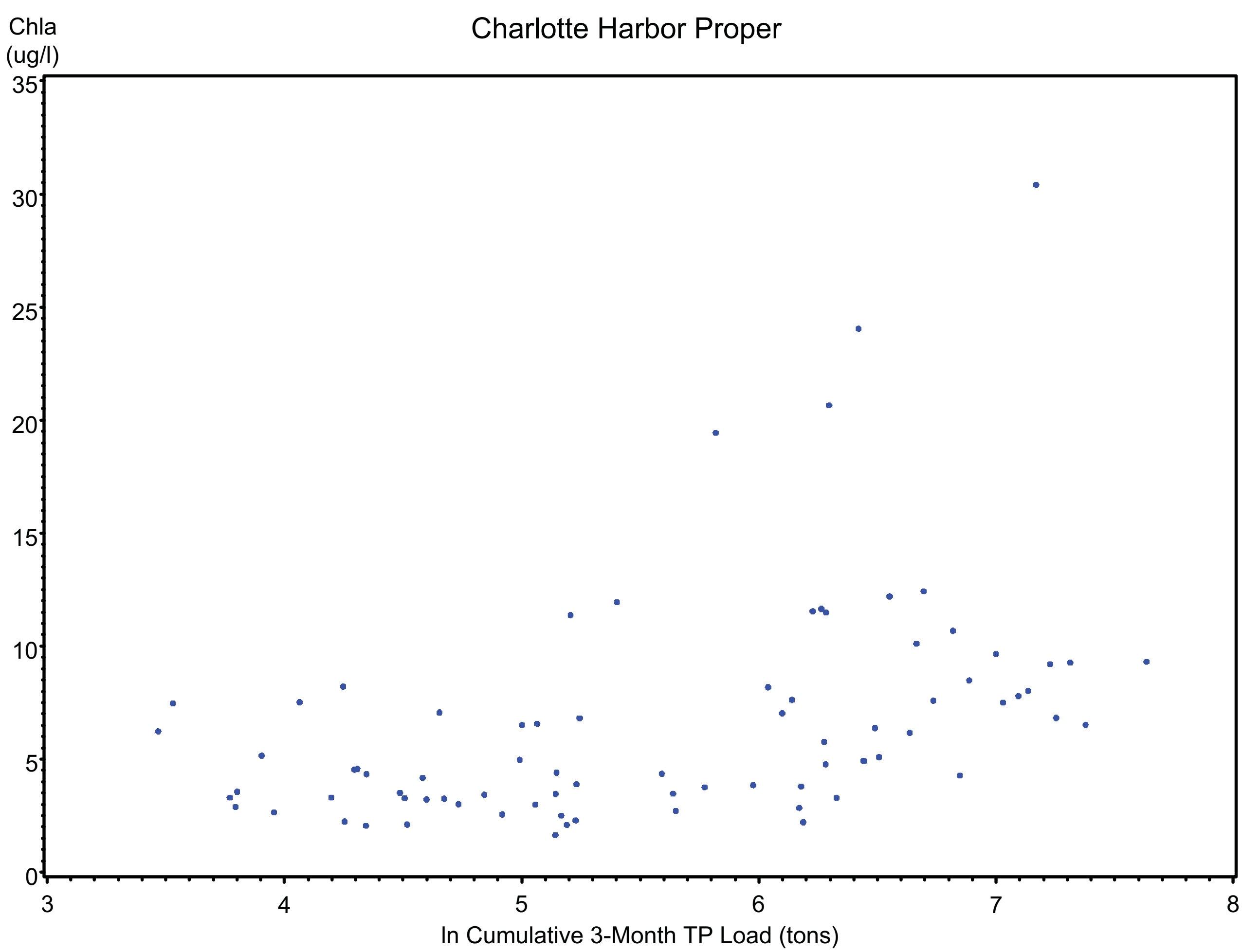

Charlotte Harbor Proper
Chla (ug/l)
0 5 10 15 20 25 30 35
0 100 200 300 400 500 600 700 800
Monthly TP Load (tons)

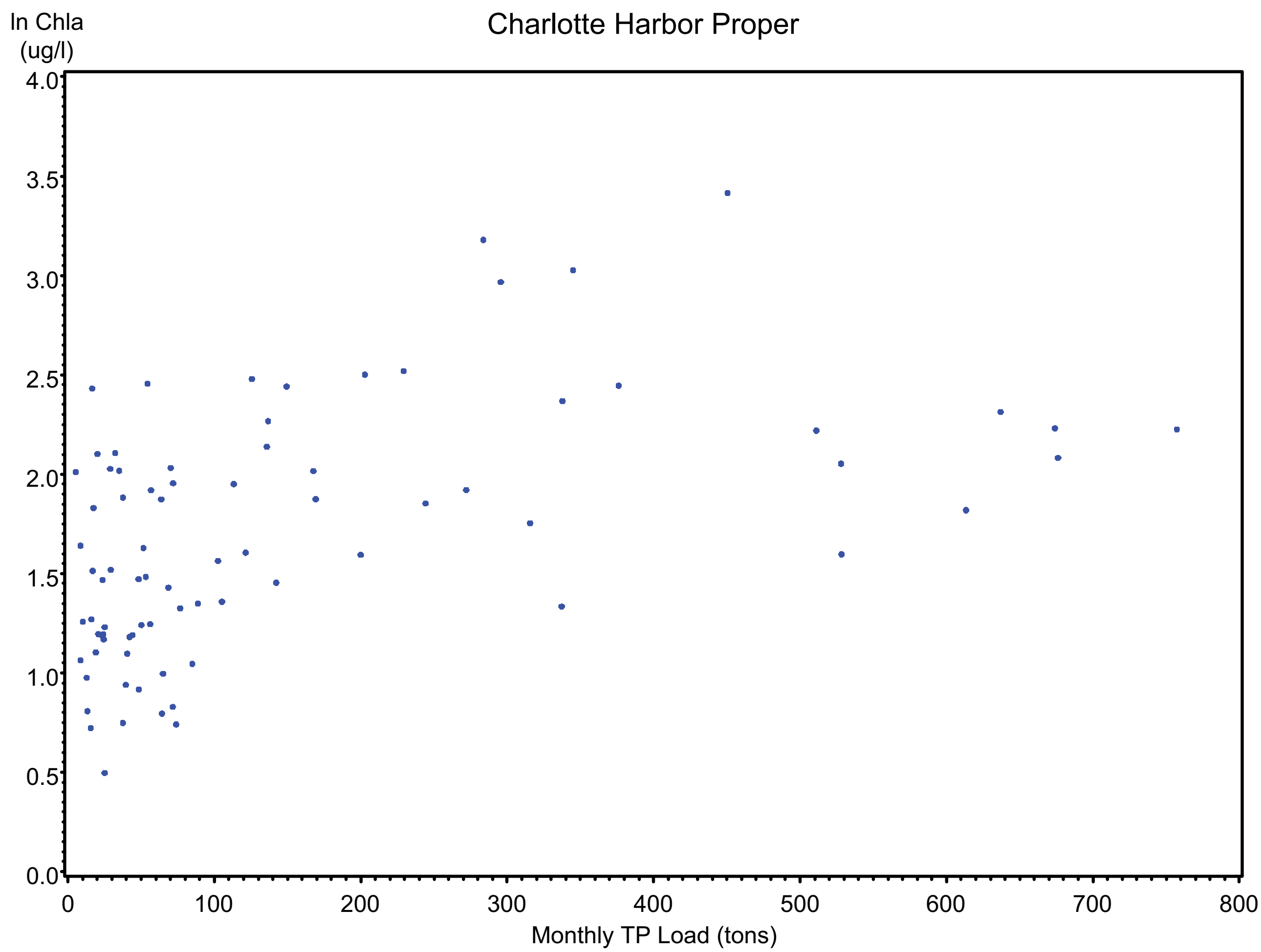

Charlotte Harbor Proper
Chla (ug/l)
0 5 10 15 20 25 30 35
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500
Cumulative 2-Month TP Load (tons)

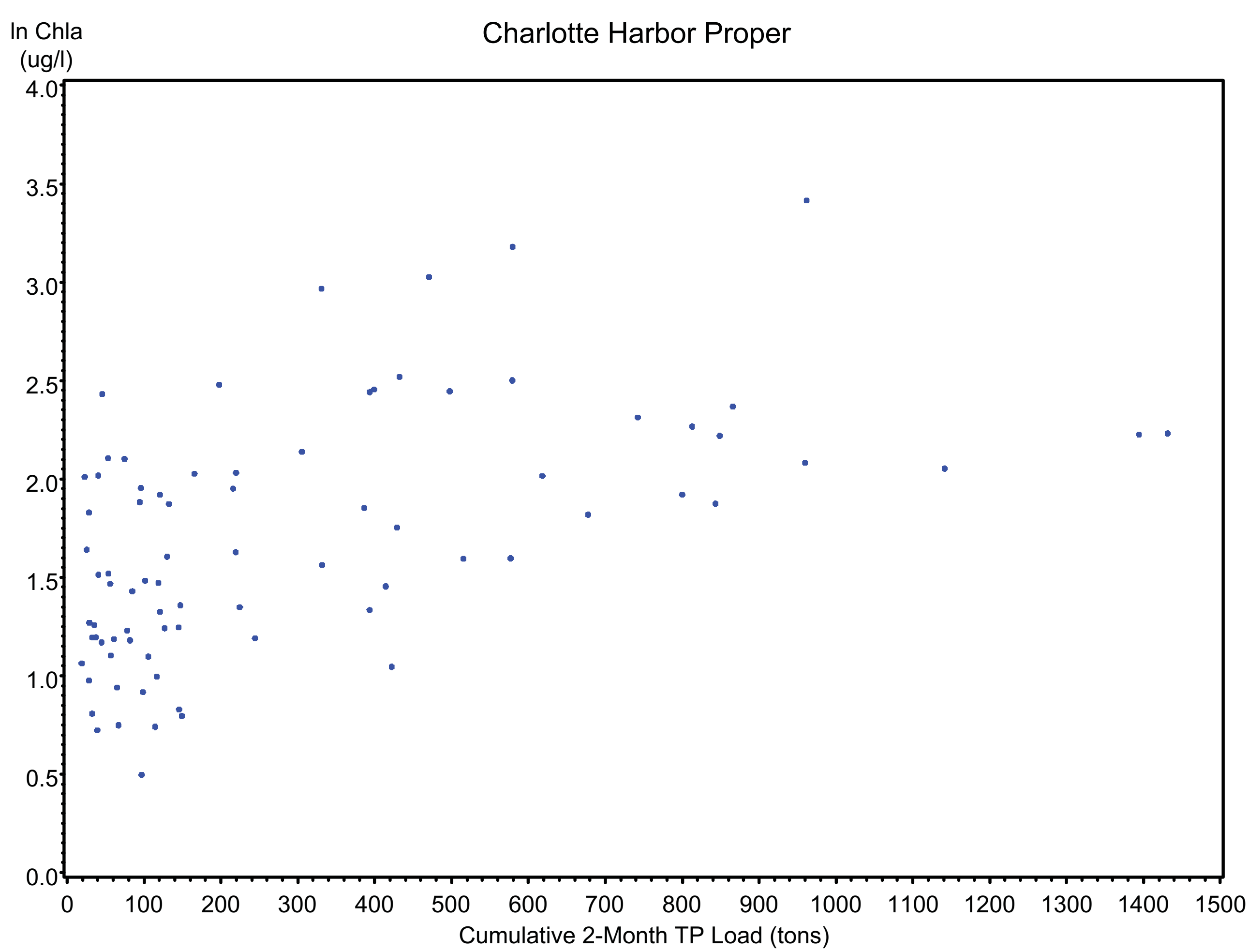

Chla
(ug/l)
Charlotte Harbor Proper
0
5
10
15
20
25
30
35
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
Cumulative 3-Month TP Load (tons)

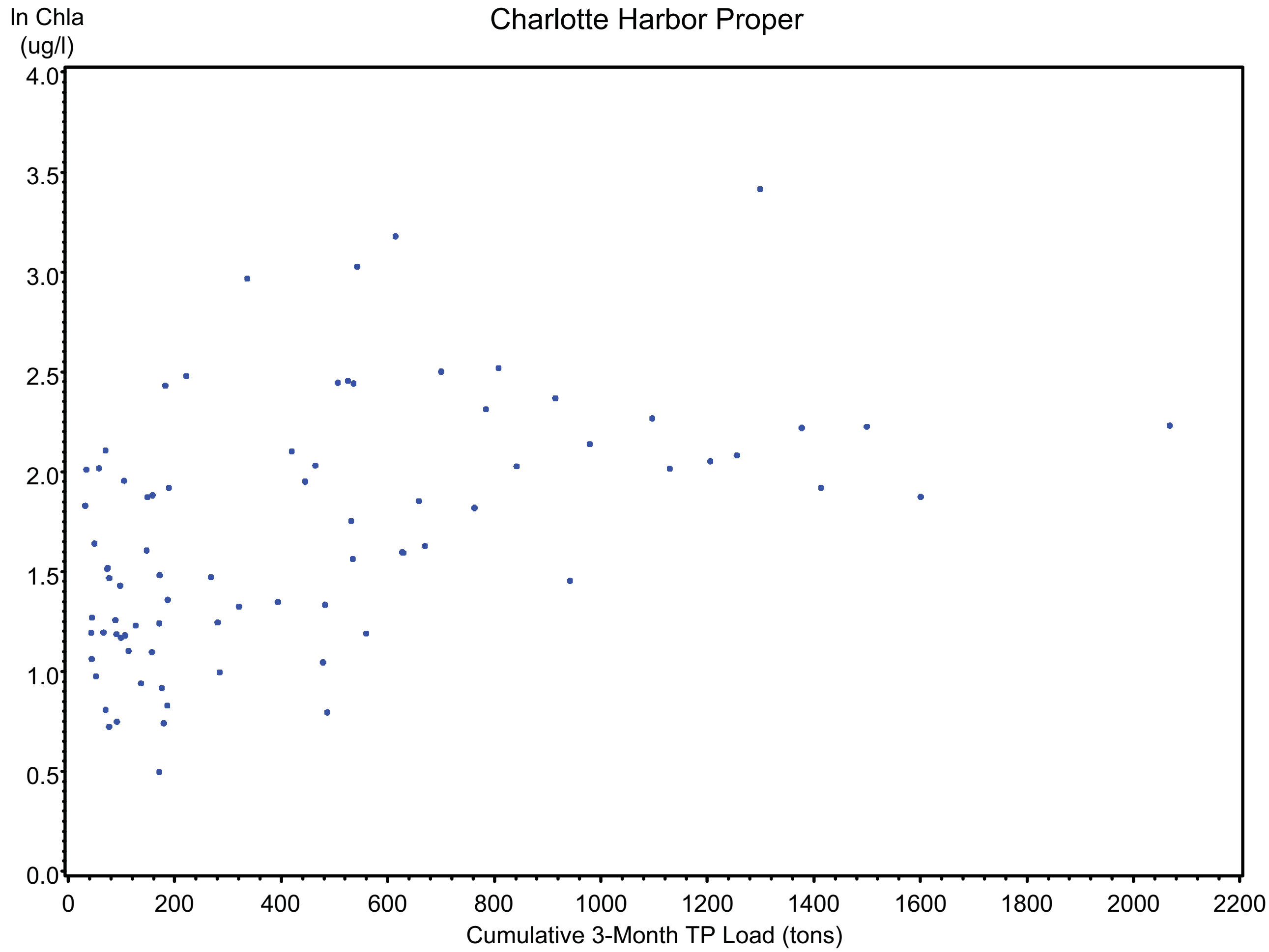

Chla
(ug/l)
Charlotte Harbor Proper
0
5
10
15
20
25
30
35
1
2
3
4
5
6
7
ln Monthly TP Load (tons)

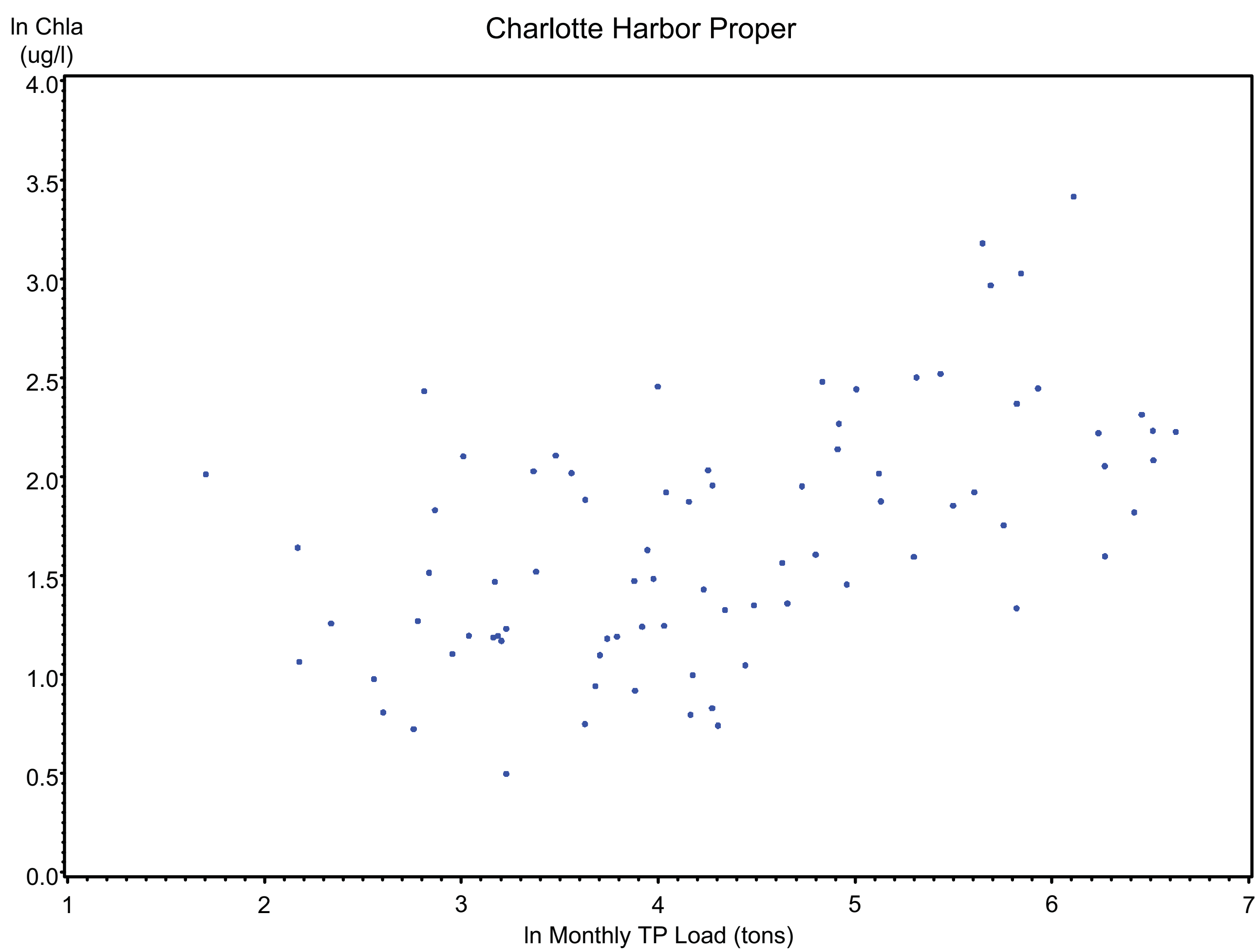

Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)

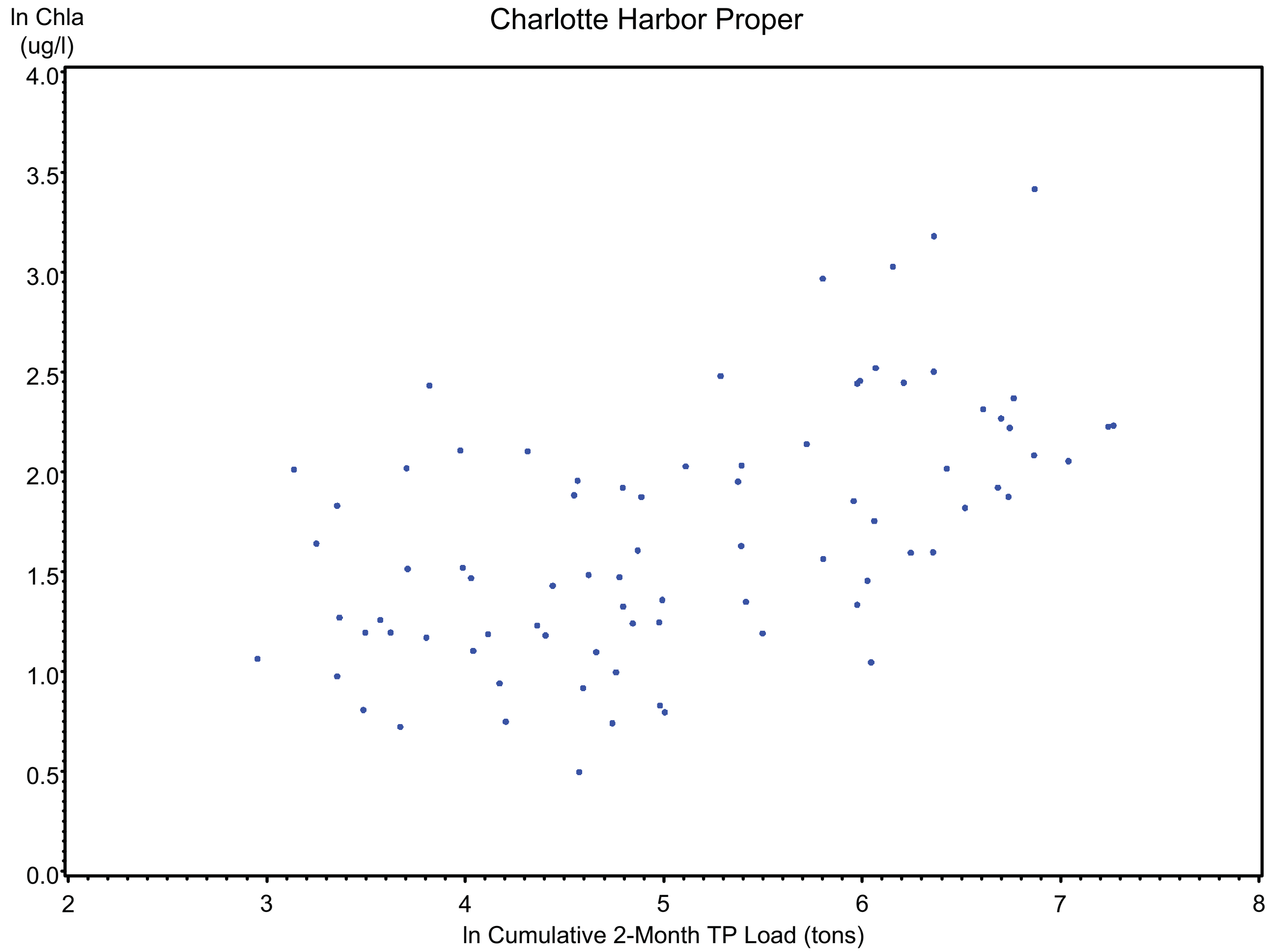

Charlotte Harbor Proper
Chla
(ug/l)
0
5
10
15
20
25
30
35
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)

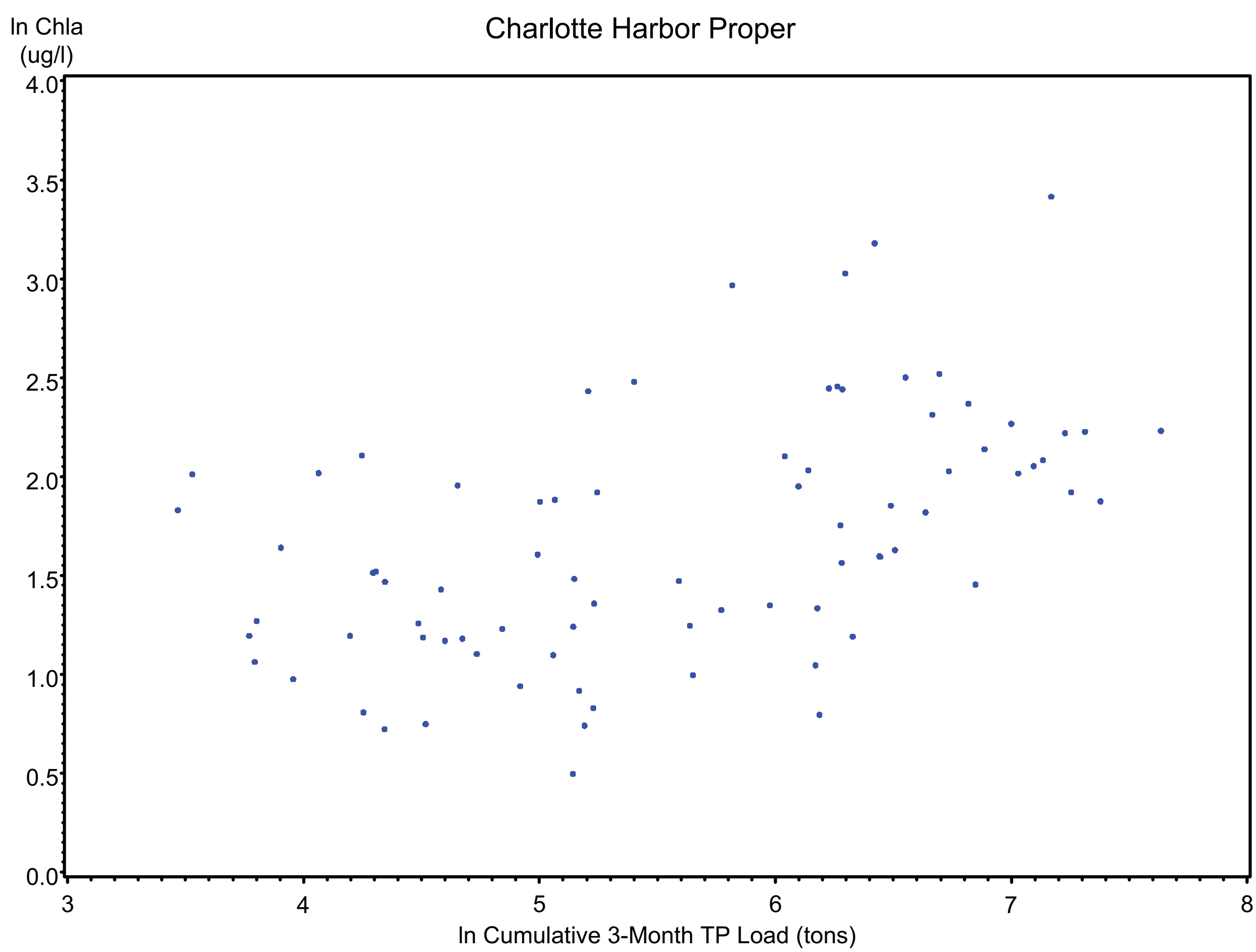

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
100
200
300
400
500
600
700
800
Monthly TP Load (tons)

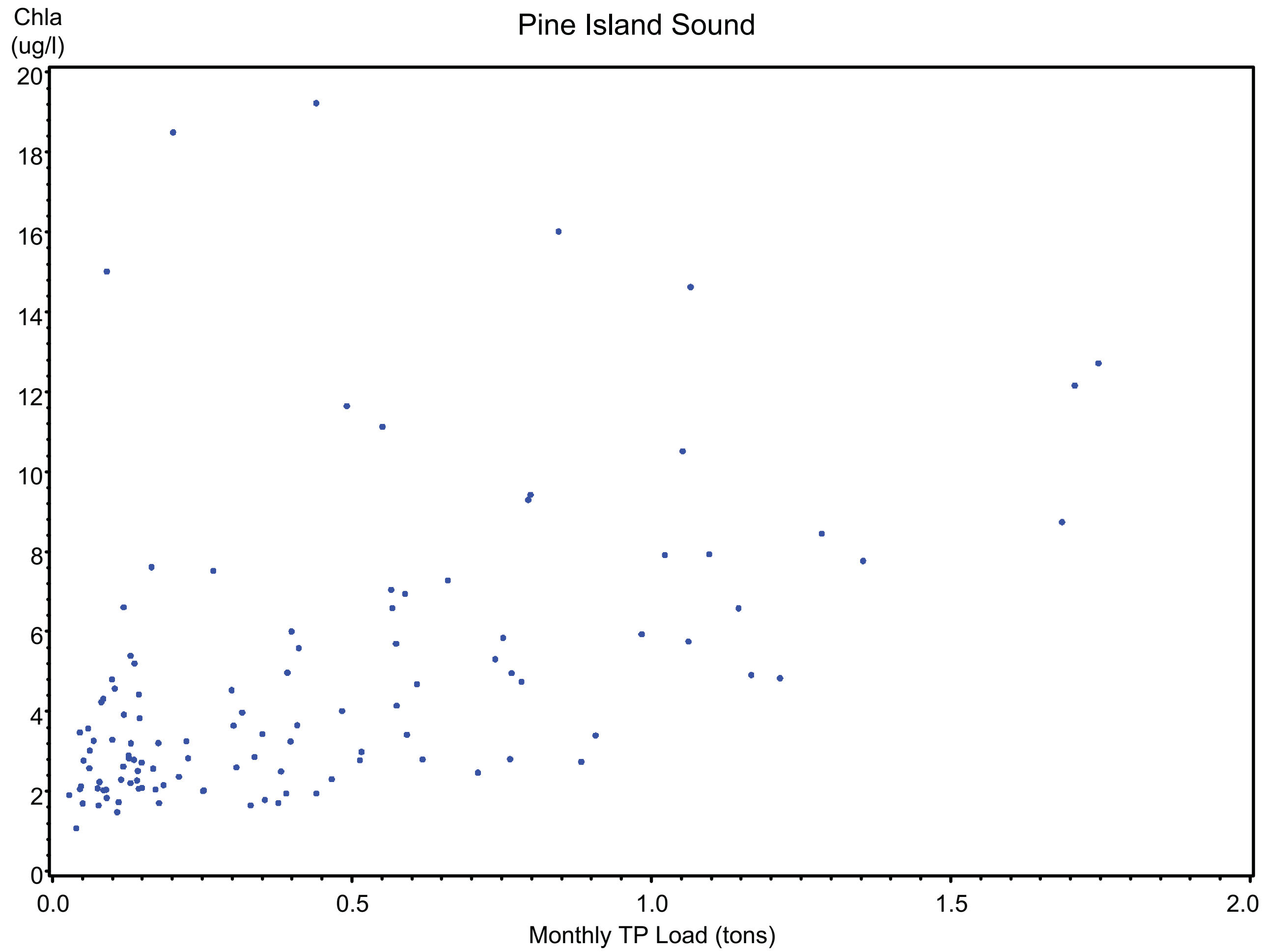

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
Cumulative 2-Month TP Load (tons)

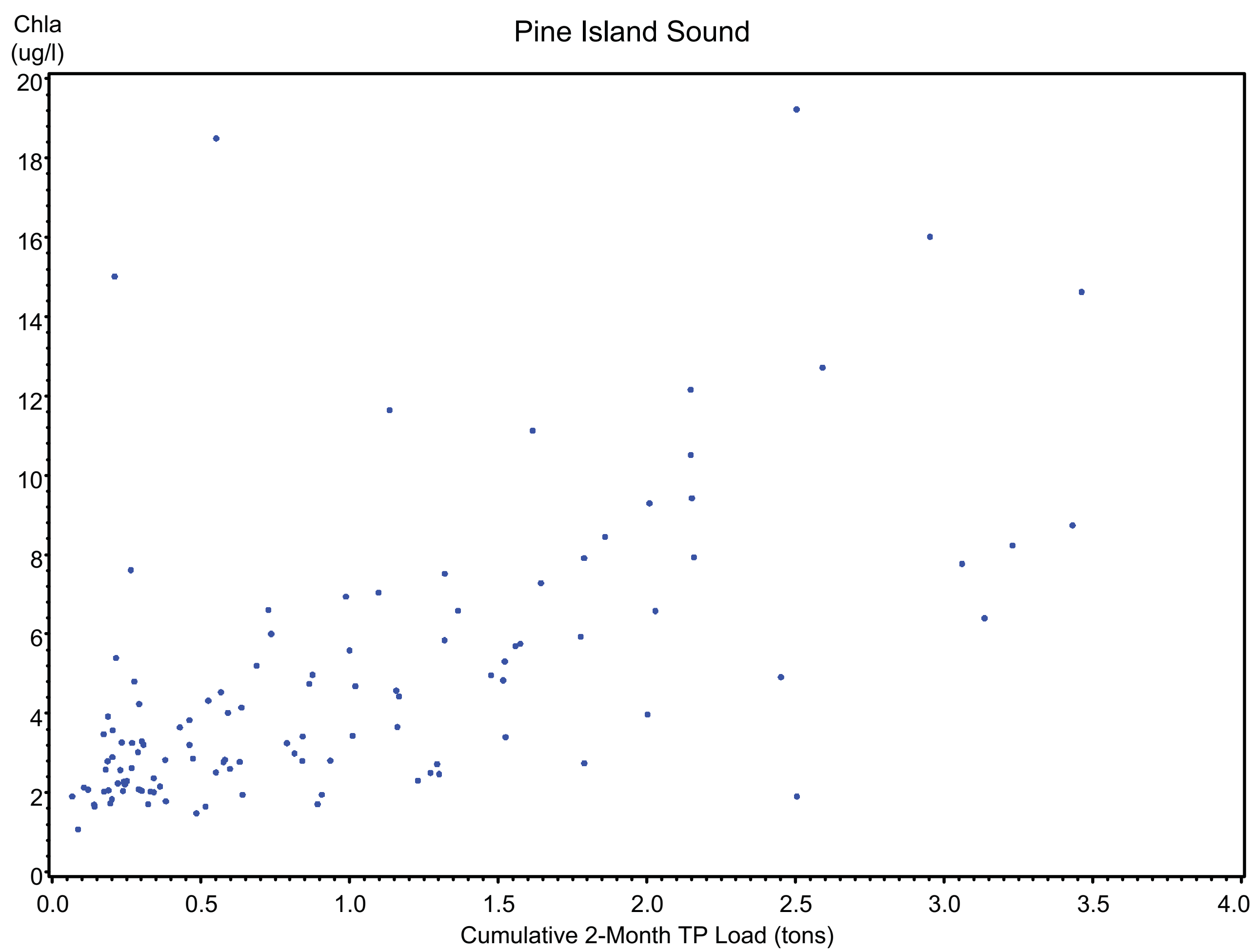

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
Cumulative 3-Month TP Load (tons)

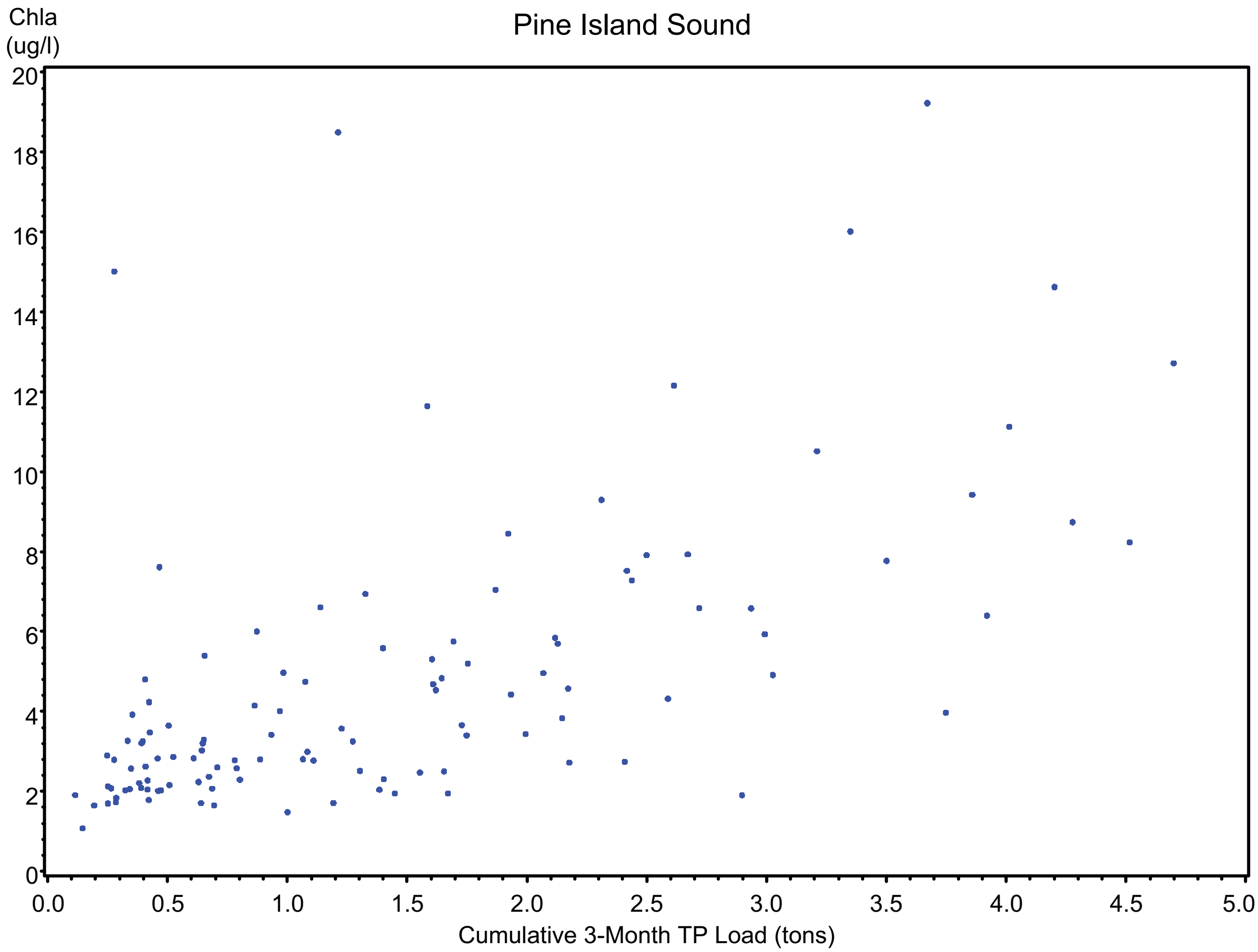

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1
2
3
4
5
6
7
ln Monthly TP Load (tons)

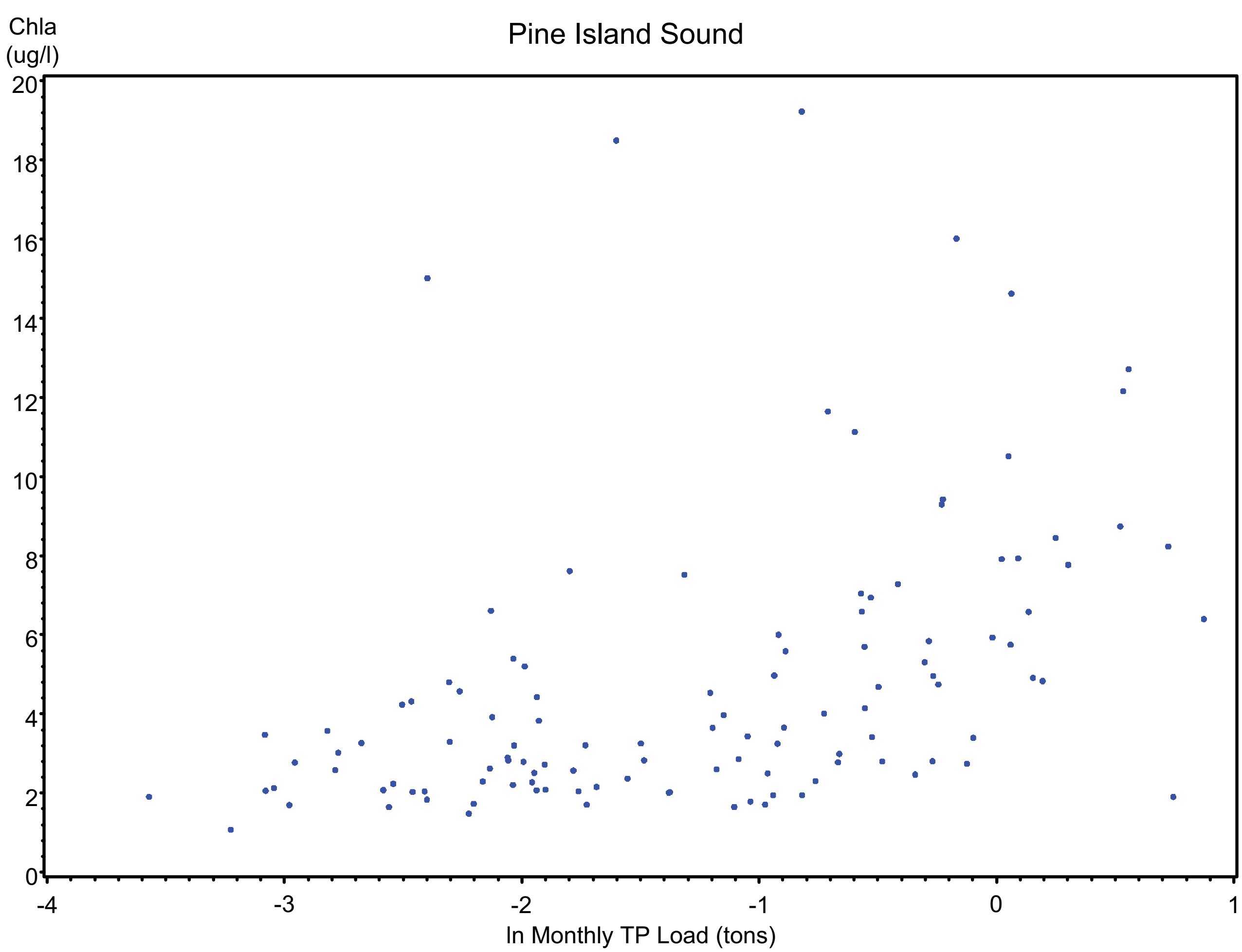

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2
3
4
5
6
7
8
ln Cumulative 2-Month TP Load (tons)

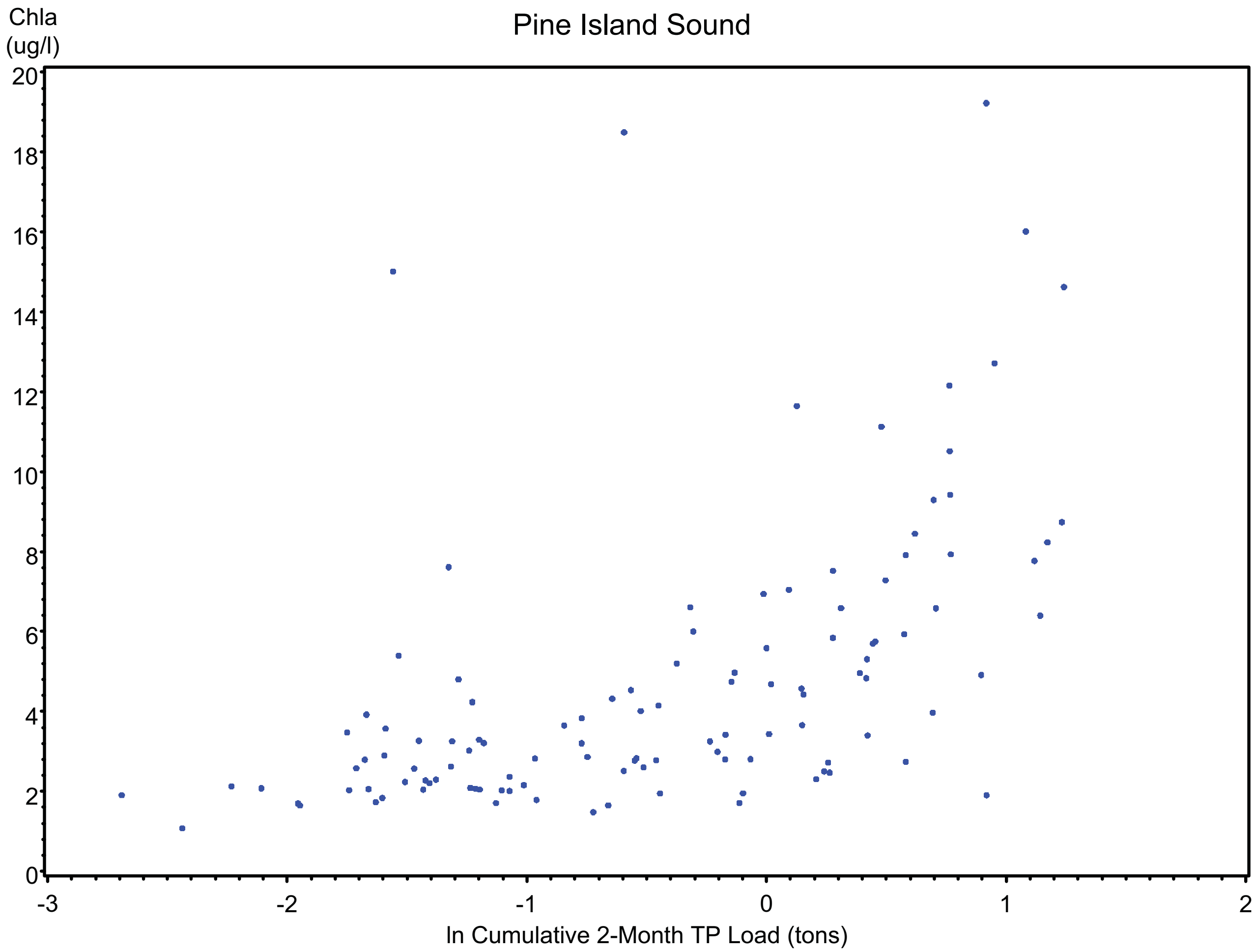

Charlotte Harbor Proper
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3
4
5
6
7
8
ln Cumulative 3-Month TP Load (tons)


Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.5
1.0
1.5
2.0
Monthly TP Load (tons)

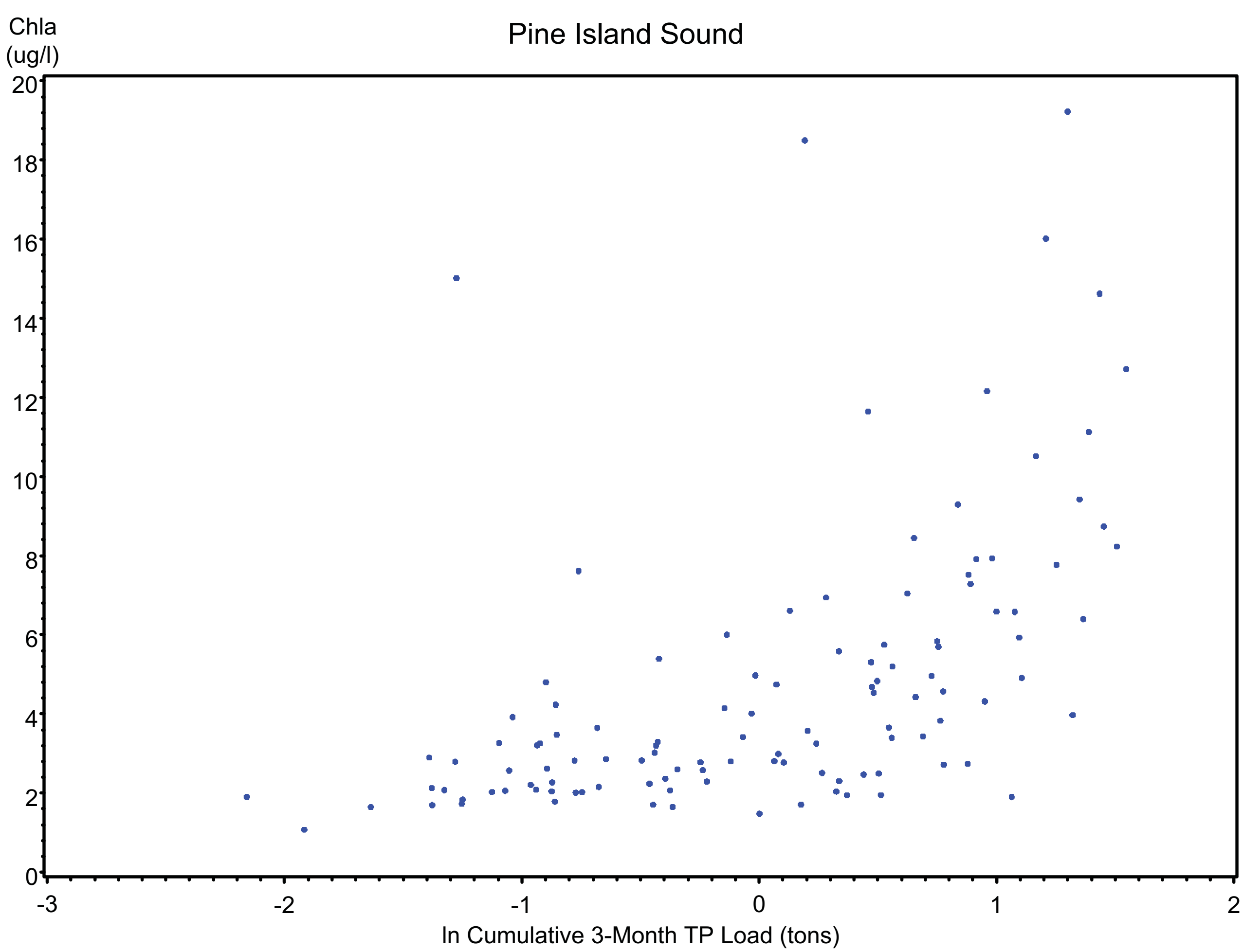

Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Cumulative 2-Month TP Load (tons)


Chla
(ug/l)
Pine Island Sound
0
2
4
6
8
10
12
14
16
18
20
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Cumulative 3-Month TP Load (tons)

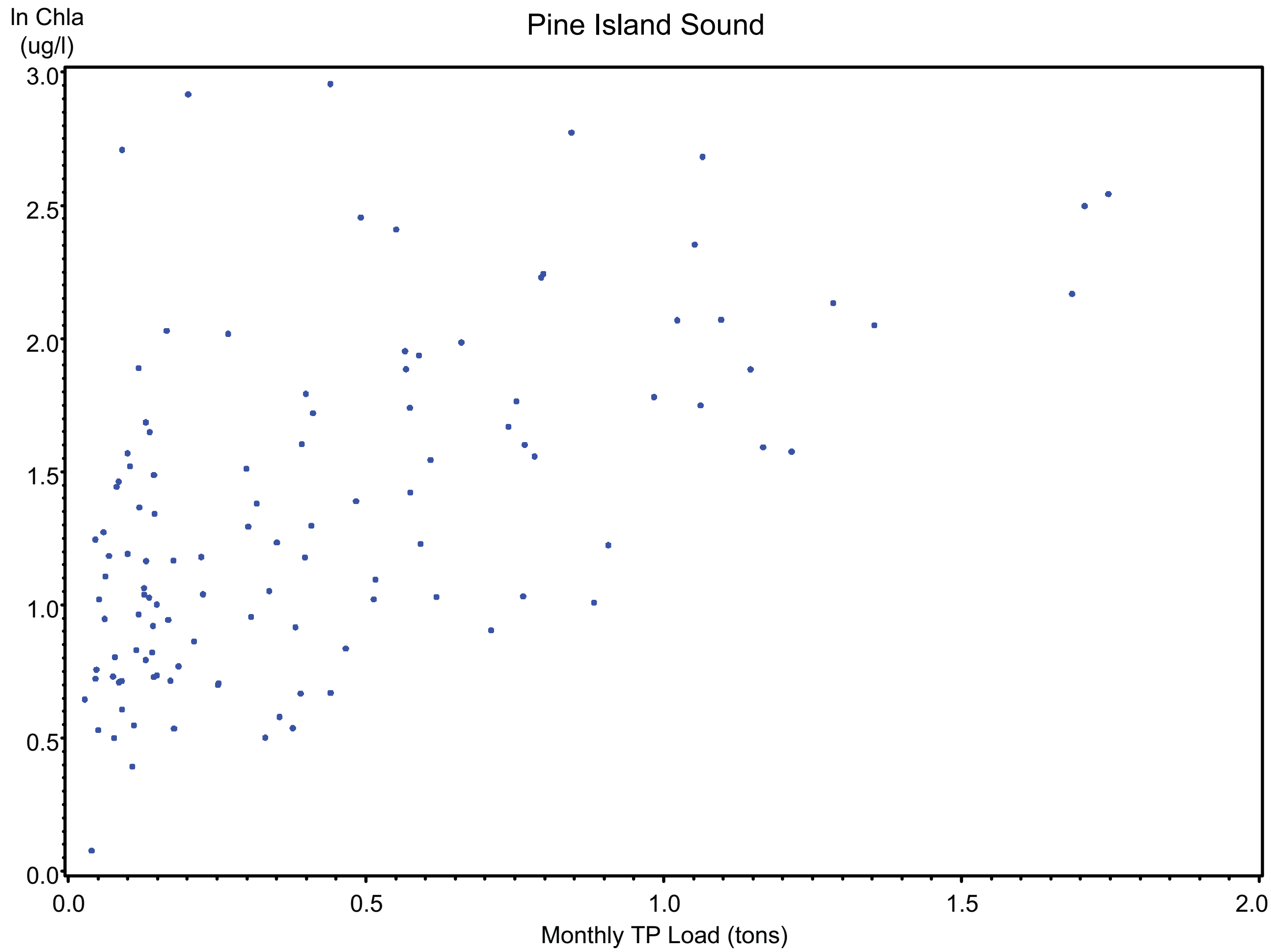

Chla
(ug/l)
Pine Island Sound
0
2
4
6
8
10
12
14
16
18
20
-4
-3
-2
-1
0
1
ln Monthly TP Load (tons)



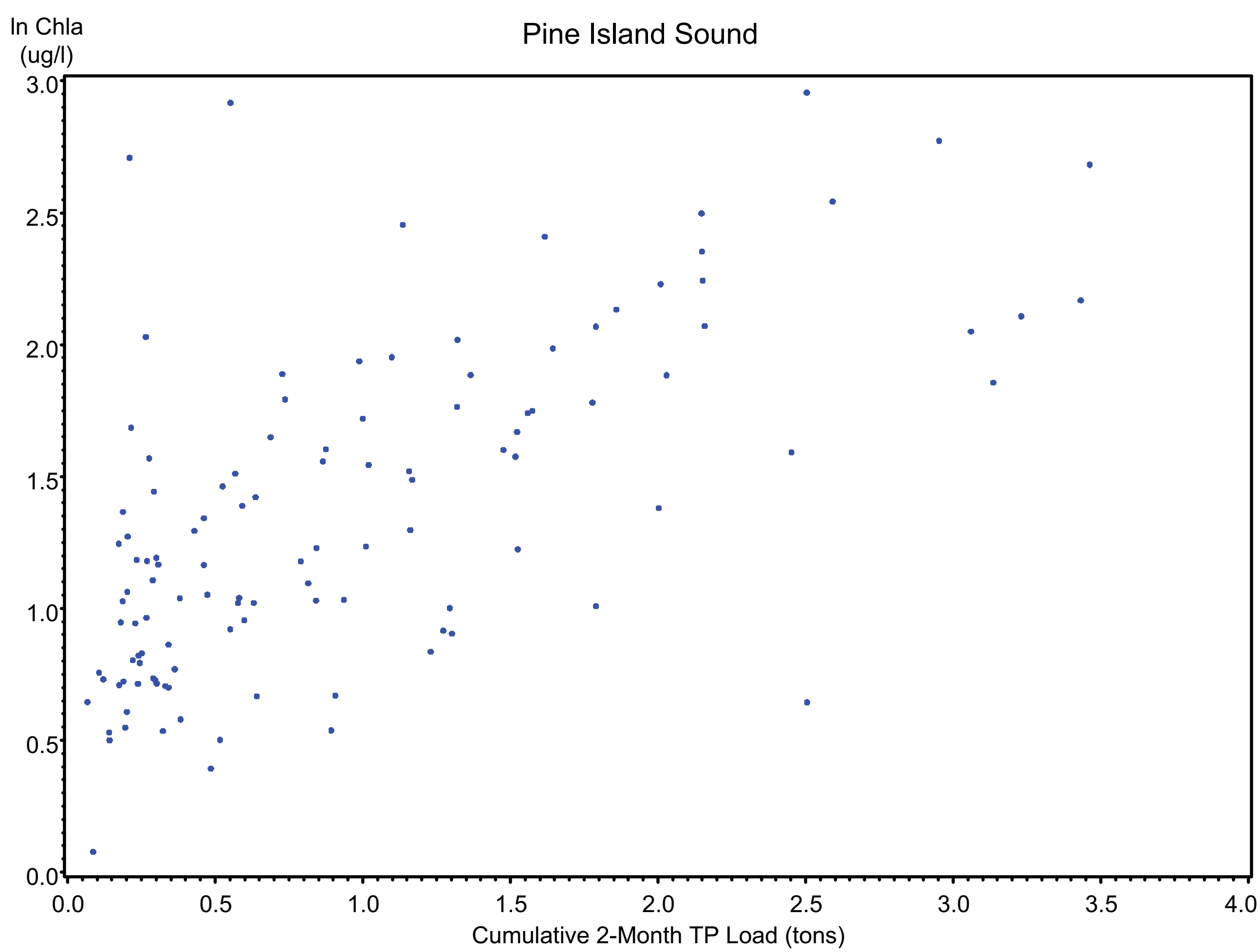
Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
-3
-2
-1
0
1
2
ln Cumulative 2-Month TP Load (tons)



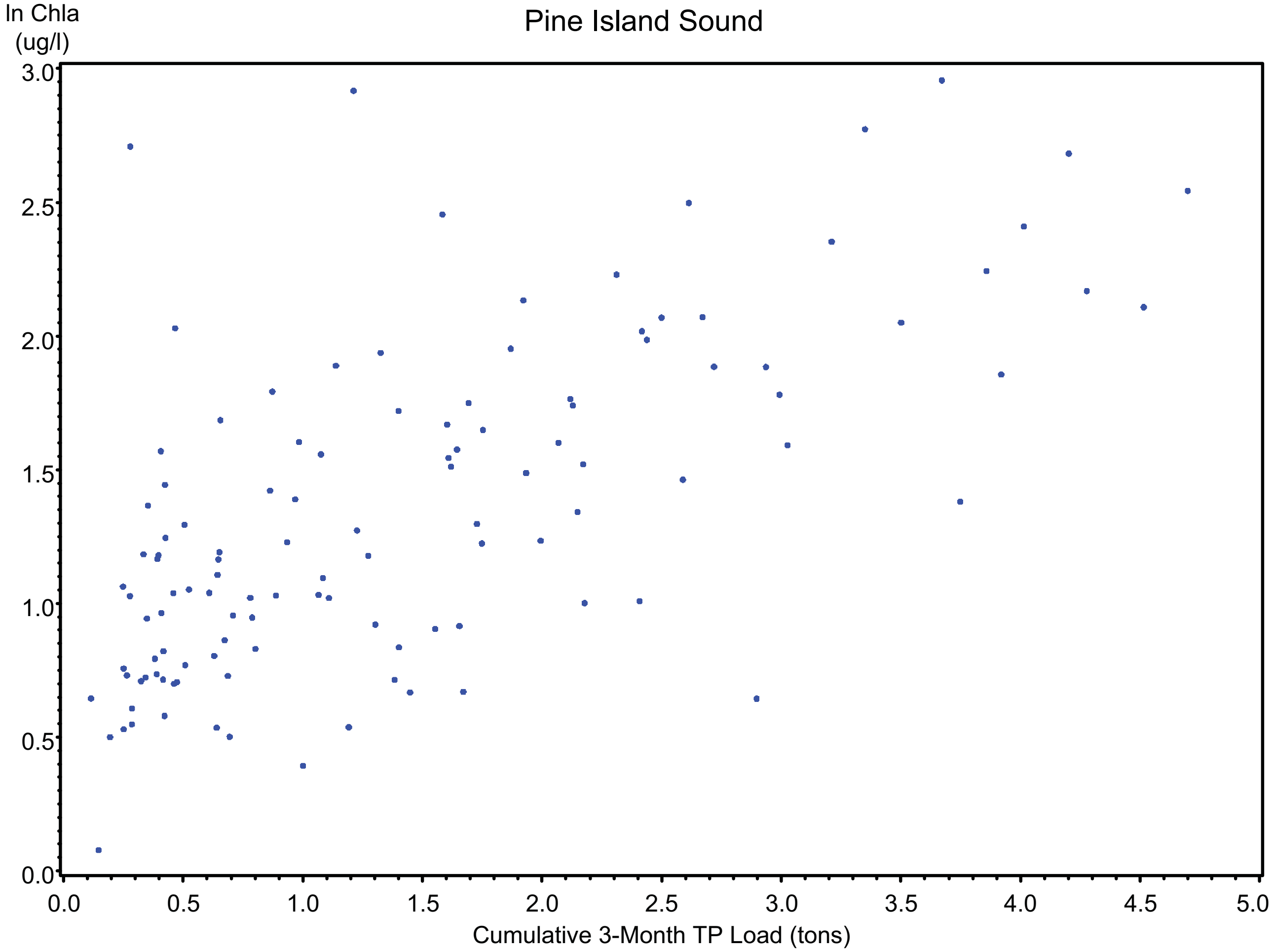
Pine Island Sound
Chla (ug/l)
0
2
4
6
8
10
12
14
16
18
20
-3
-2
-1
0
1
2
ln Cumulative 3-Month TP Load (tons)



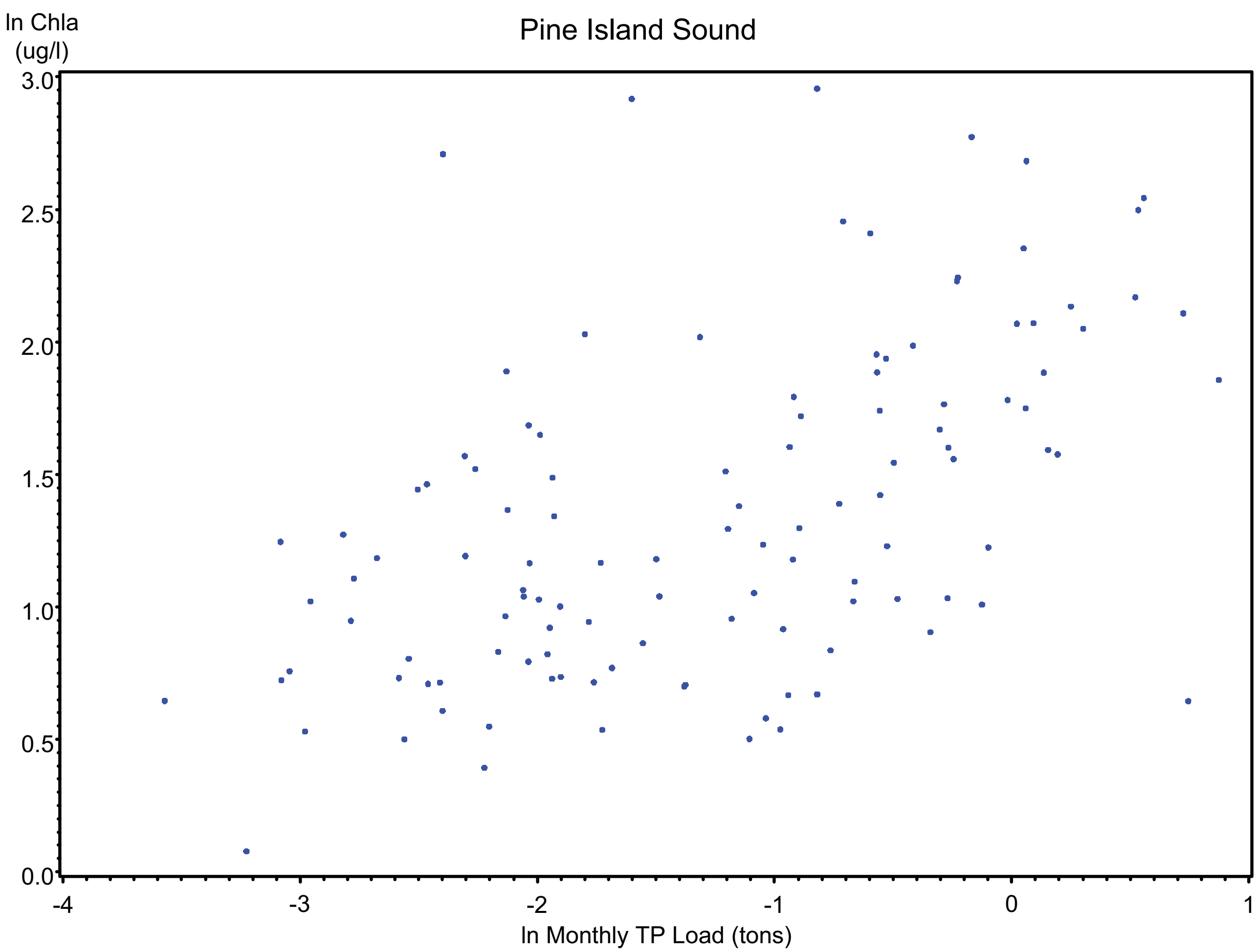
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
Monthly TP Load (tons)



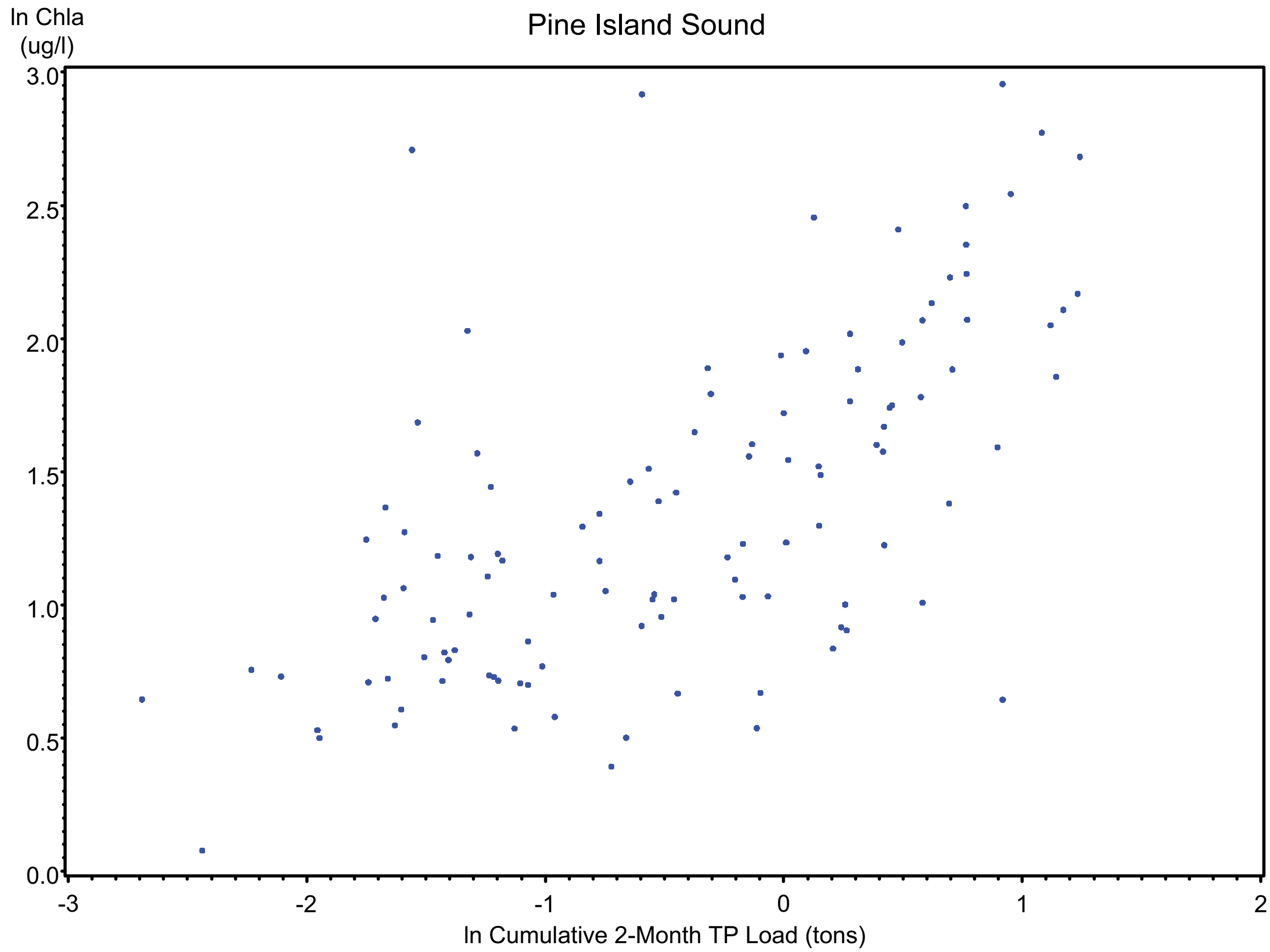
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Cumulative 2-Month TP Load (tons)

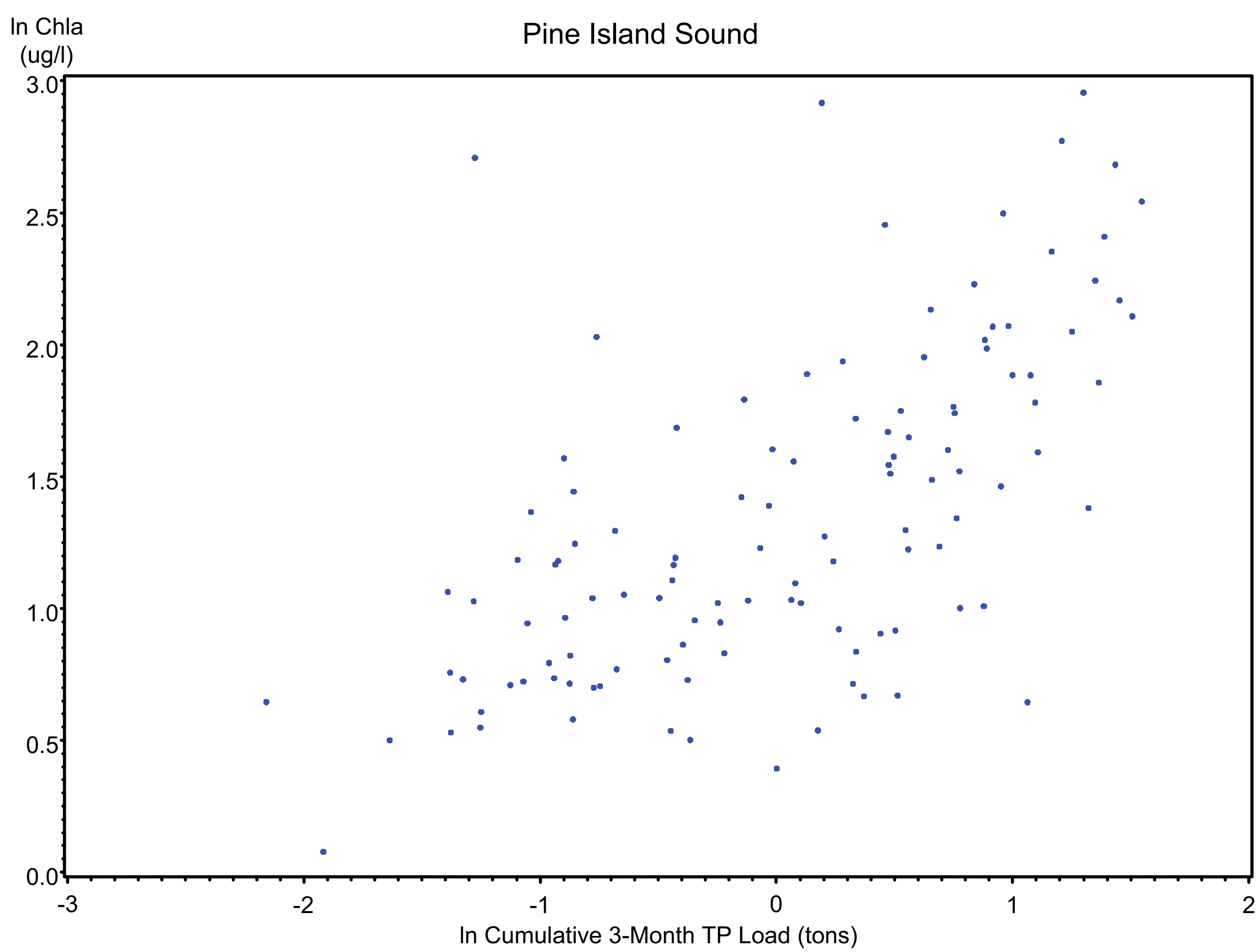


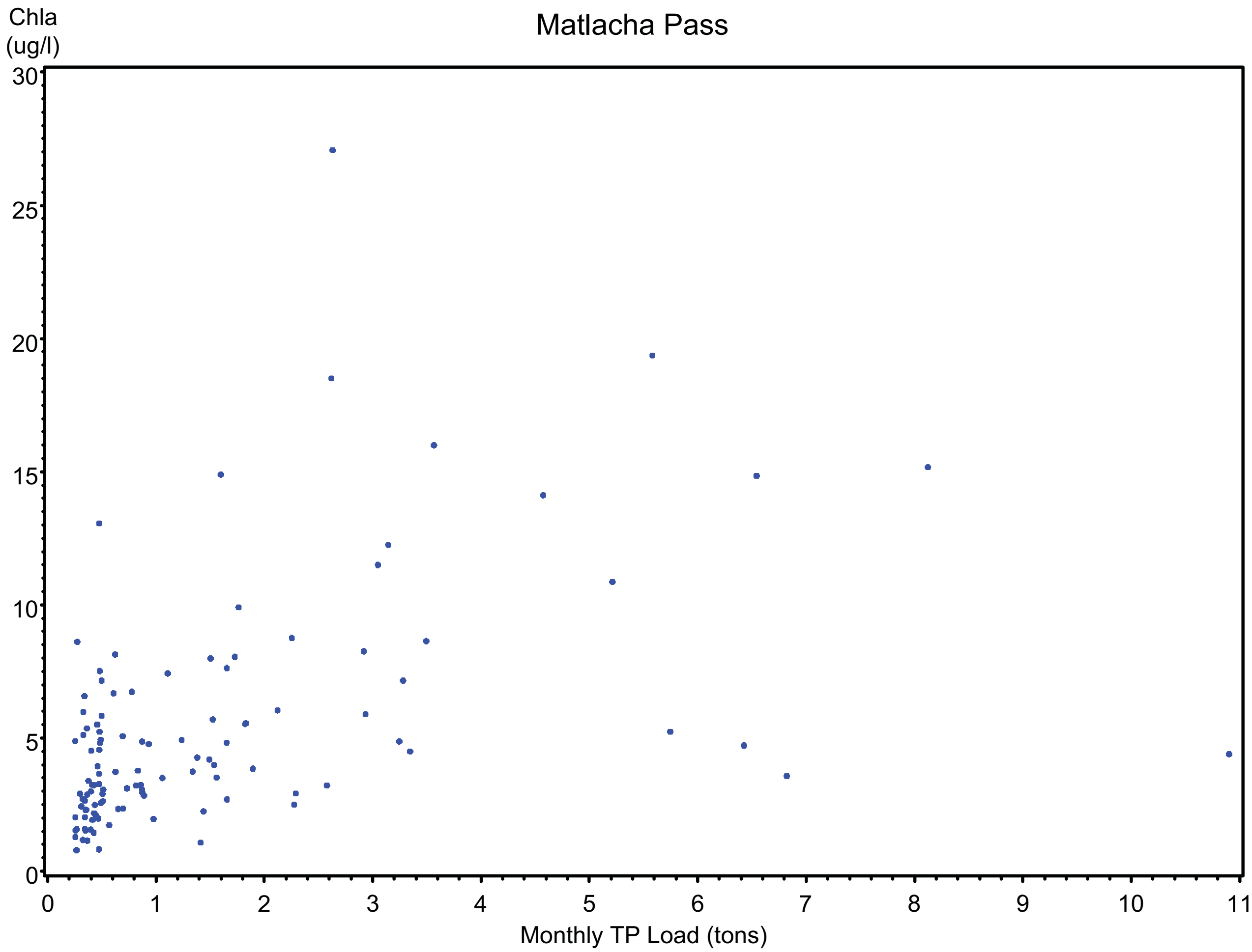
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Cumulative 3-Month TP Load (tons)

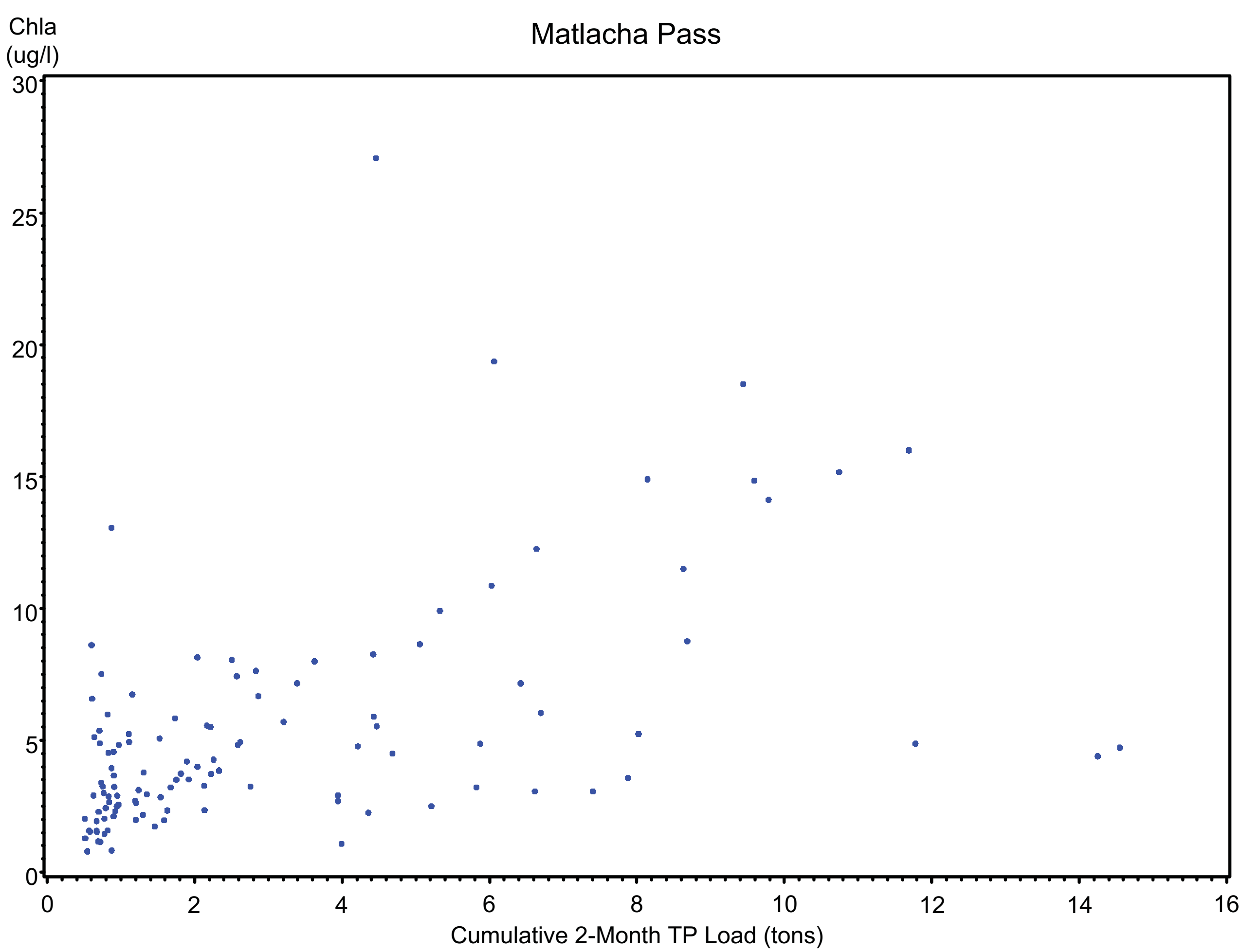


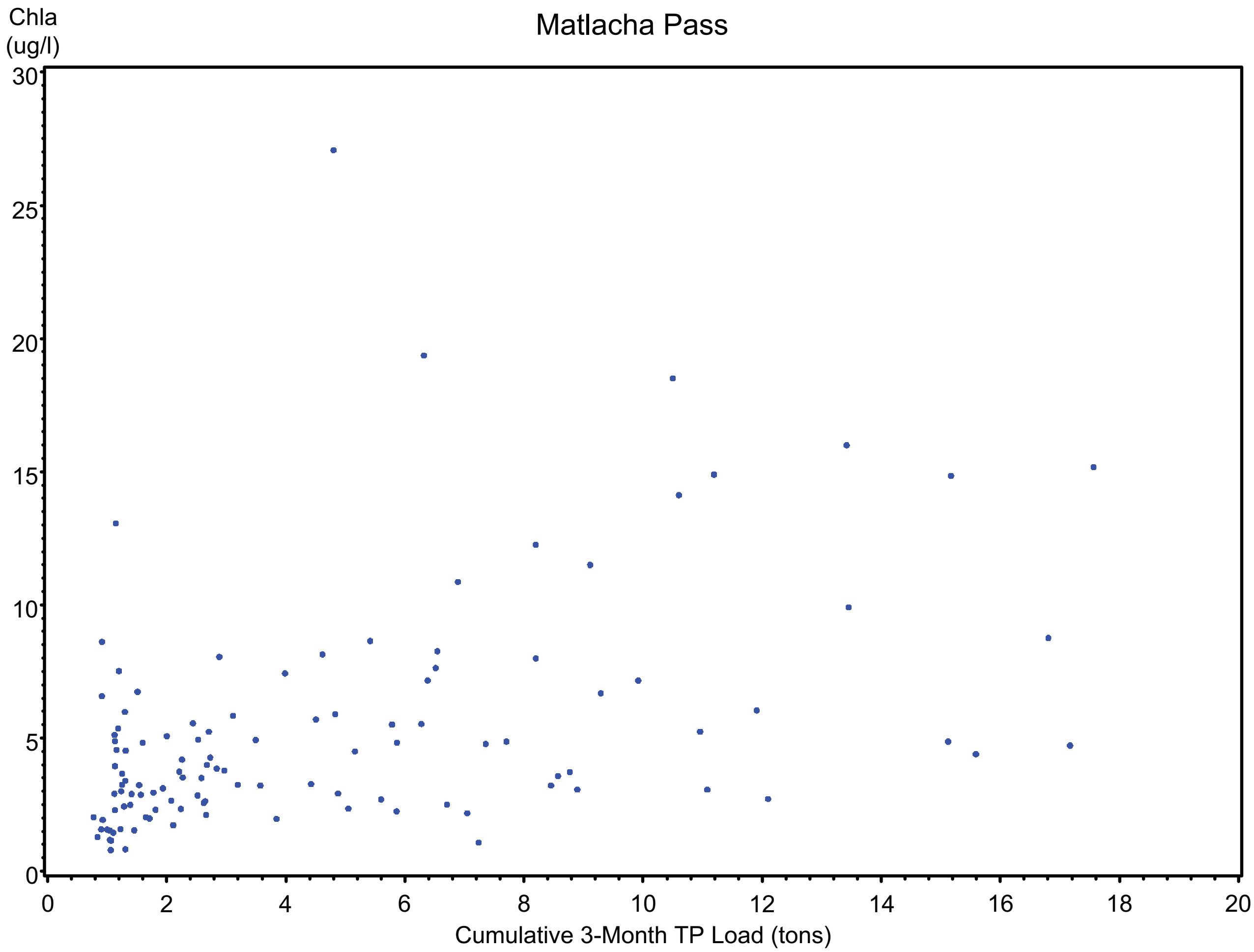
ln Chla
(ug/l)
Pine Island Sound
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-4
-3
-2
-1
0
1
ln Monthly TP Load (tons)

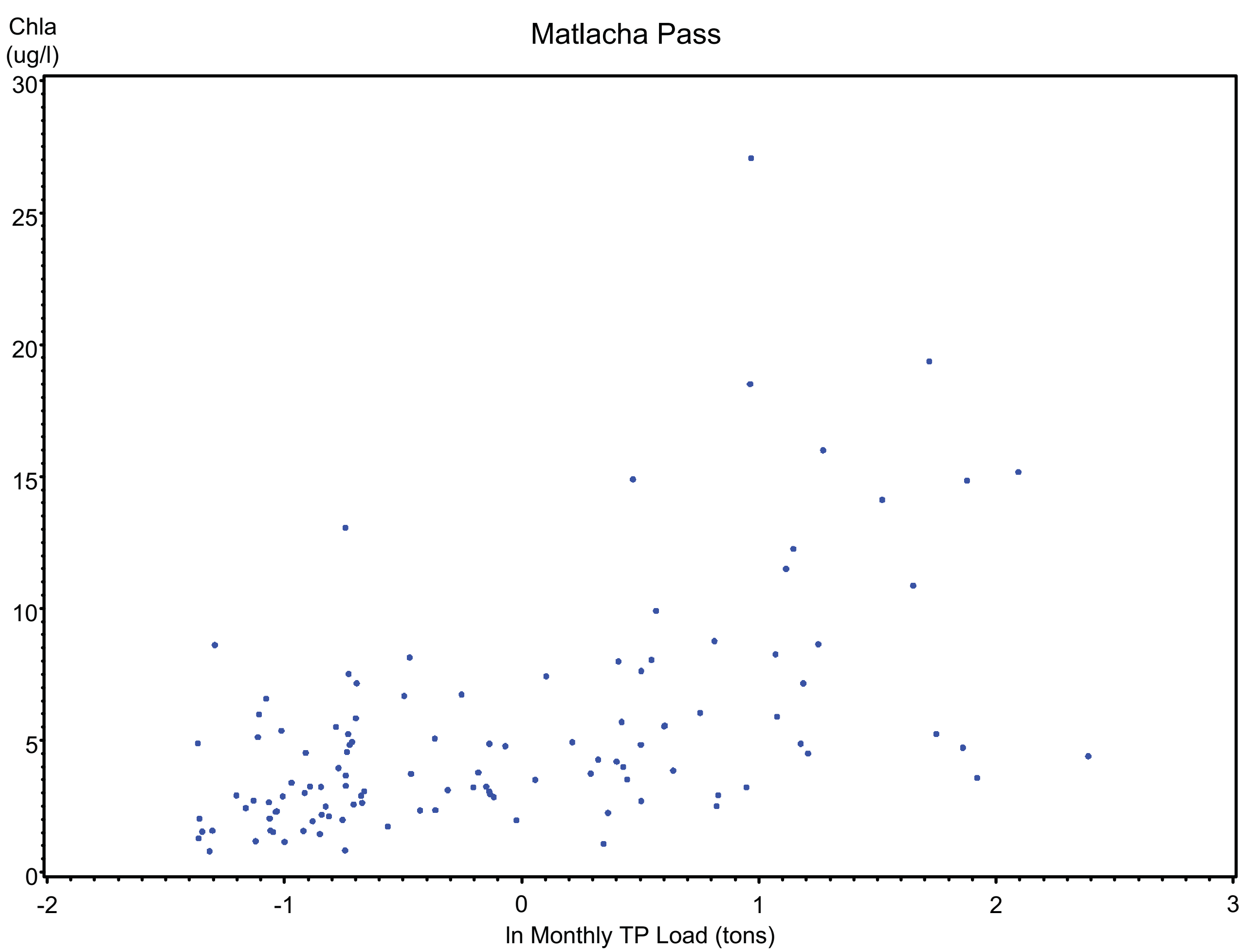

Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3
-2
-1
0
1
2
ln Cumulative 2-Month TP Load (tons)

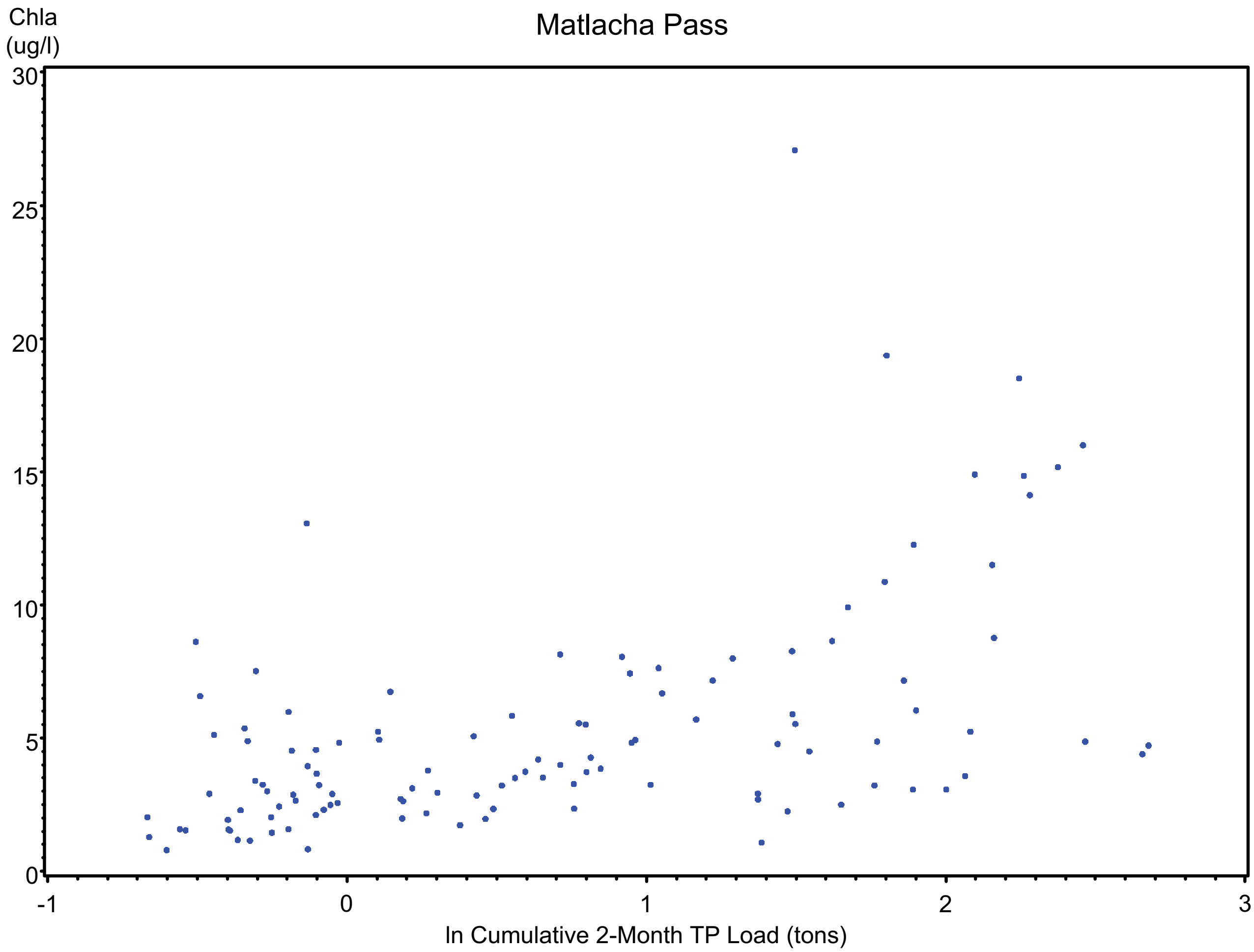

Pine Island Sound
ln Chla (ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-3
-2
-1
0
1
2
ln Cumulative 3-Month TP Load (tons)


Chla
(ug/l)
Matlacha Pass
0
5
10
15
20
25
30
0
1
2
3
4
5
6
7
8
9
10
11
Monthly TP Load (tons)

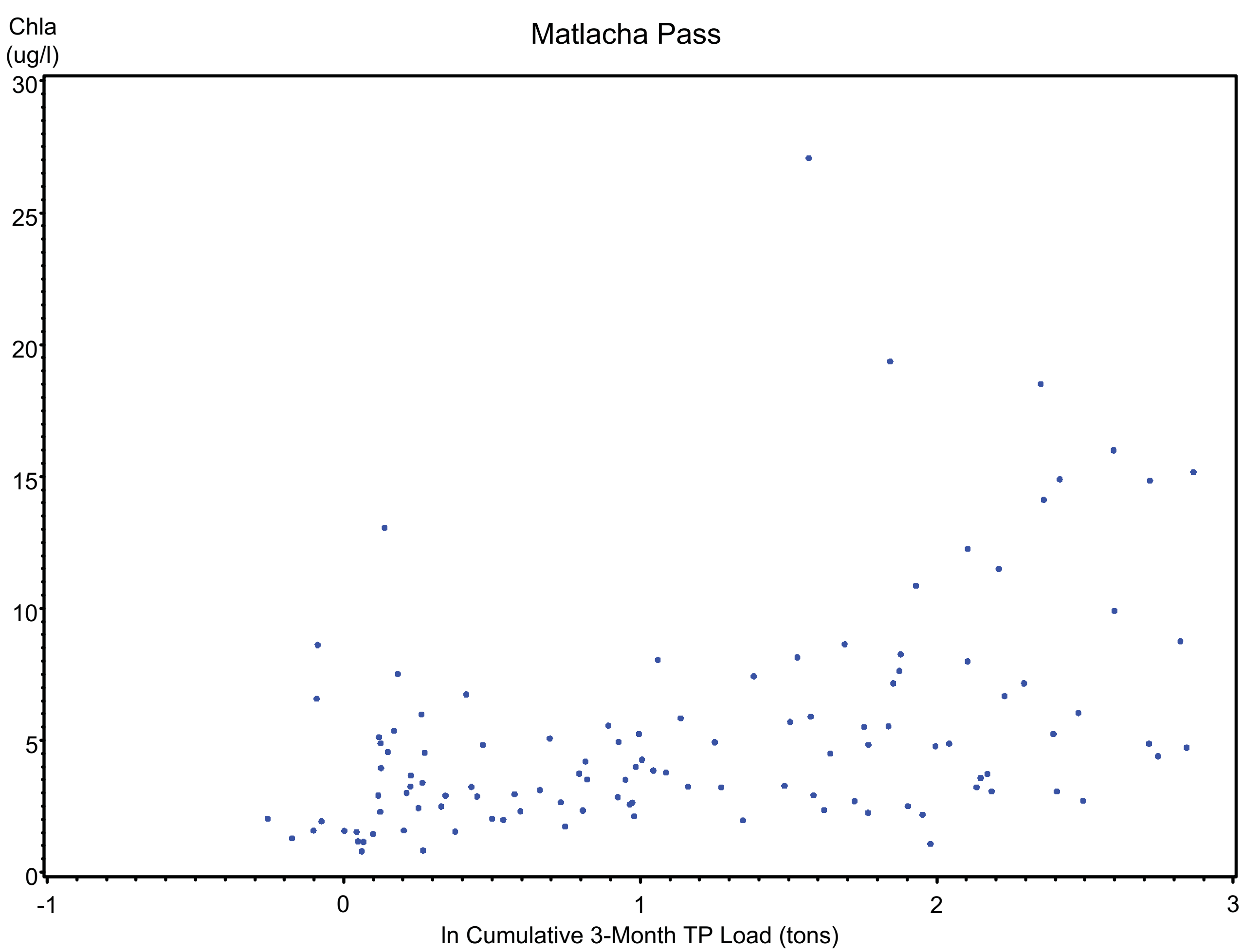

Chla
(ug/l)
Matlacha Pass
0
5
10
15
20
25
30
0
2
4
6
8
10
12
14
16
Cumulative 2-Month TP Load (tons)


Matlacha Pass
Chla
(ug/l)
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
Cumulative 3-Month TP Load (tons)

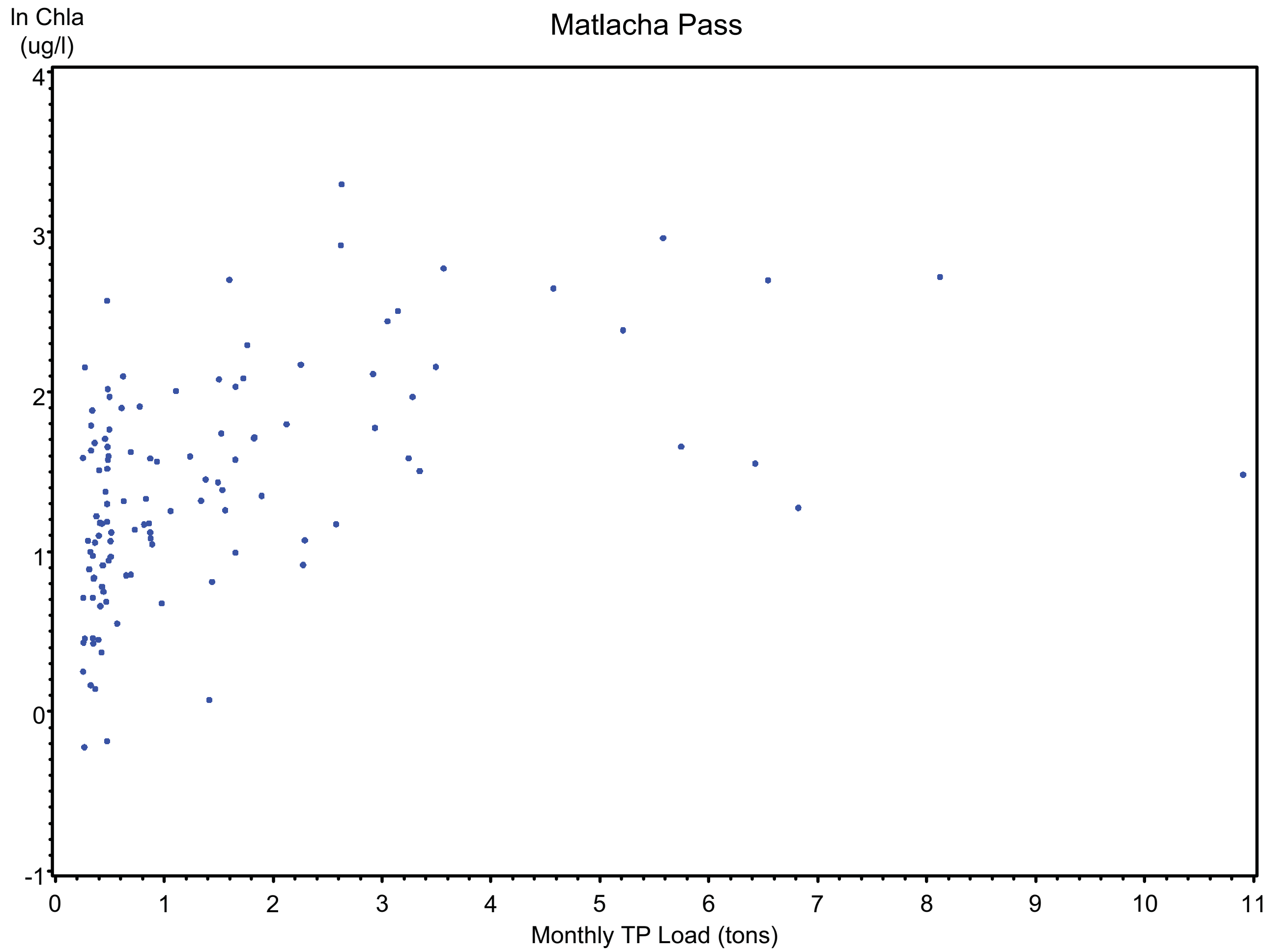

Matlacha Pass
Chla
(ug/l)
30
25
20
15
10
5
0
-2
-1
0
1
2
3
ln Monthly TP Load (tons)

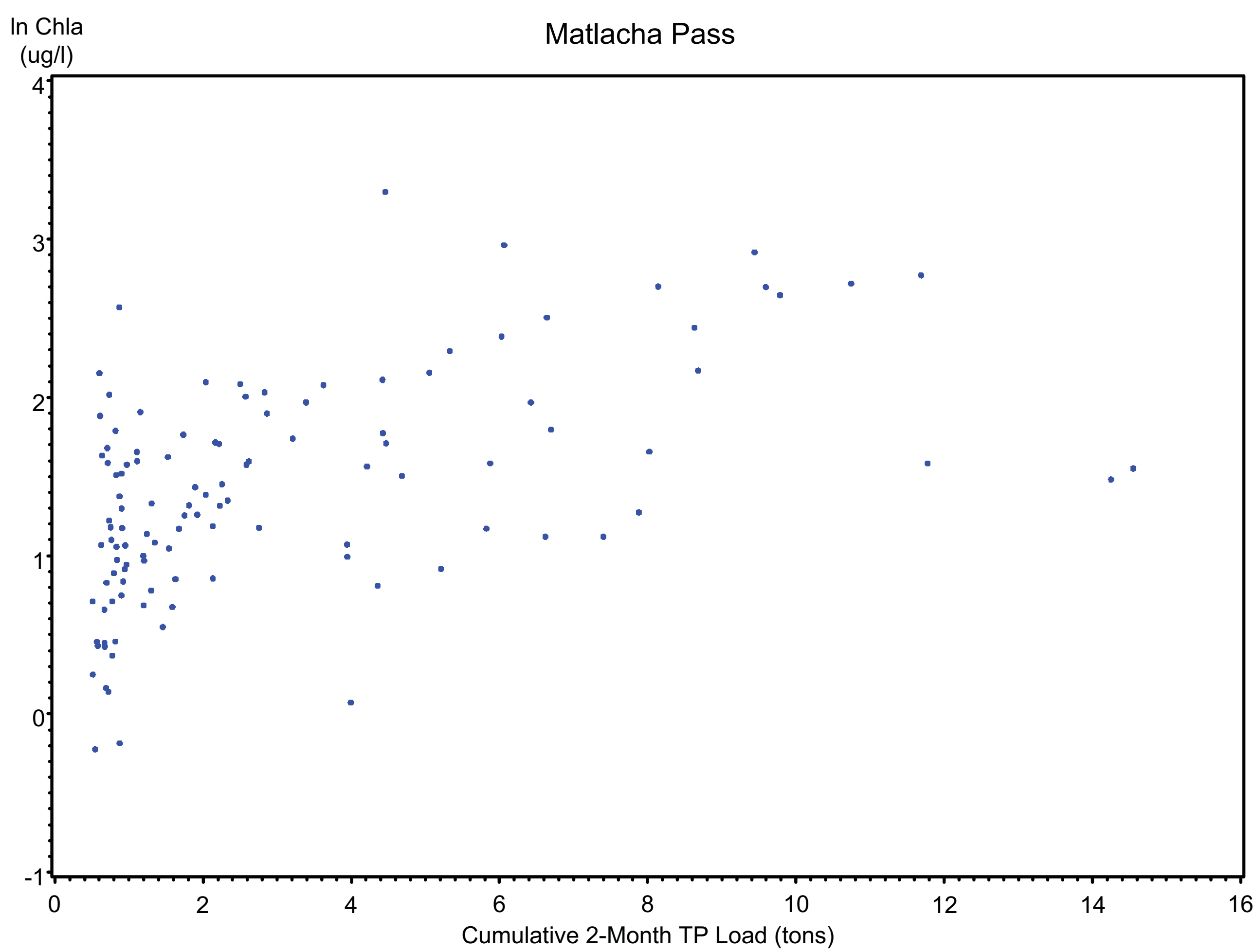


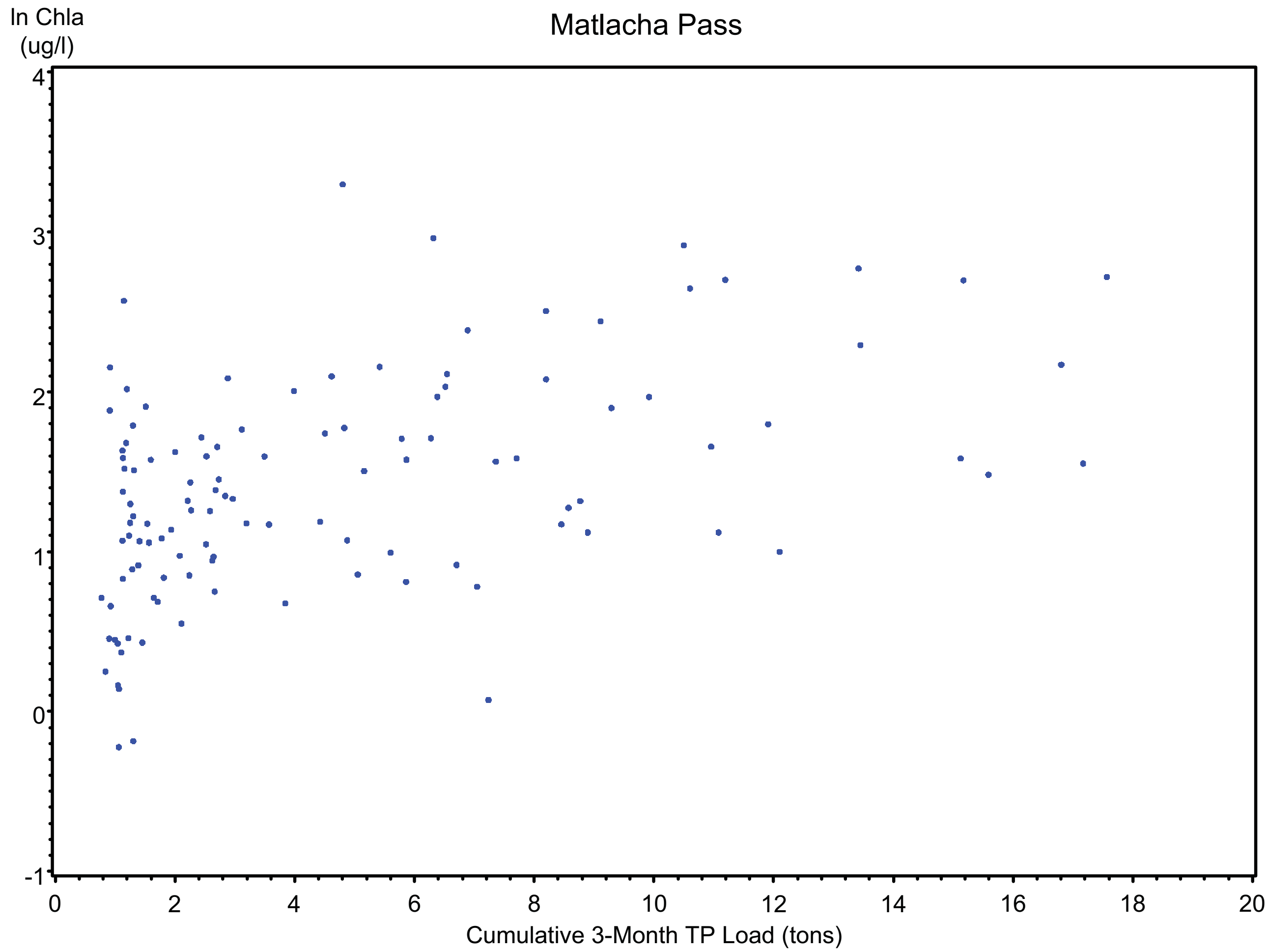
Matlacha Pass
Chla
(ug/l)
30
25
20
15
10
5
0
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)



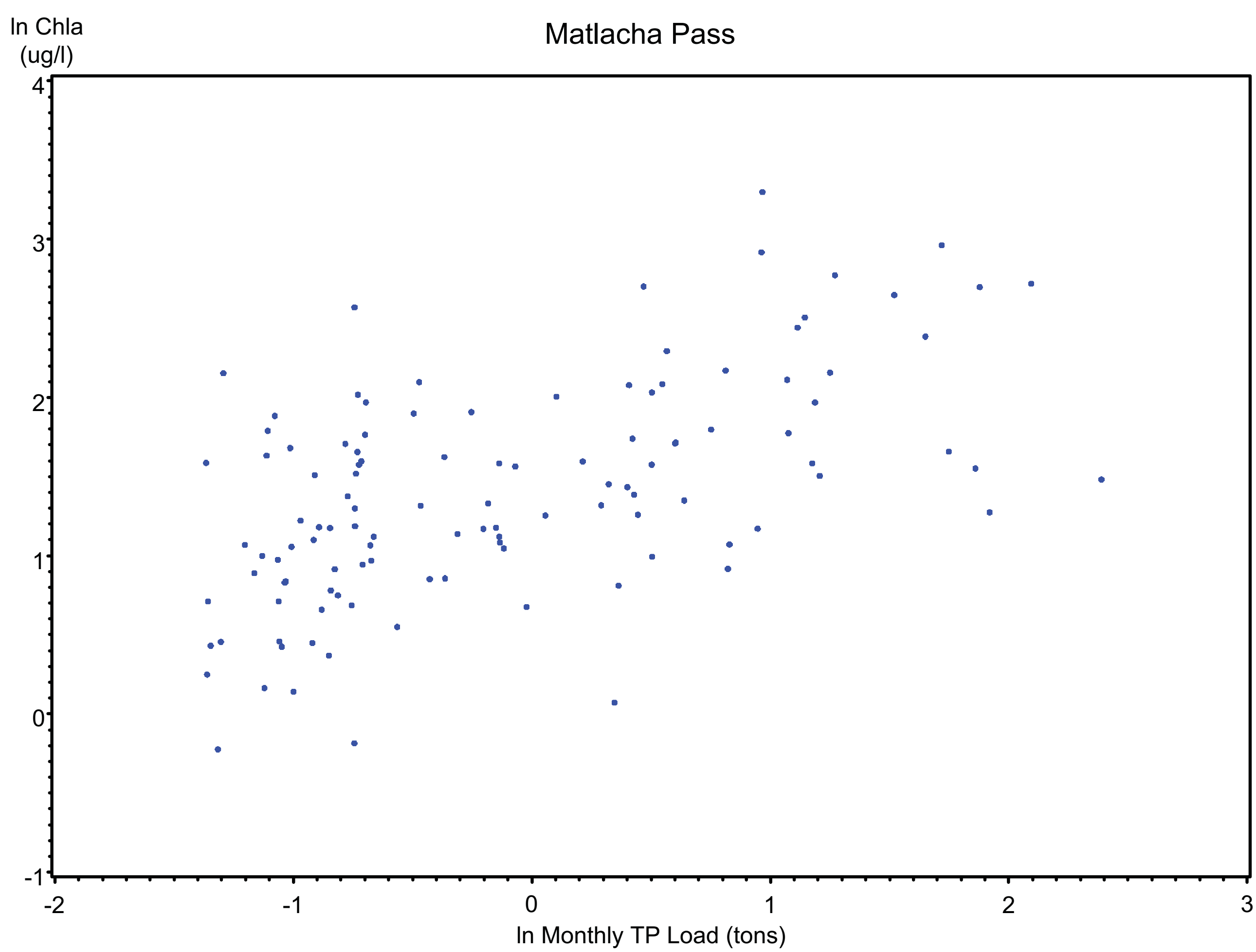
Matlacha Pass
Chla
(ug/l)
30
25
20
15
10
5
0
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)


Matlacha Pass
ln Chla
(ug/l)
4
3
2
1
0
-1
0 1 2 3 4 5 6 7 8 9 10 11
Monthly TP Load (tons)

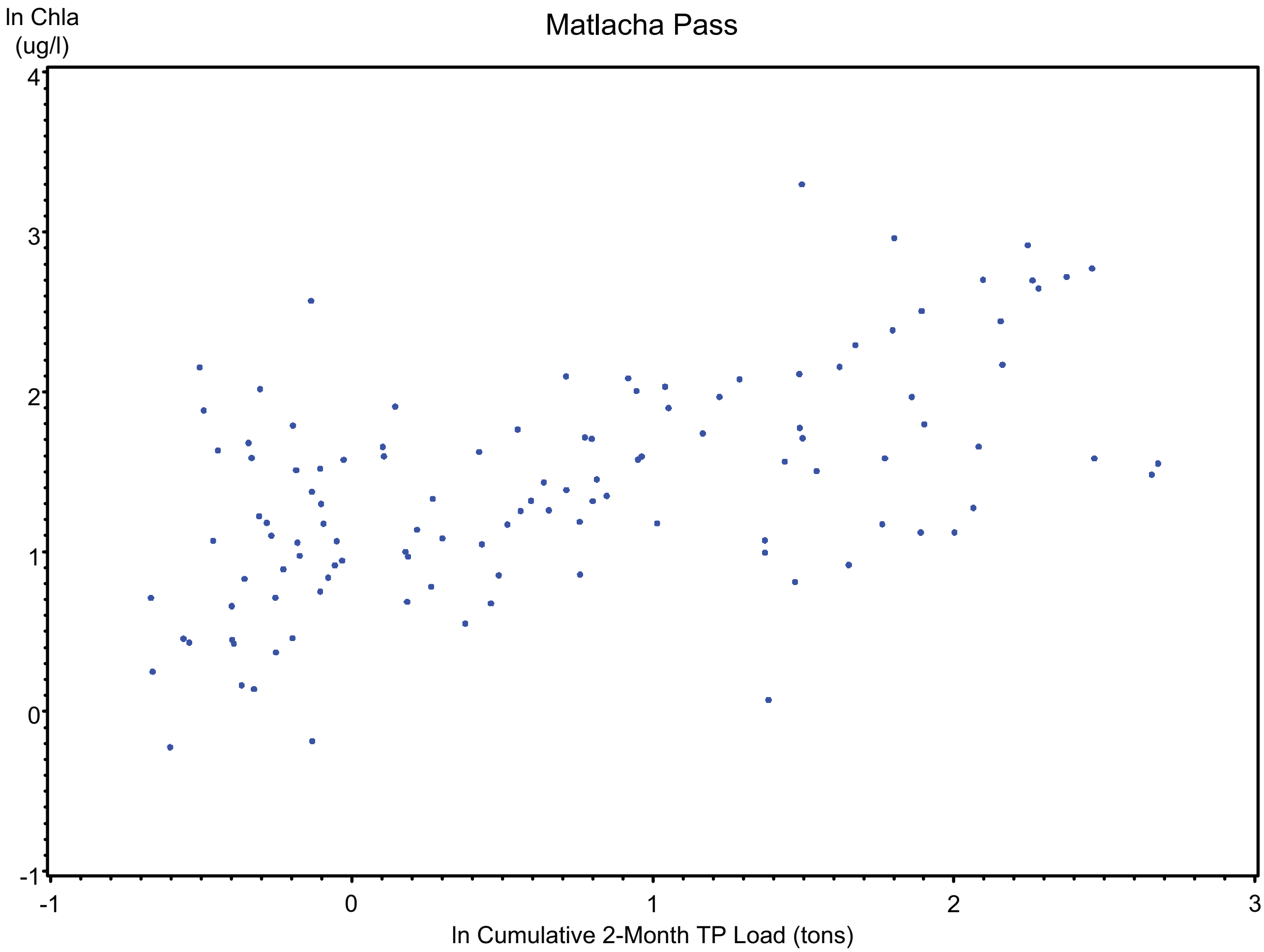

Matlacha Pass
ln Chla
(ug/l)
4
3
2
1
0
-1
0 2 4 6 8 10 12 14 16
Cumulative 2-Month TP Load (tons)



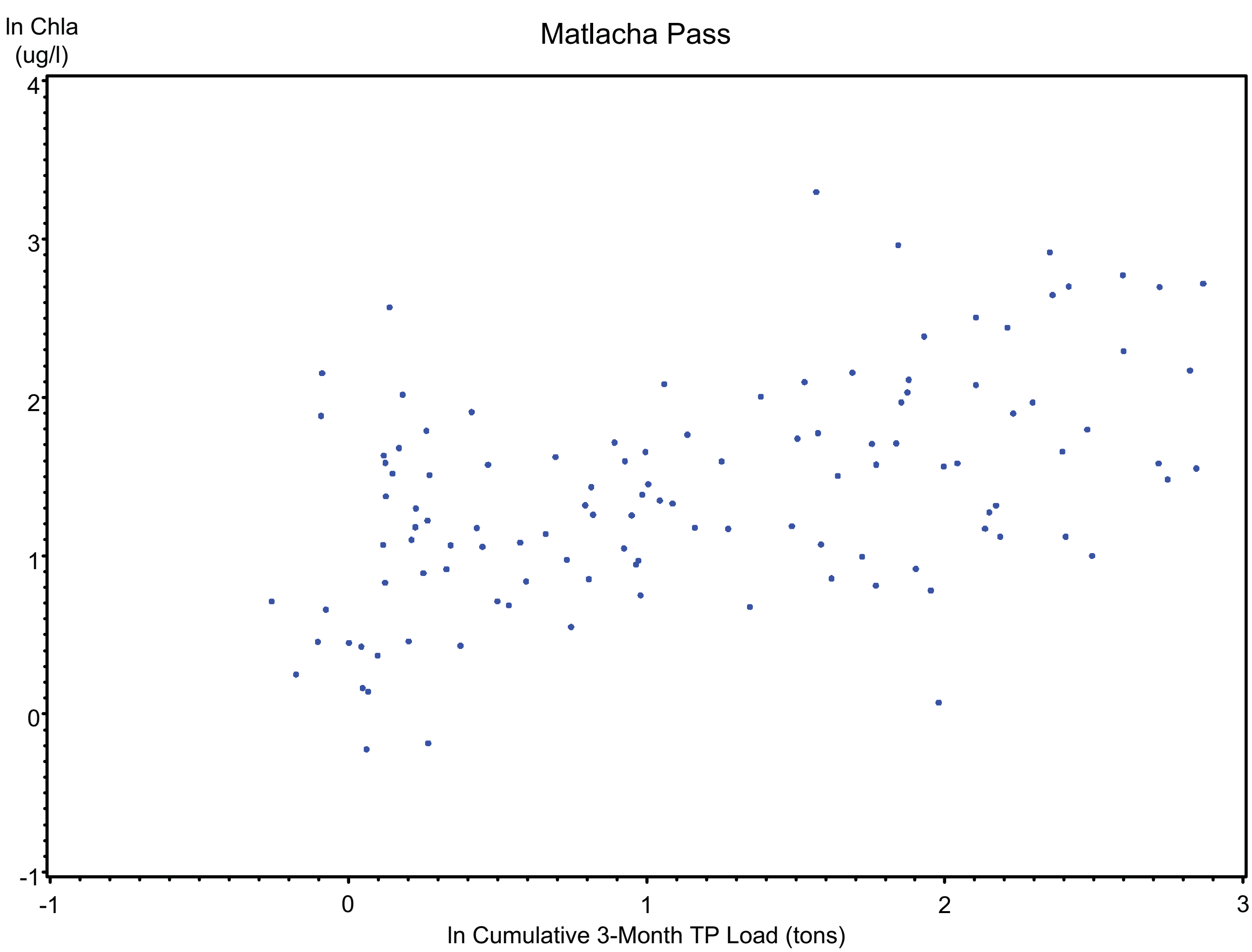
ln Chla
(ug/l)
Matlacha Pass
4
3
2
1
0
-1
0
2
4
6
8
10
12
14
16
18
20
Cumulative 3-Month TP Load (tons)



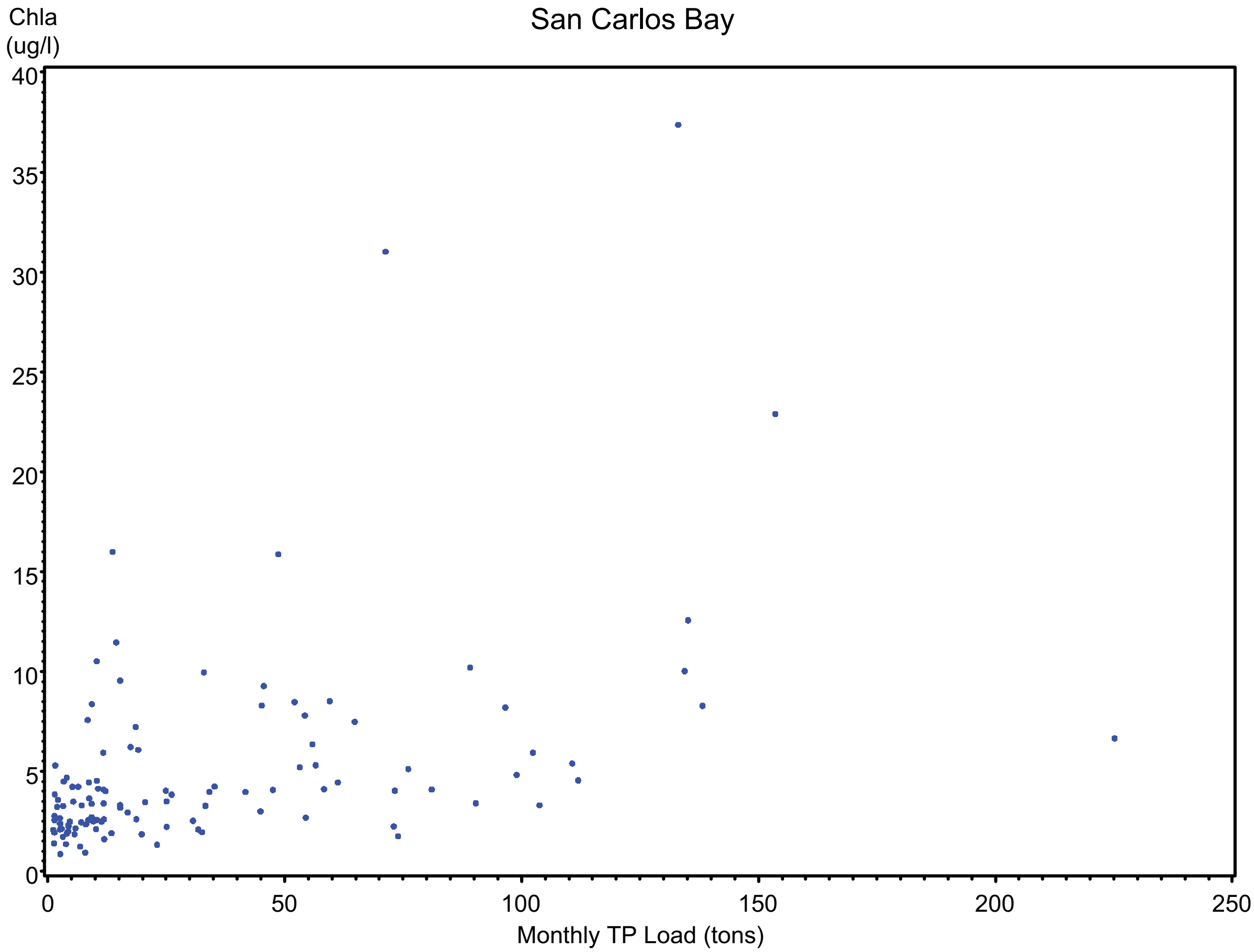
ln Chla
(ug/l)
Matlacha Pass
4
3
2
1
0
-1
-2
-1
0
1
2
3
ln Monthly TP Load (tons)

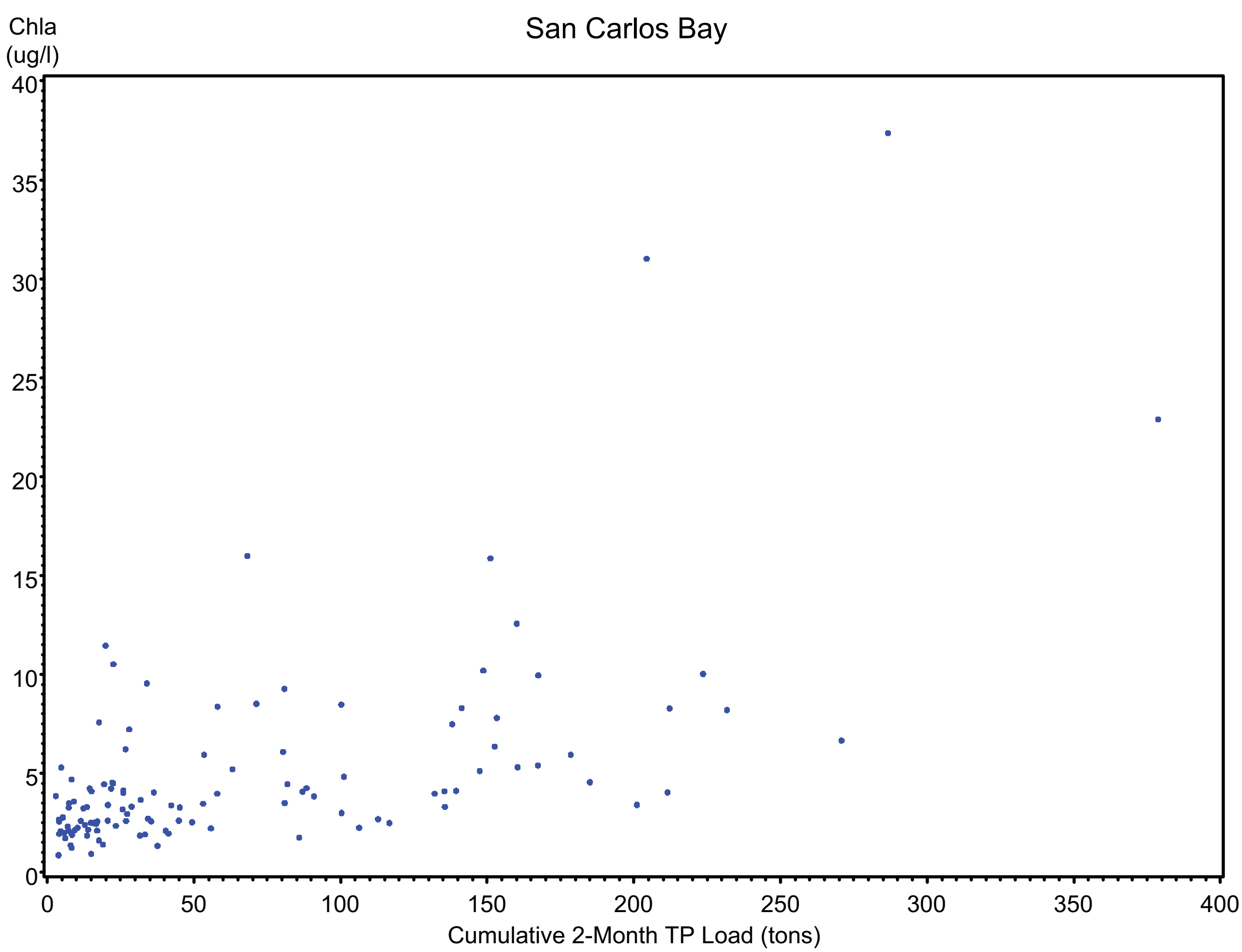


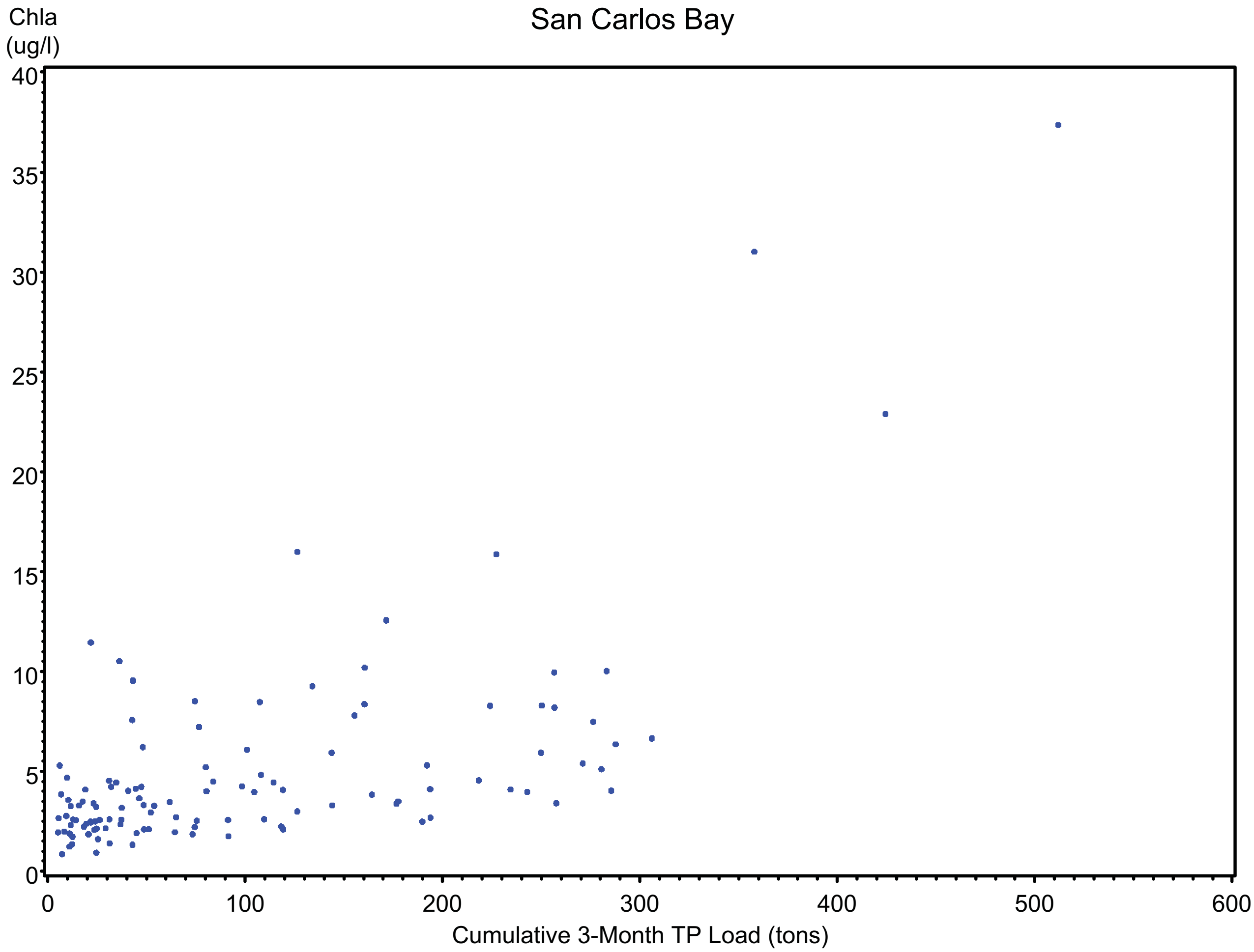
ln Chla
(ug/l)
Matlacha Pass
4
3
2
1
0
-1
-1
0
1
2
3
ln Cumulative 2-Month TP Load (tons)

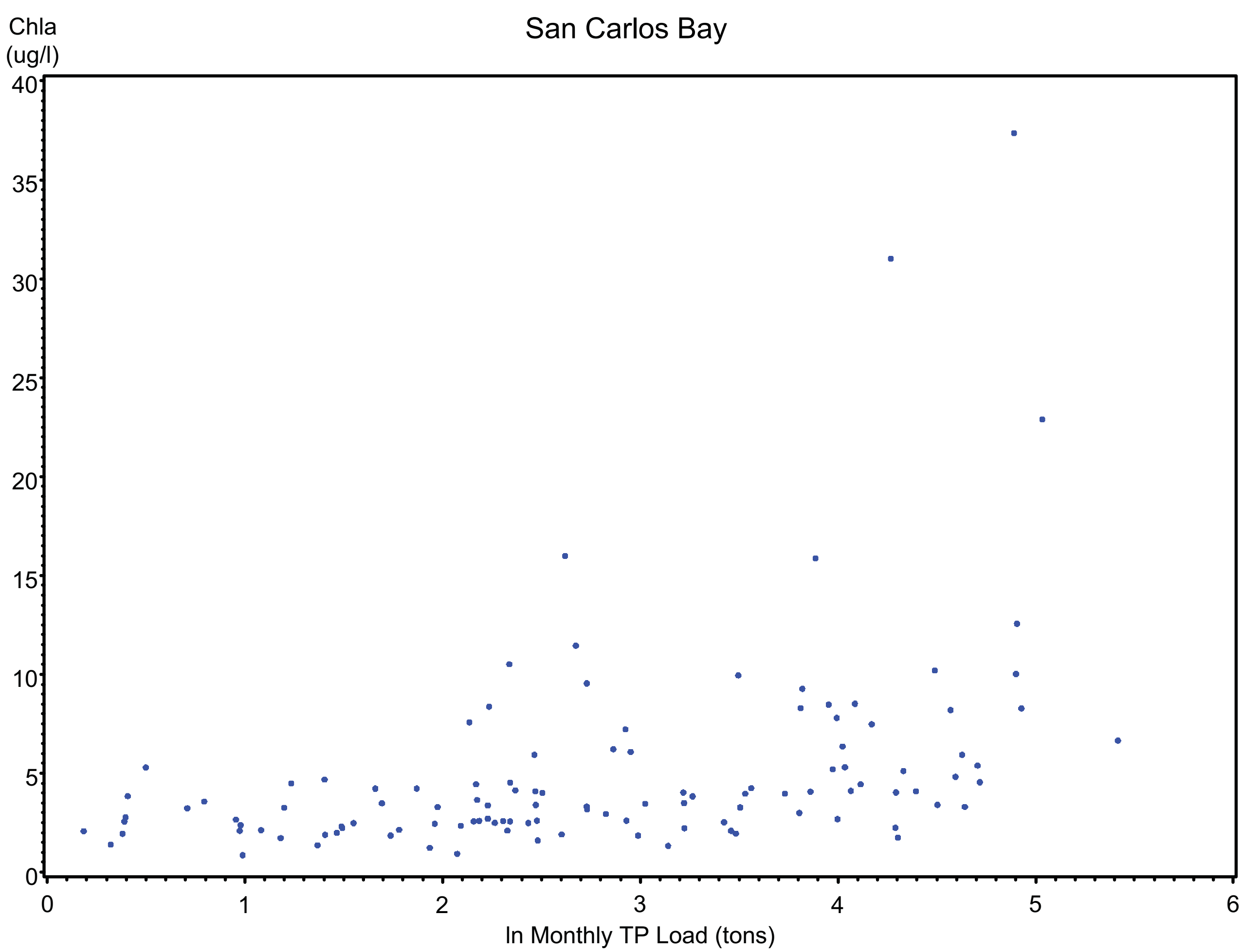


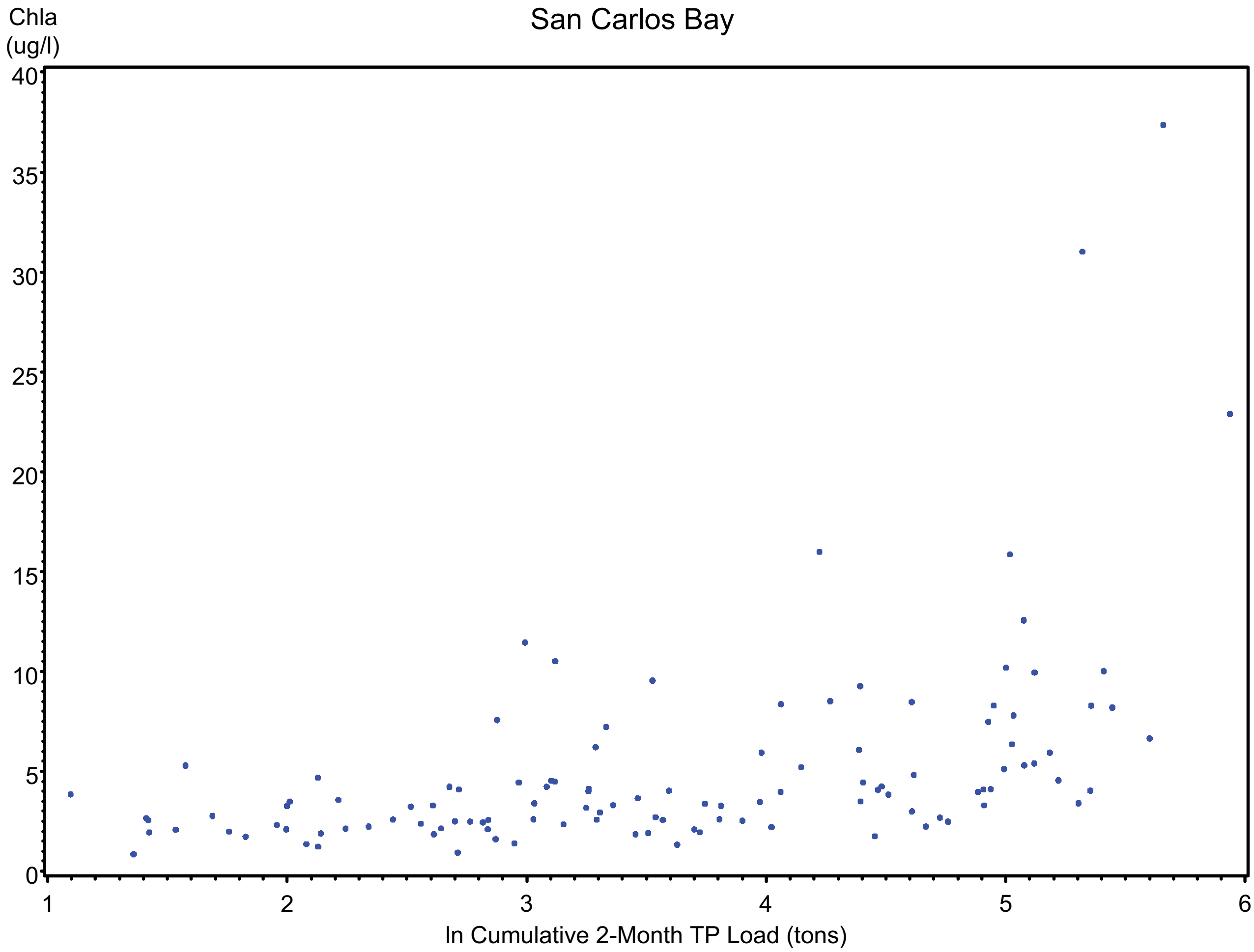
ln Chla
(ug/l)
Matlacha Pass
4
3
2
1
0
-1
-1
0
1
2
3
ln Cumulative 3-Month TP Load (tons)


San Carlos Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
50
100
150
200
250
Monthly TP Load (tons)

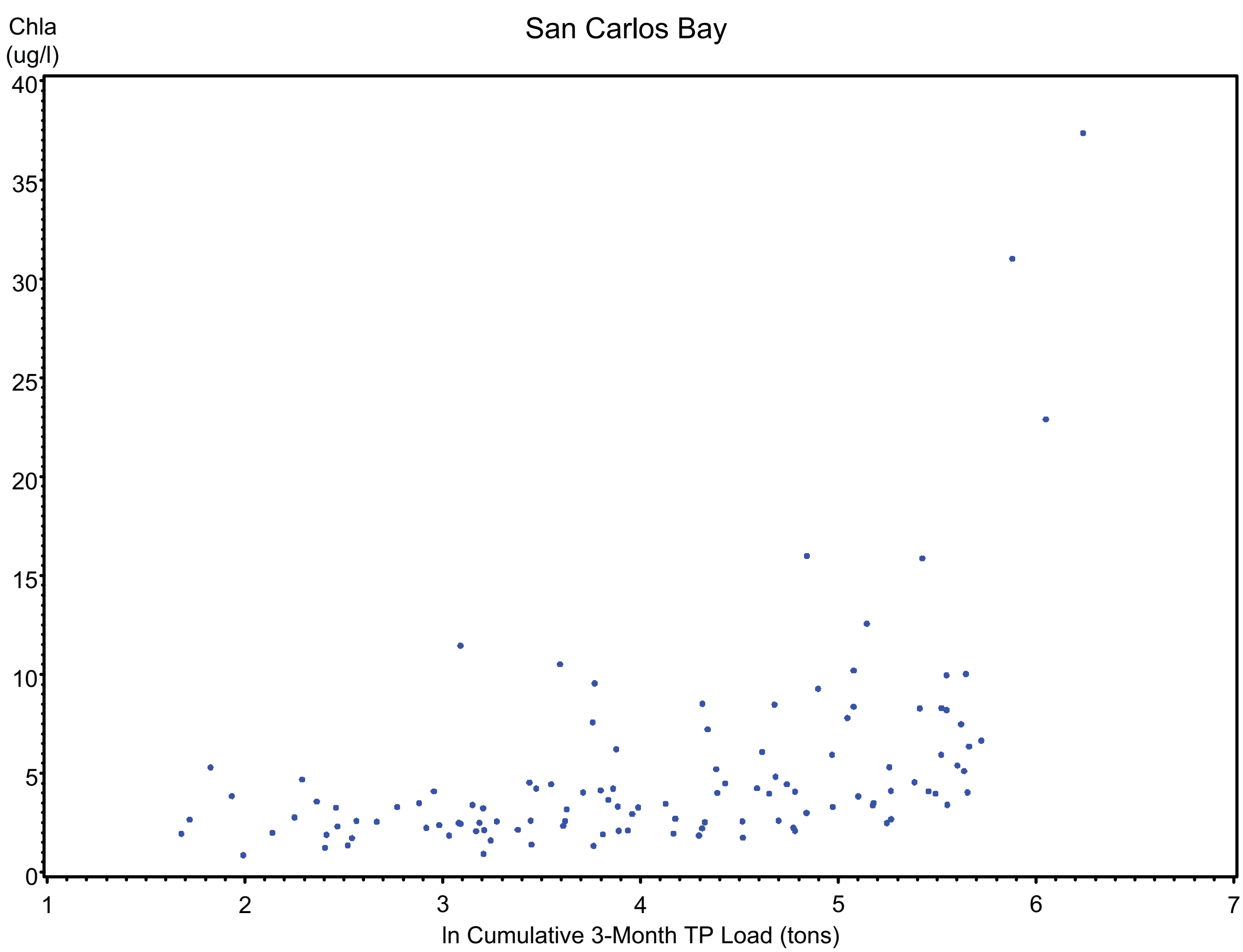

San Carlos Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)


San Carlos Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

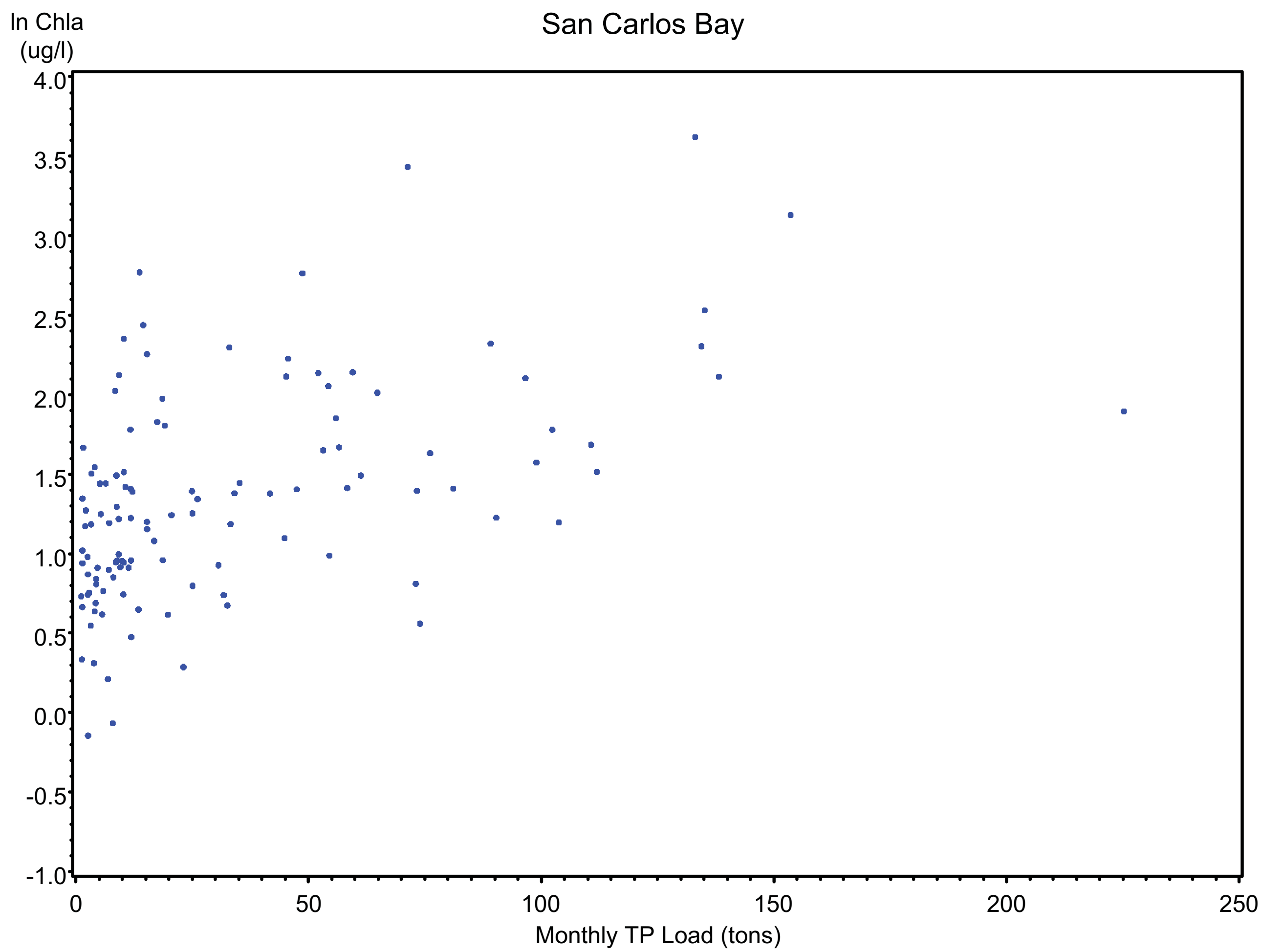

San Carlos Bay
Chla
(ug/l)
0
5
10
15
20
25
30
35
40
0
1
2
3
4
5
6
ln Monthly TP Load (tons)

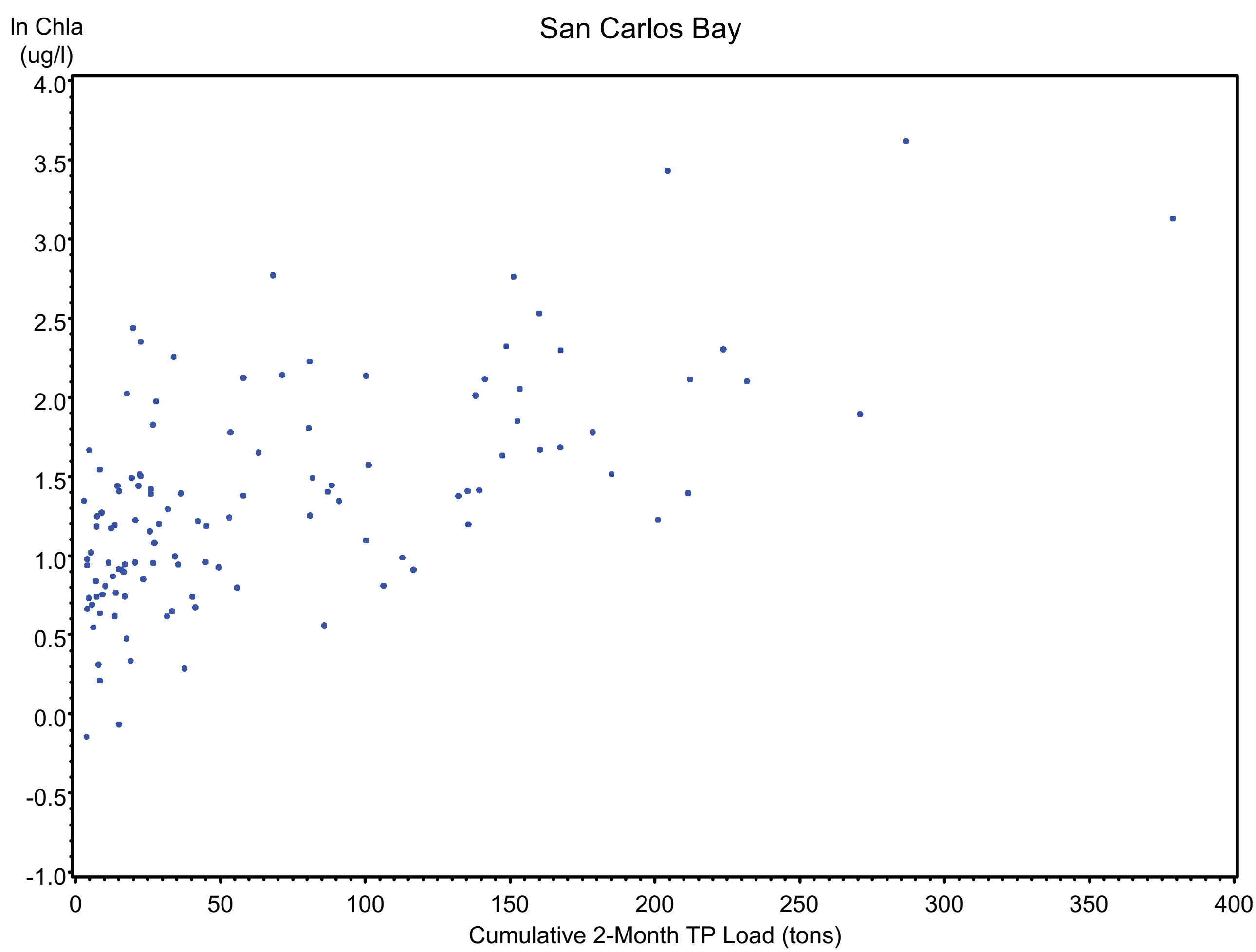


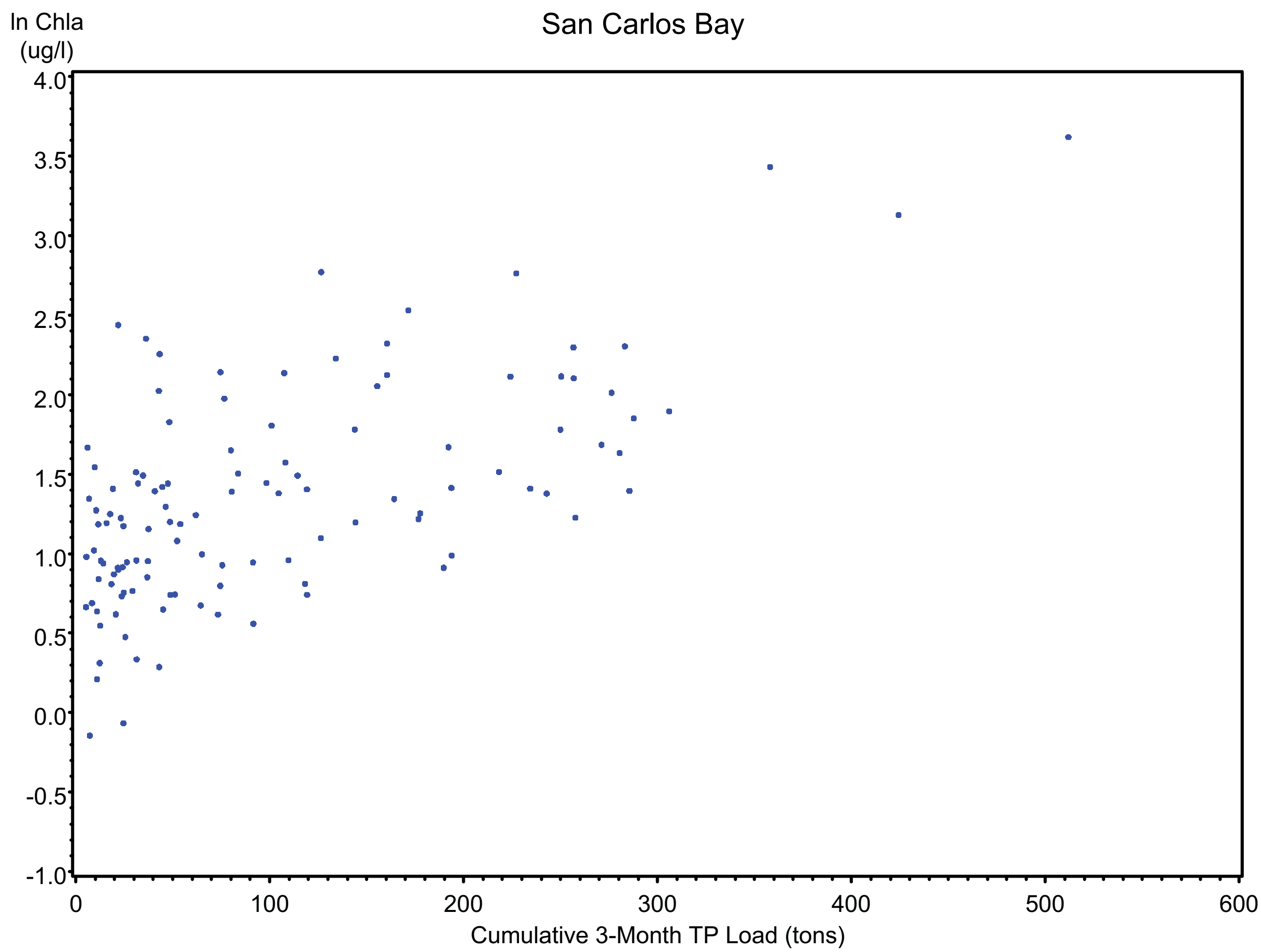
Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

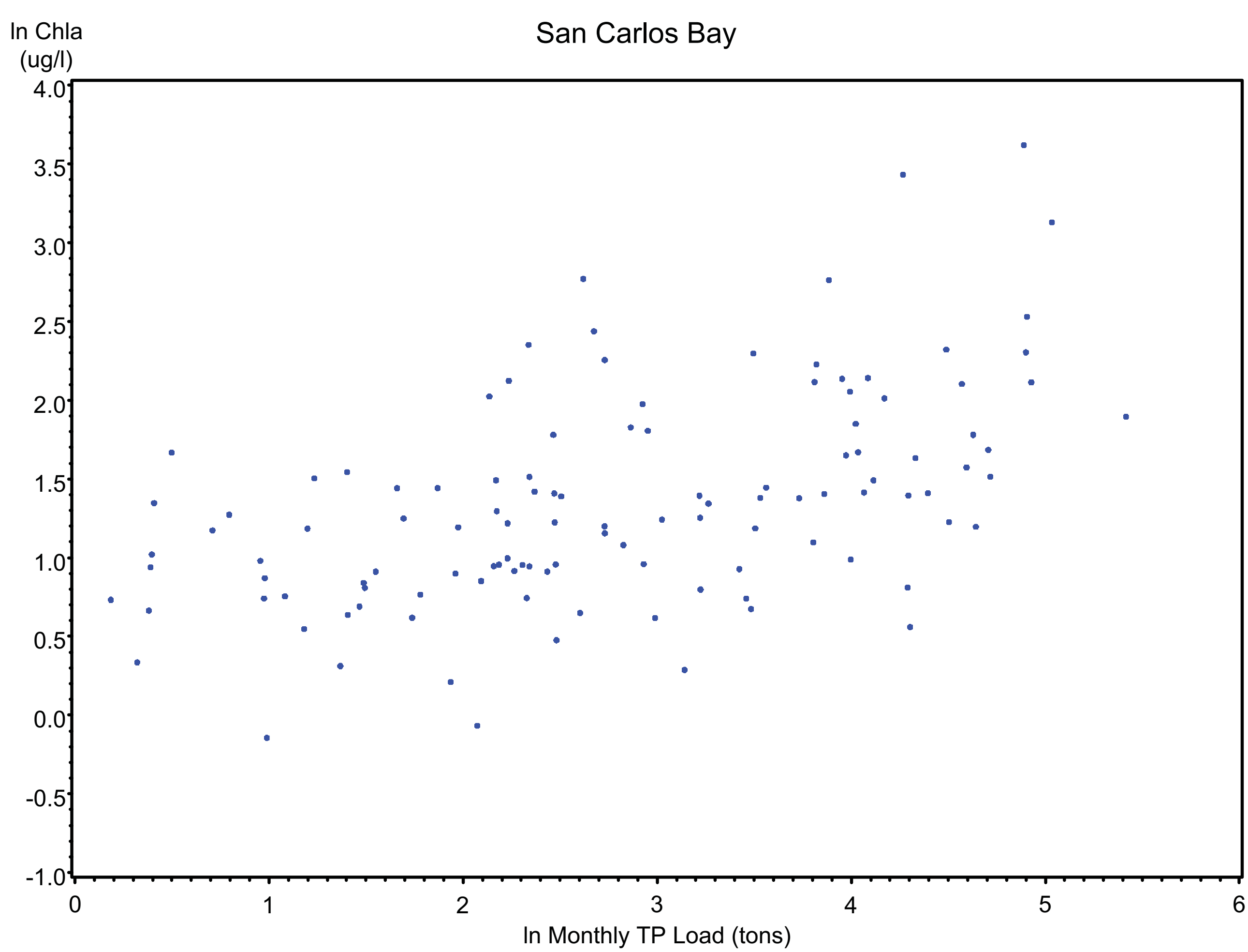


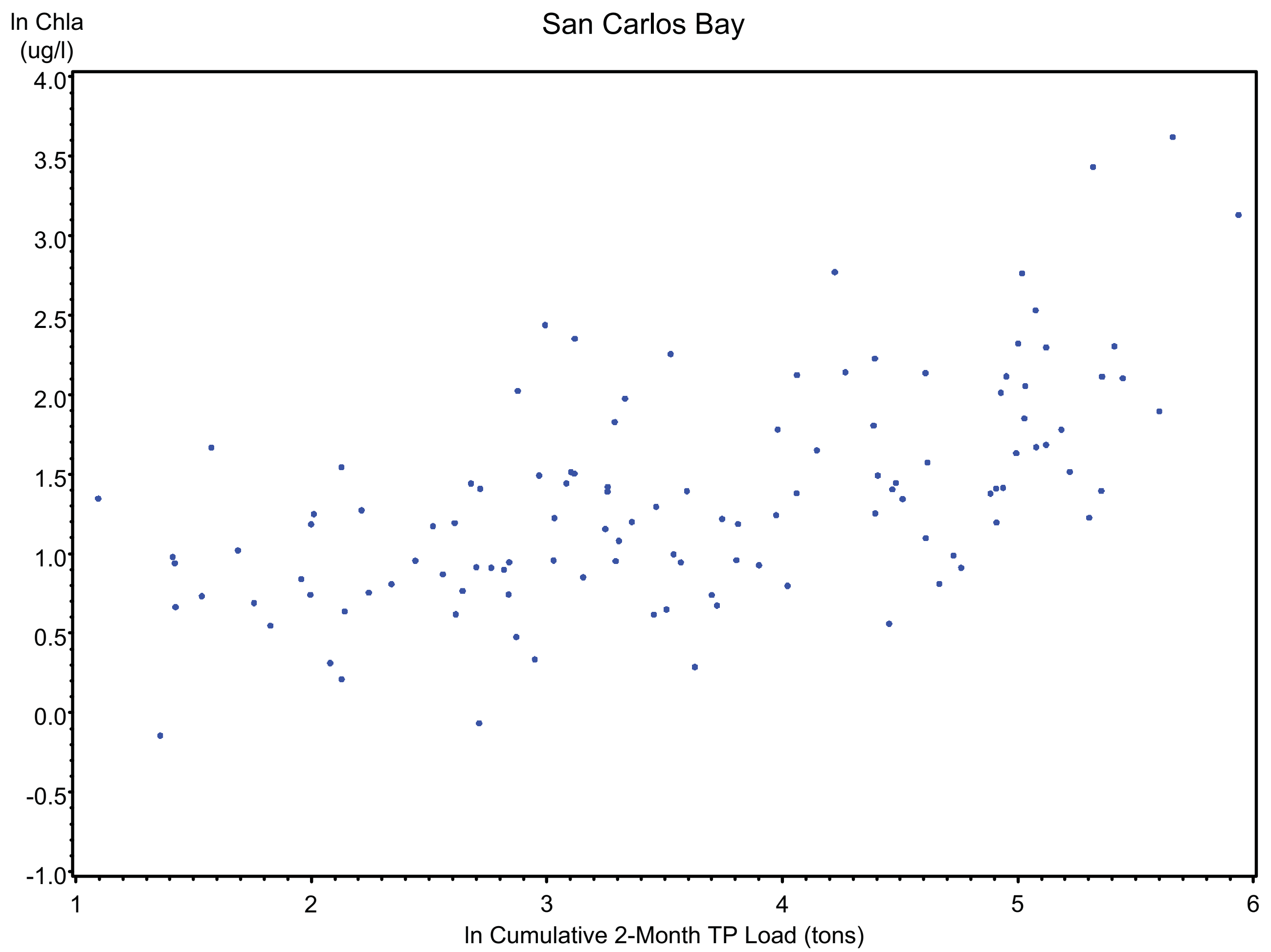
Chla
(ug/l)
San Carlos Bay
0
5
10
15
20
25
30
35
40
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)

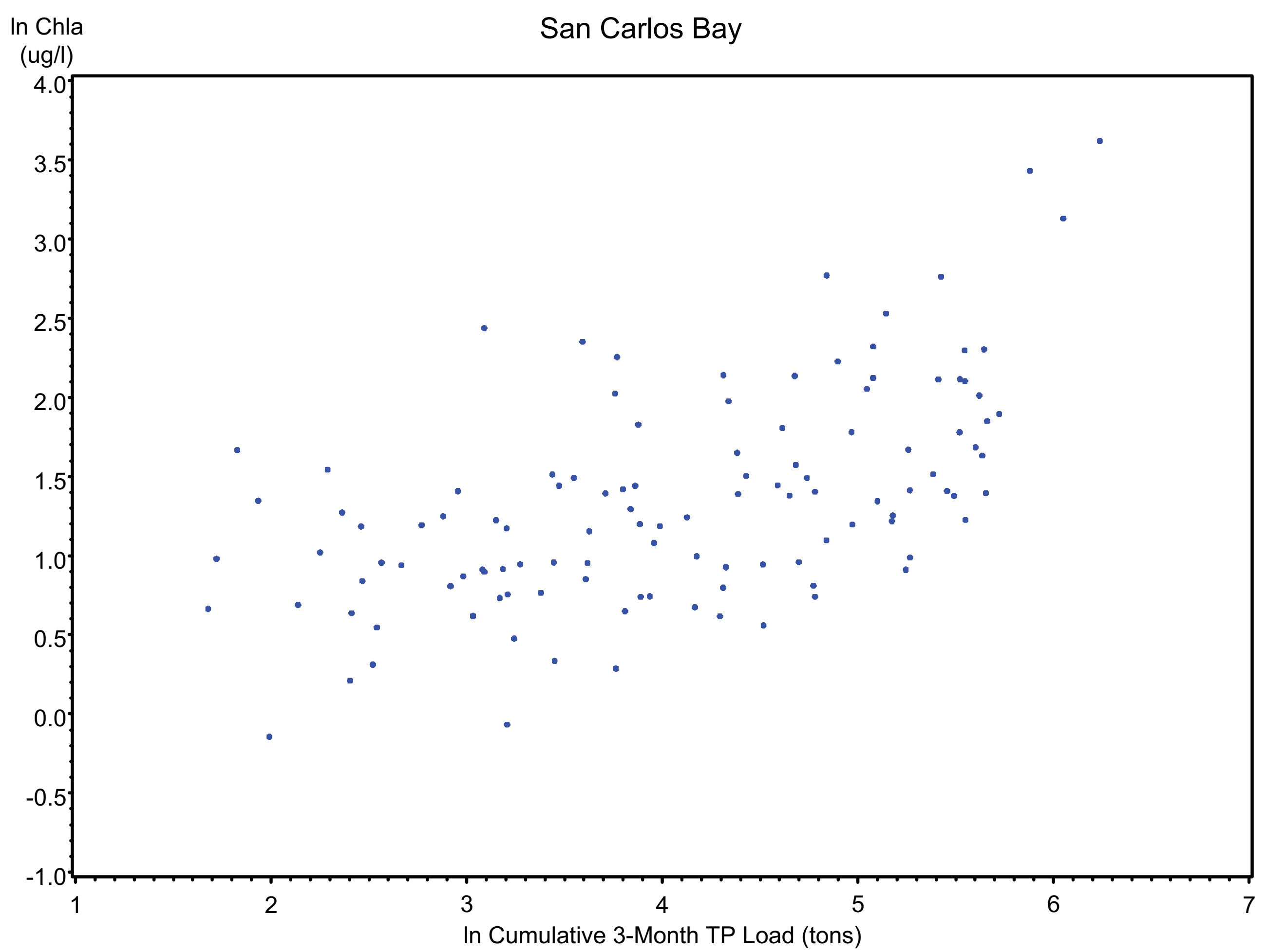

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
50
100
150
200
250
Monthly TP Load (tons)

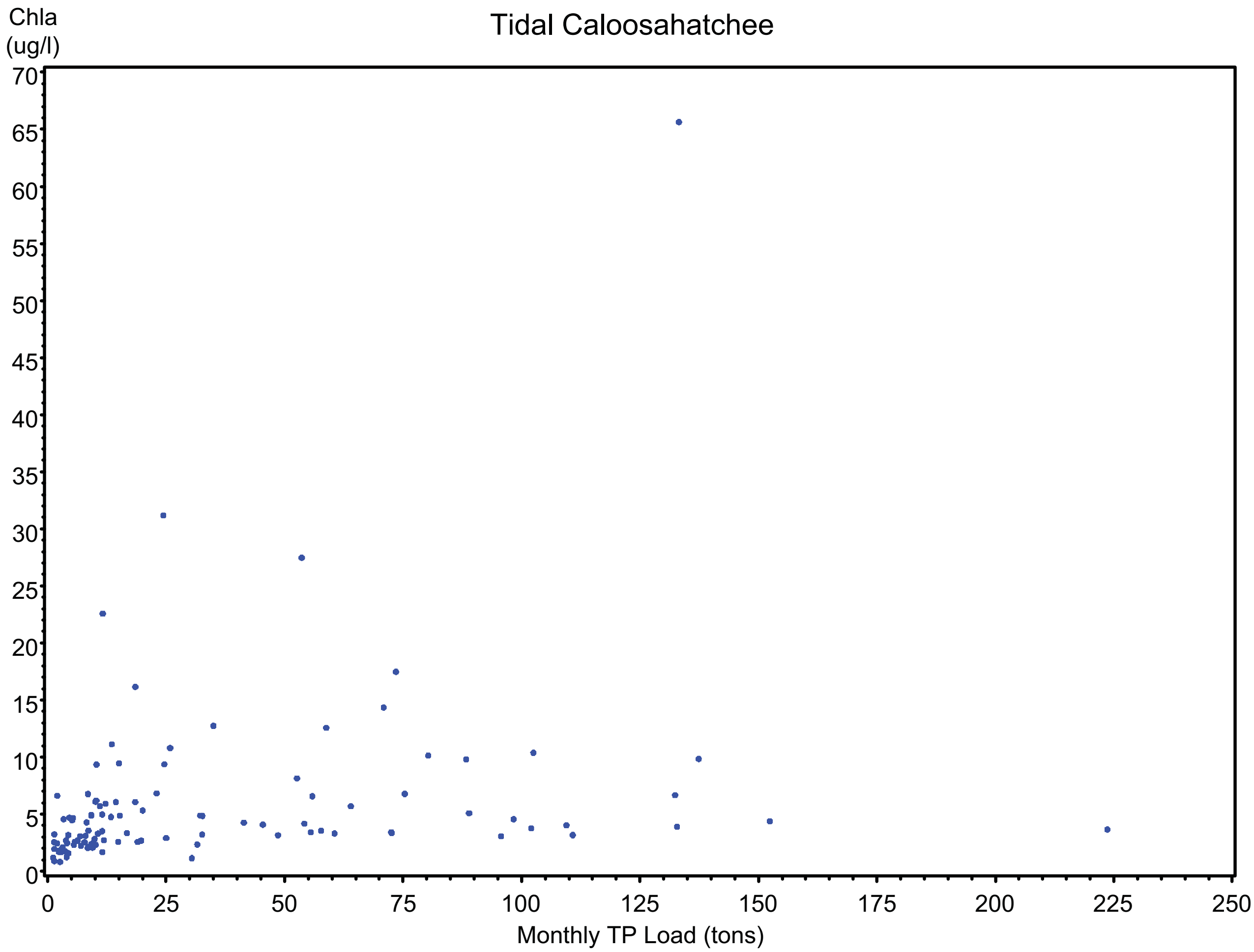

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
50
100
150
200
250
300
350
400
Cumulative 2-Month TP Load (tons)

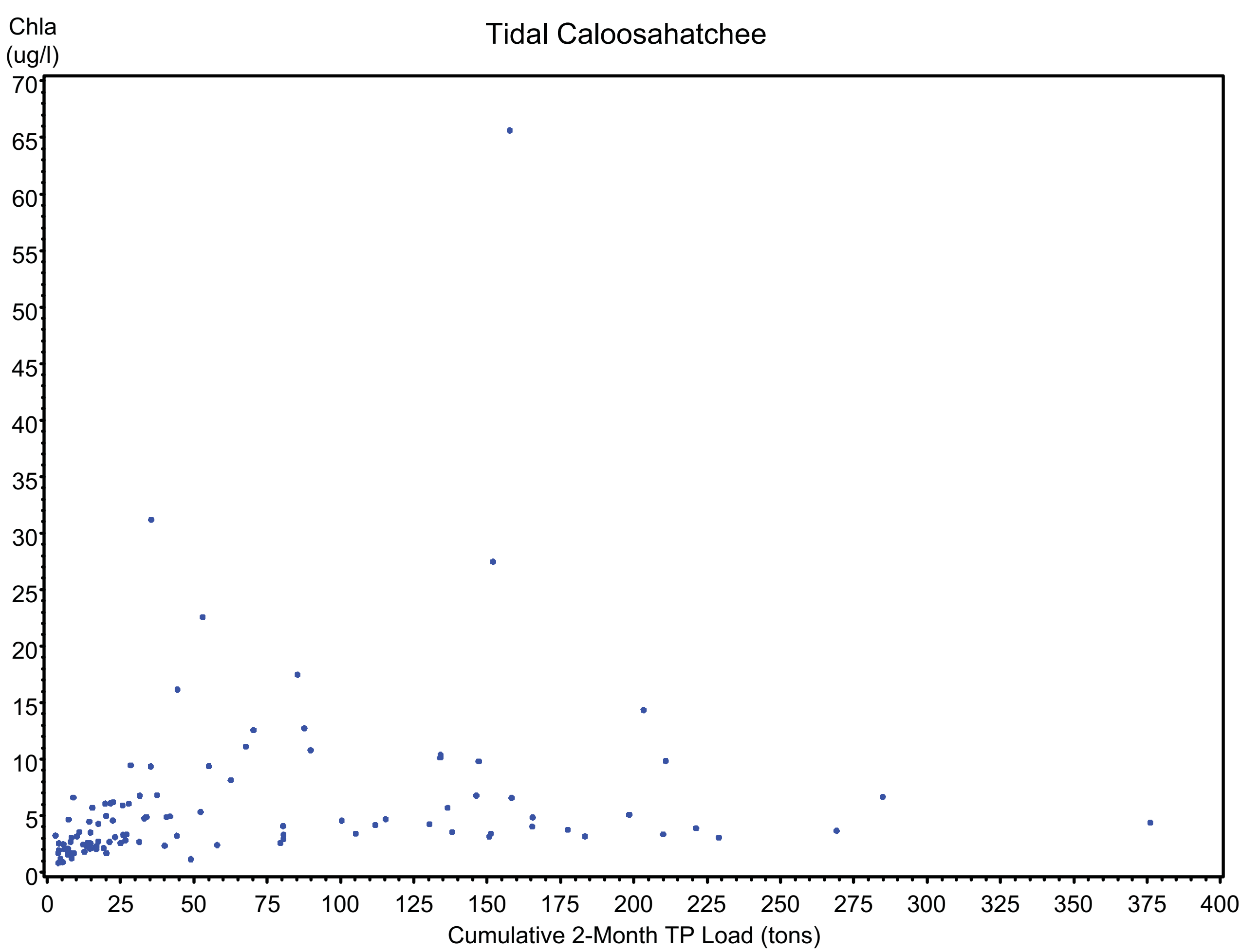

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
100
200
300
400
500
600
Cumulative 3-Month TP Load (tons)

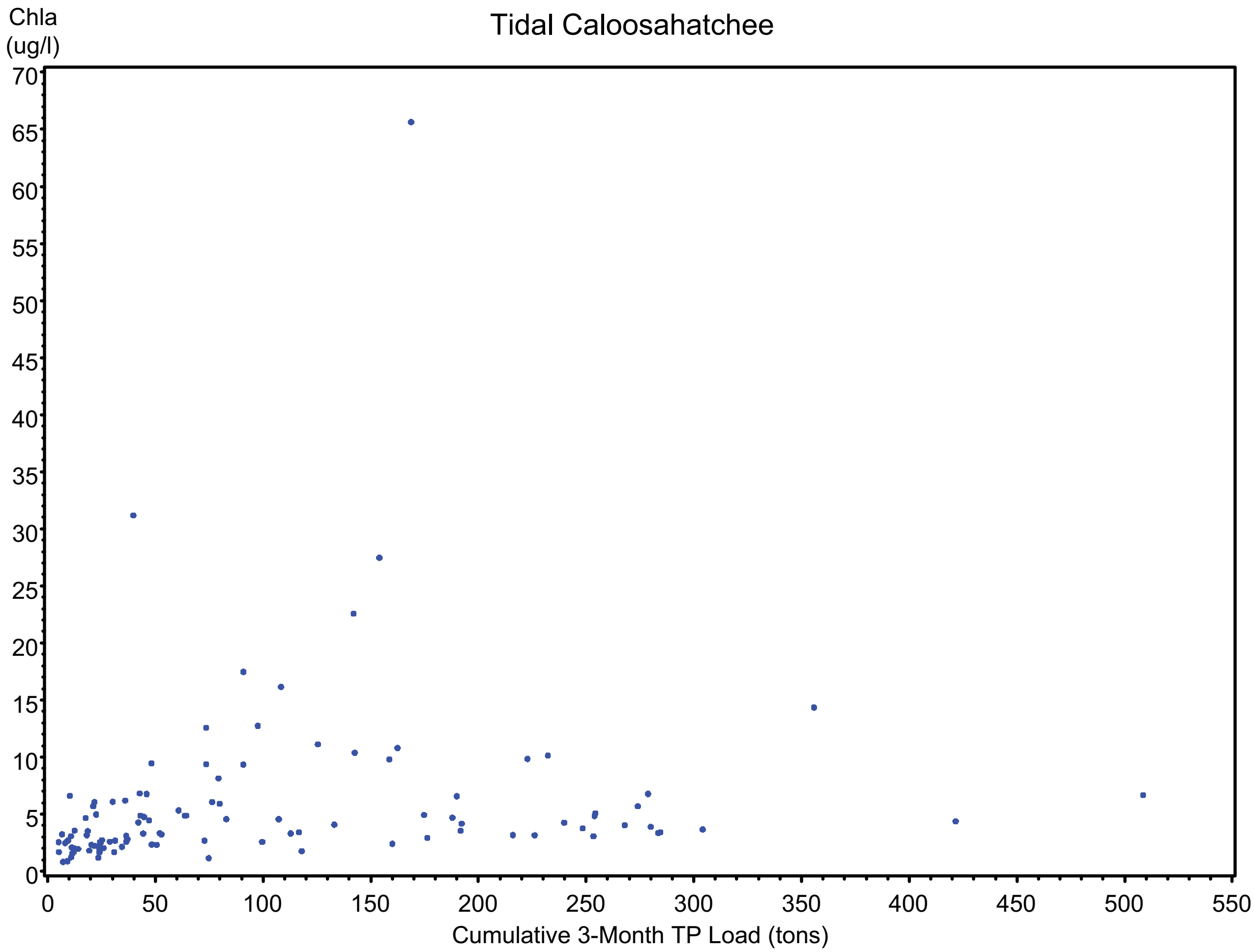

San Carlos Bay
ln Chla
(ug/l)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
1
2
3
4
5
6
ln Monthly TP Load (tons)

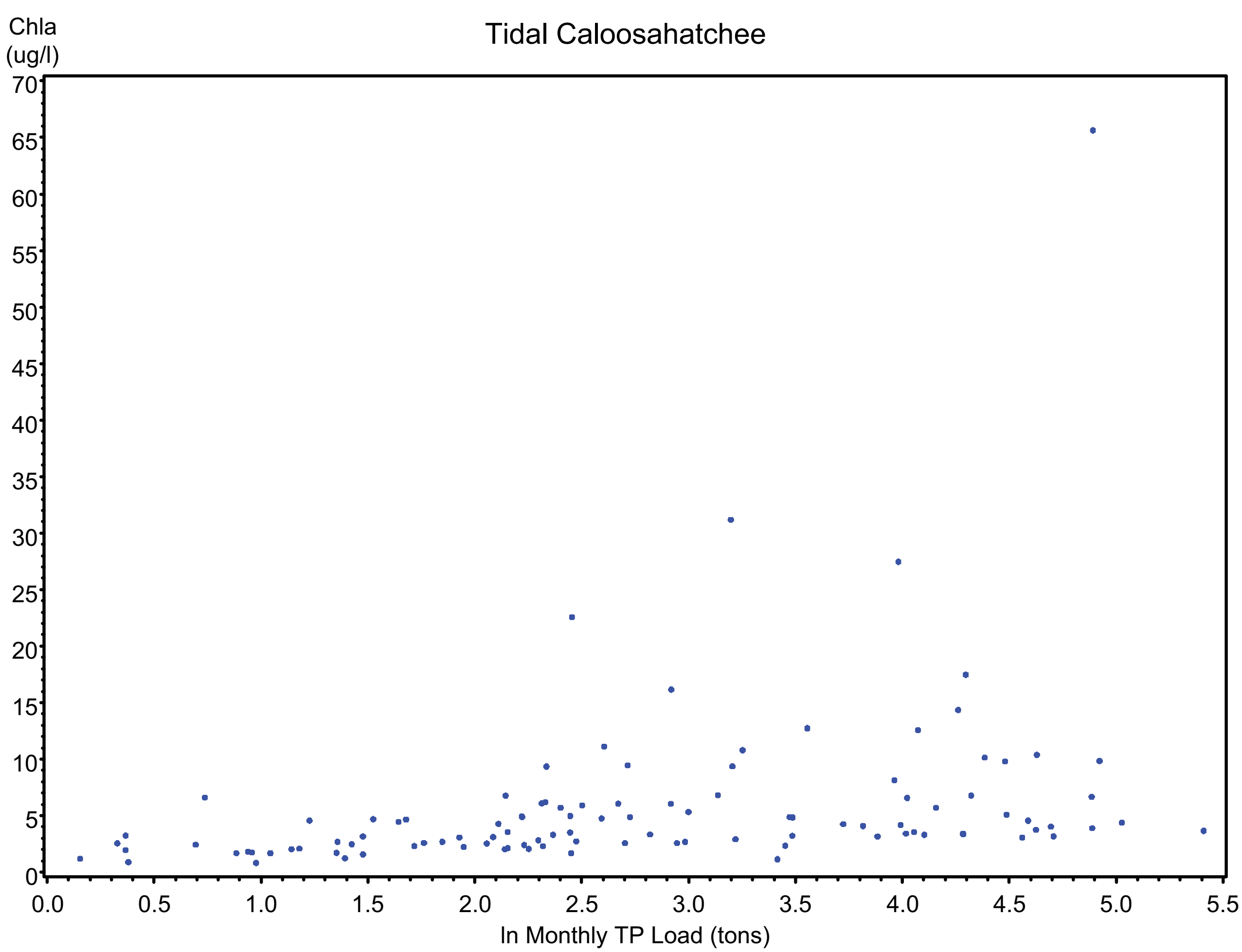

ln Chla
(ug/l)
San Carlos Bay
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
ln Cumulative 2-Month TP Load (tons)

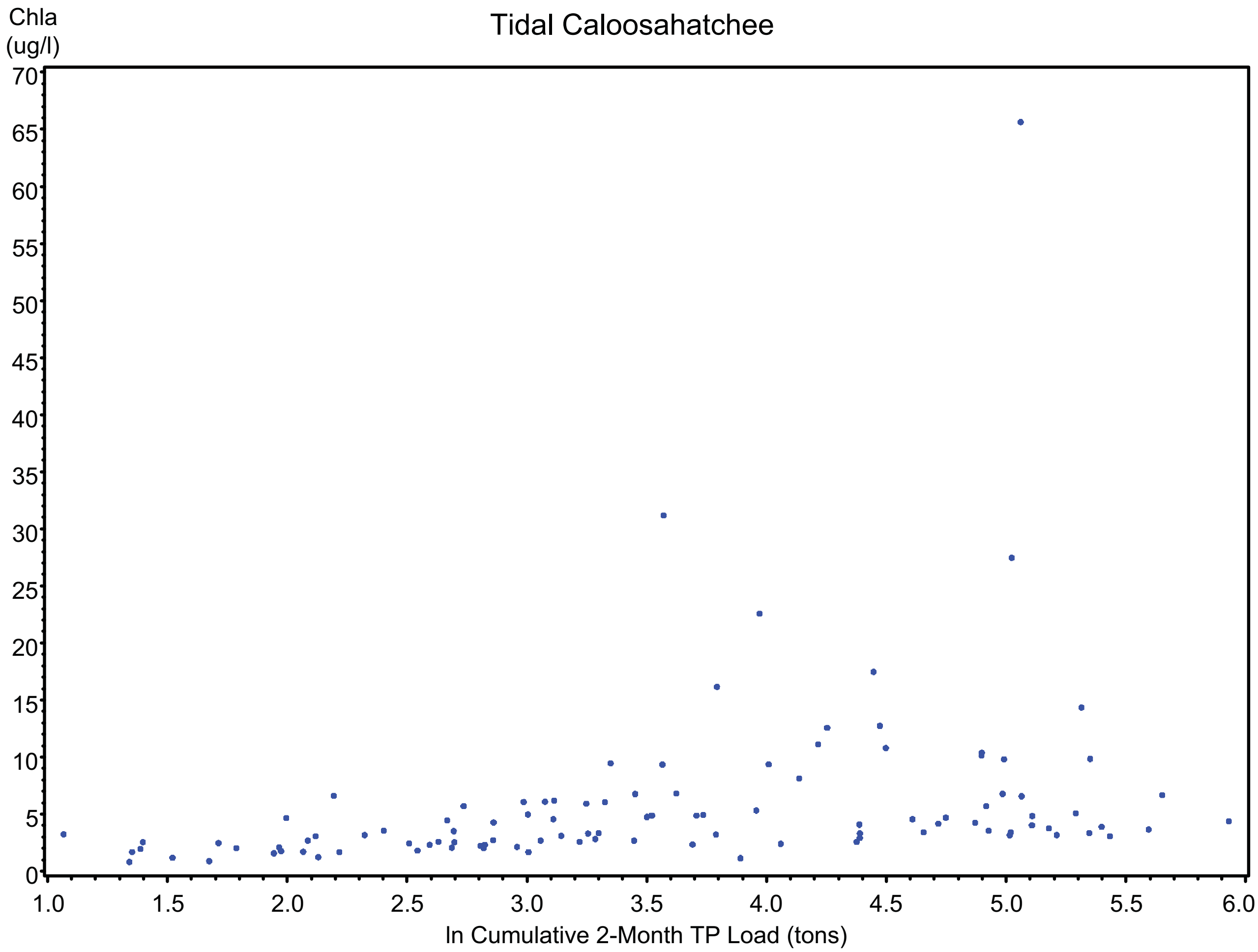

ln Chla
(ug/l)
San Carlos Bay
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
1
2
3
4
5
6
7
ln Cumulative 3-Month TP Load (tons)

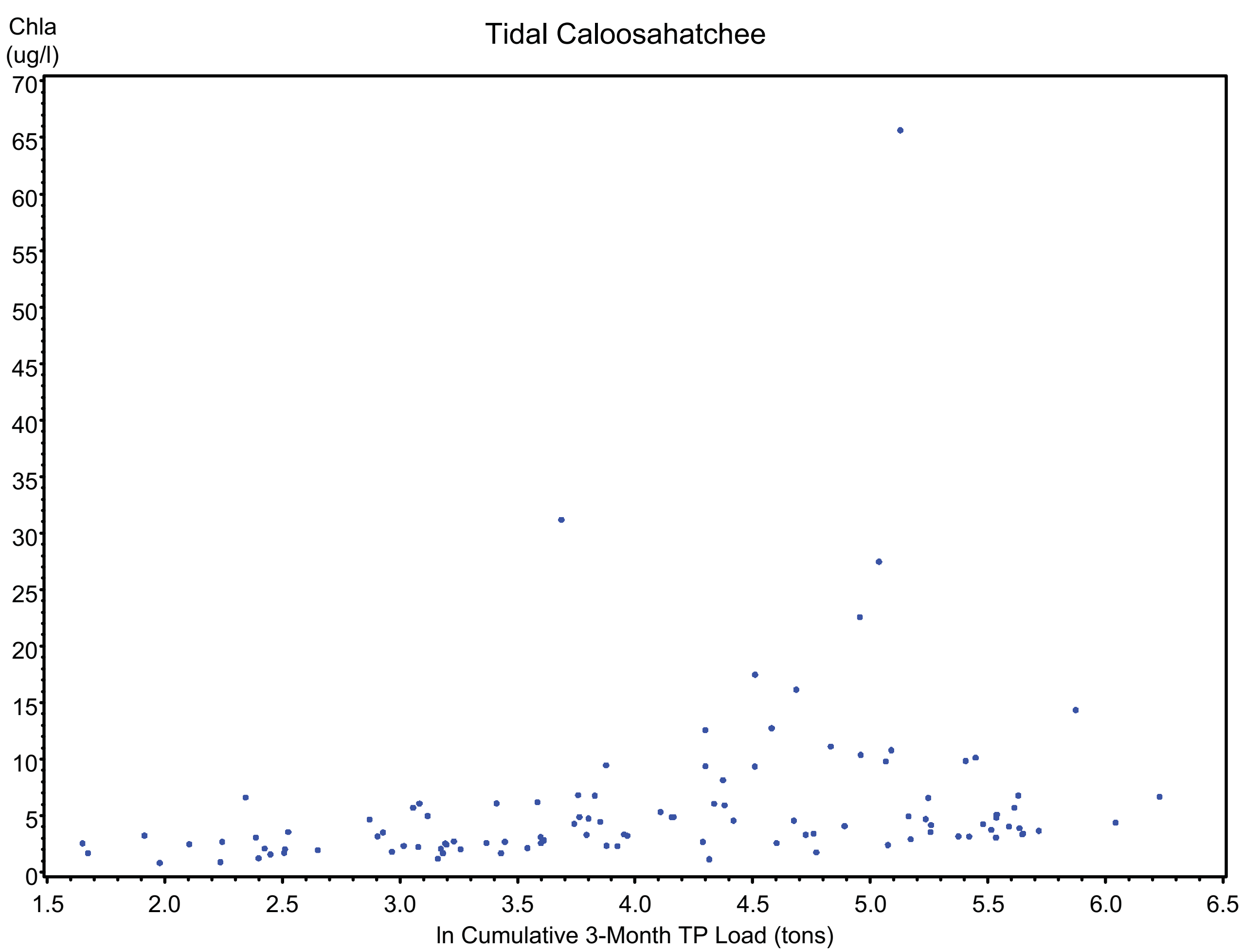

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
25
50
75
100
125
150
175
200
225
250
Monthly TP Load (tons)

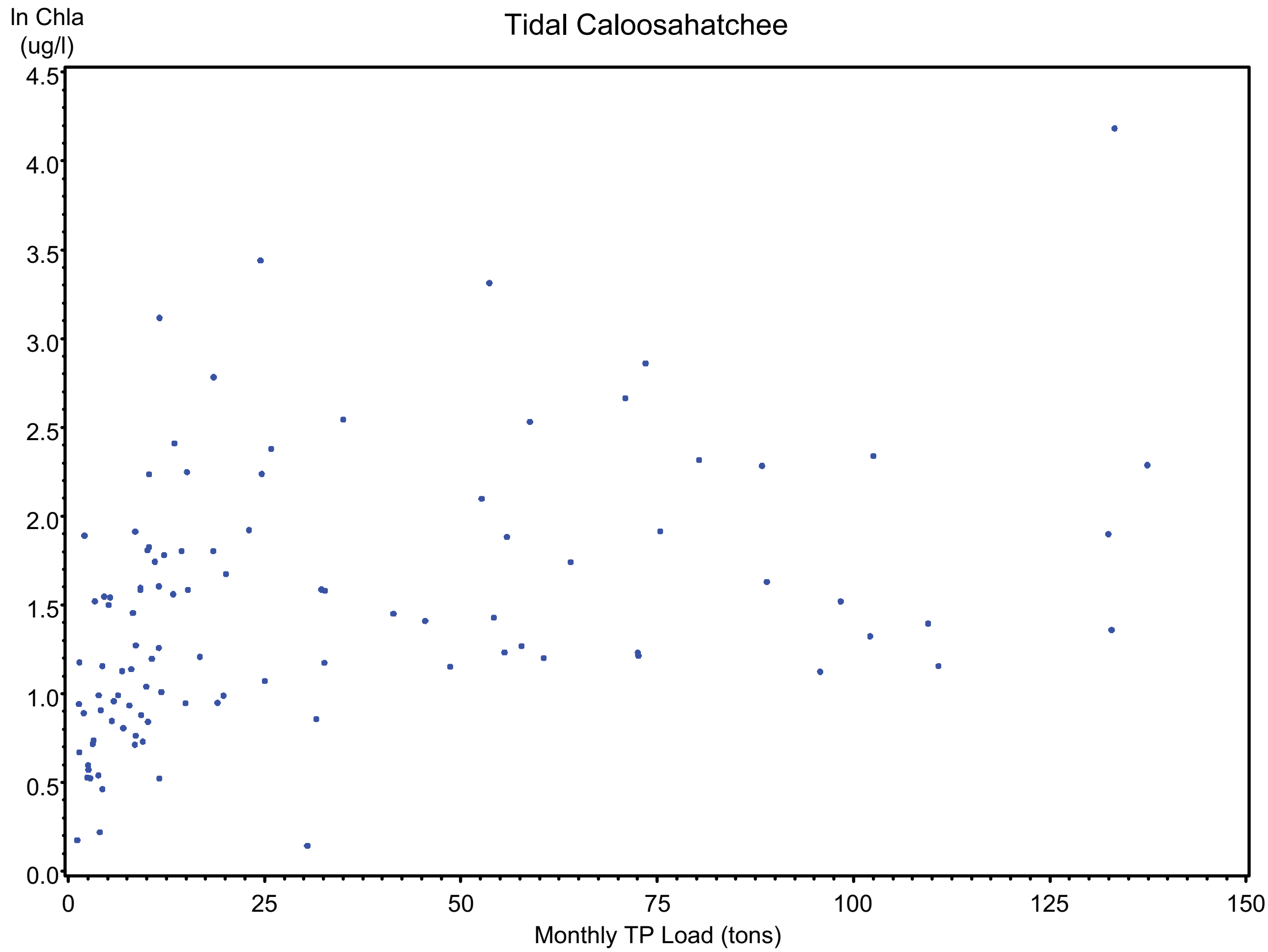

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
0
25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
Cumulative 2-Month TP Load (tons)

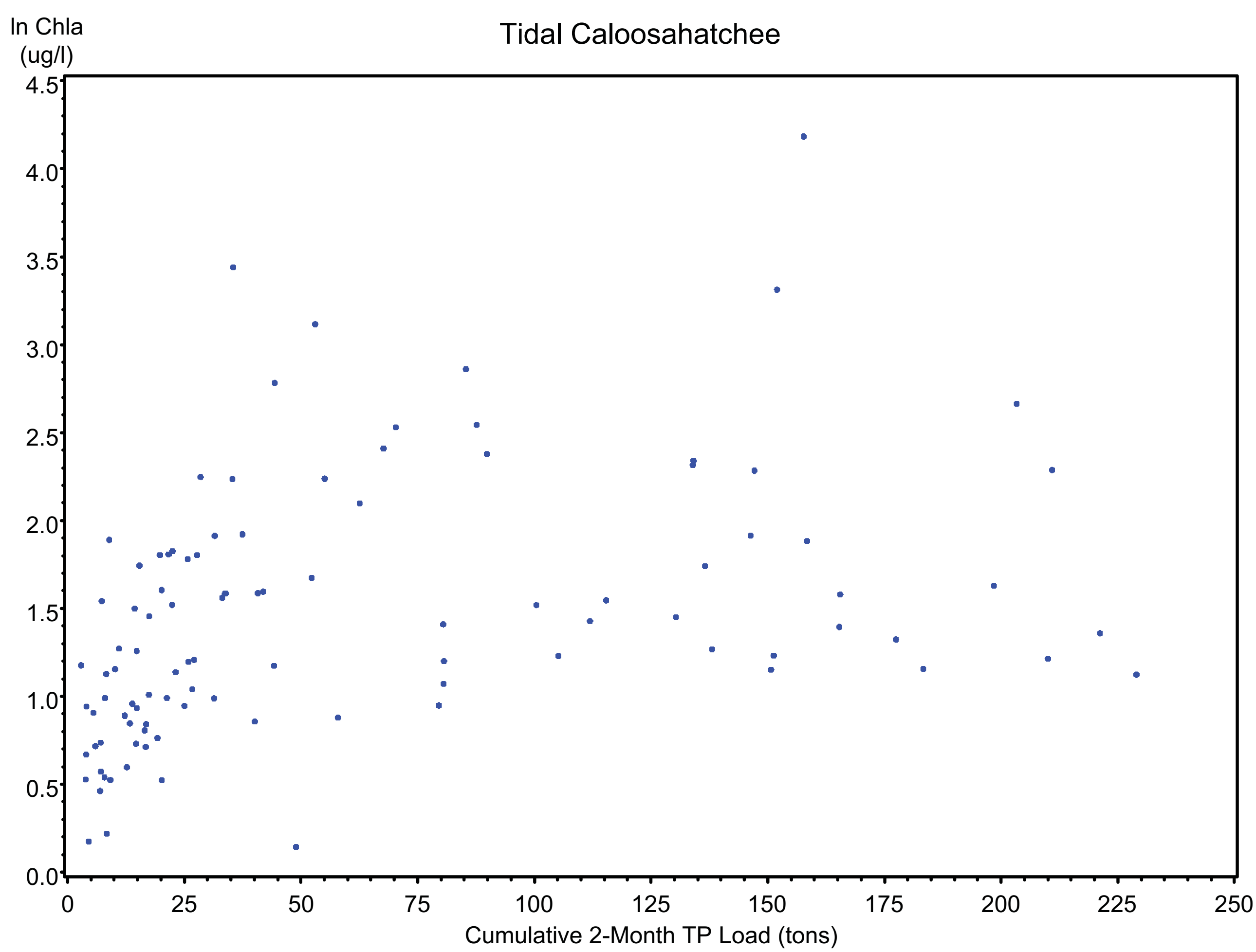

Chla
(ug/l)
Tidal Caloosahatchee
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
0
50
100
150
200
250
300
350
400
450
500
550
Cumulative 3-Month TP Load (tons)

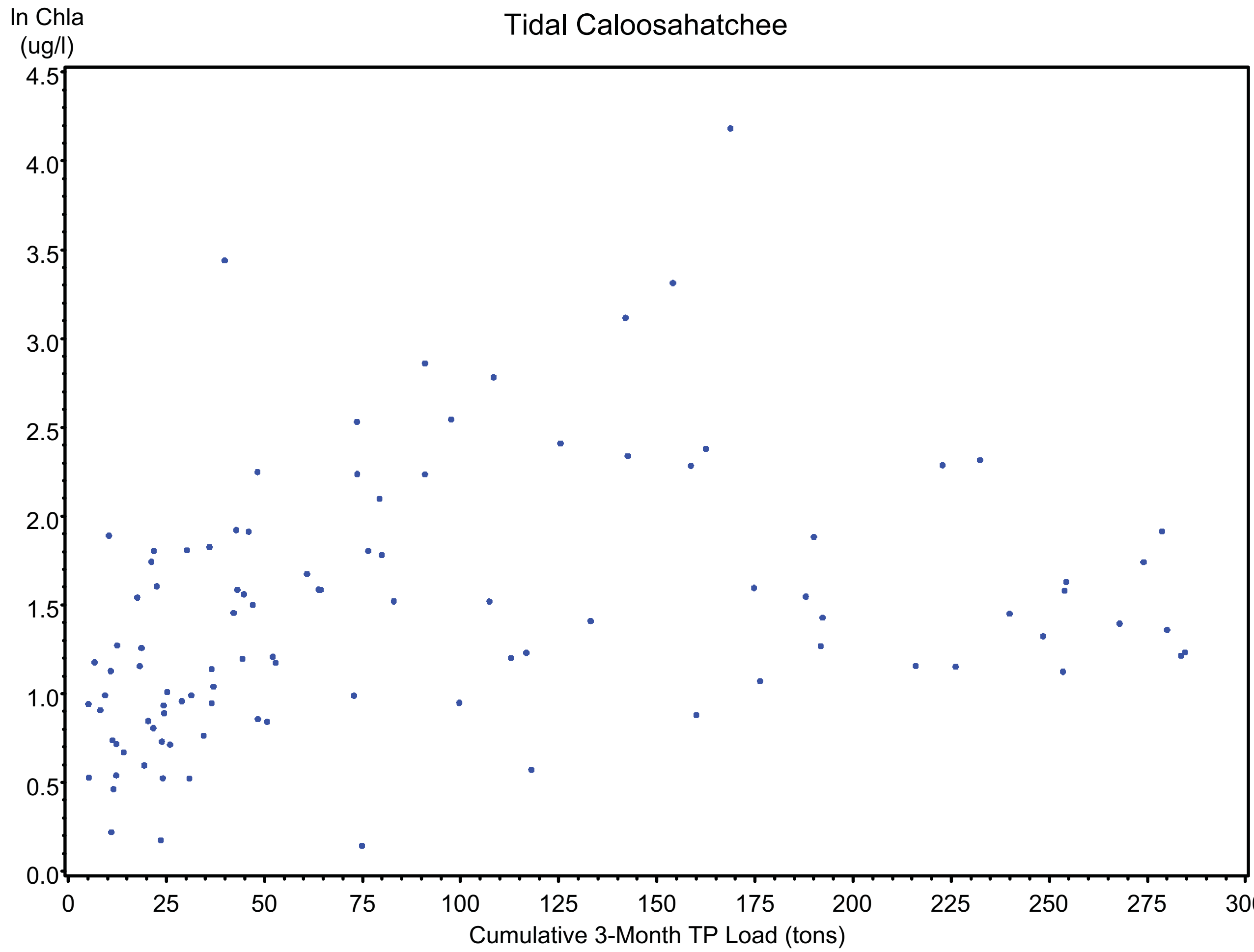

Chla
(ug/l)
Tidal Caloosahatchee
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Monthly TP Load (tons)

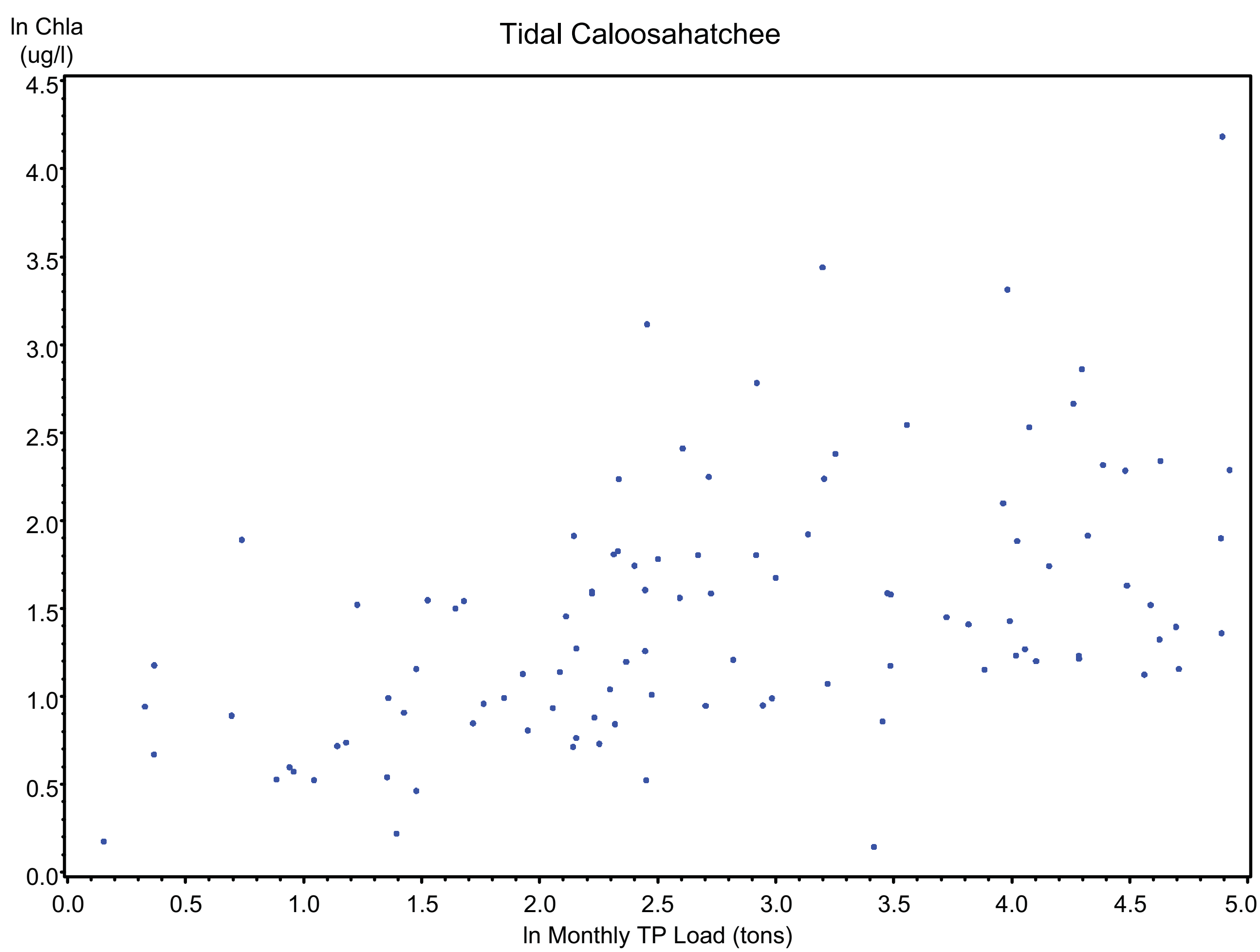

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 2-Month TP Load (tons)

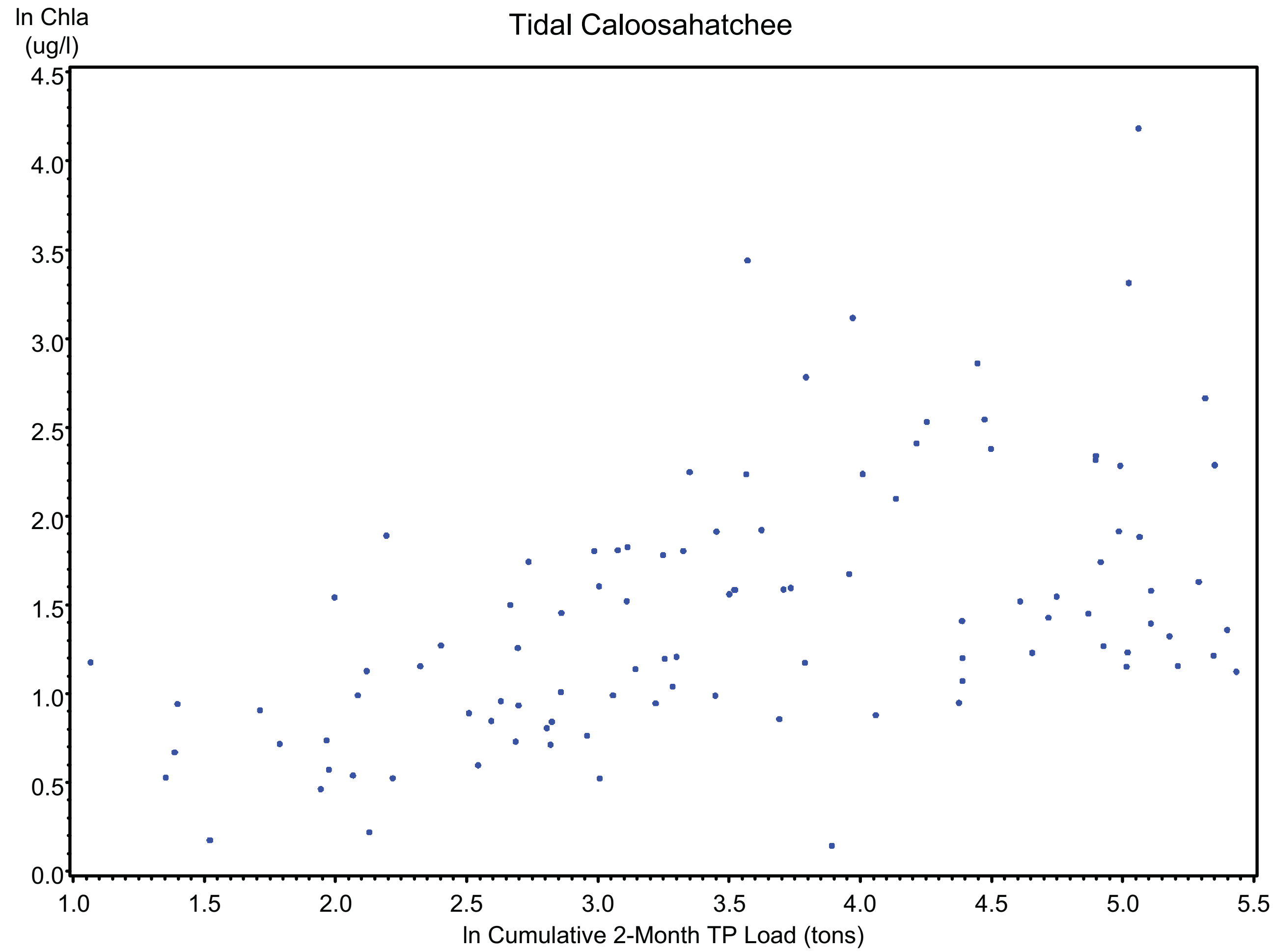

Tidal Caloosahatchee
Chla
(ug/l)
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
ln Cumulative 3-Month TP Load (tons)

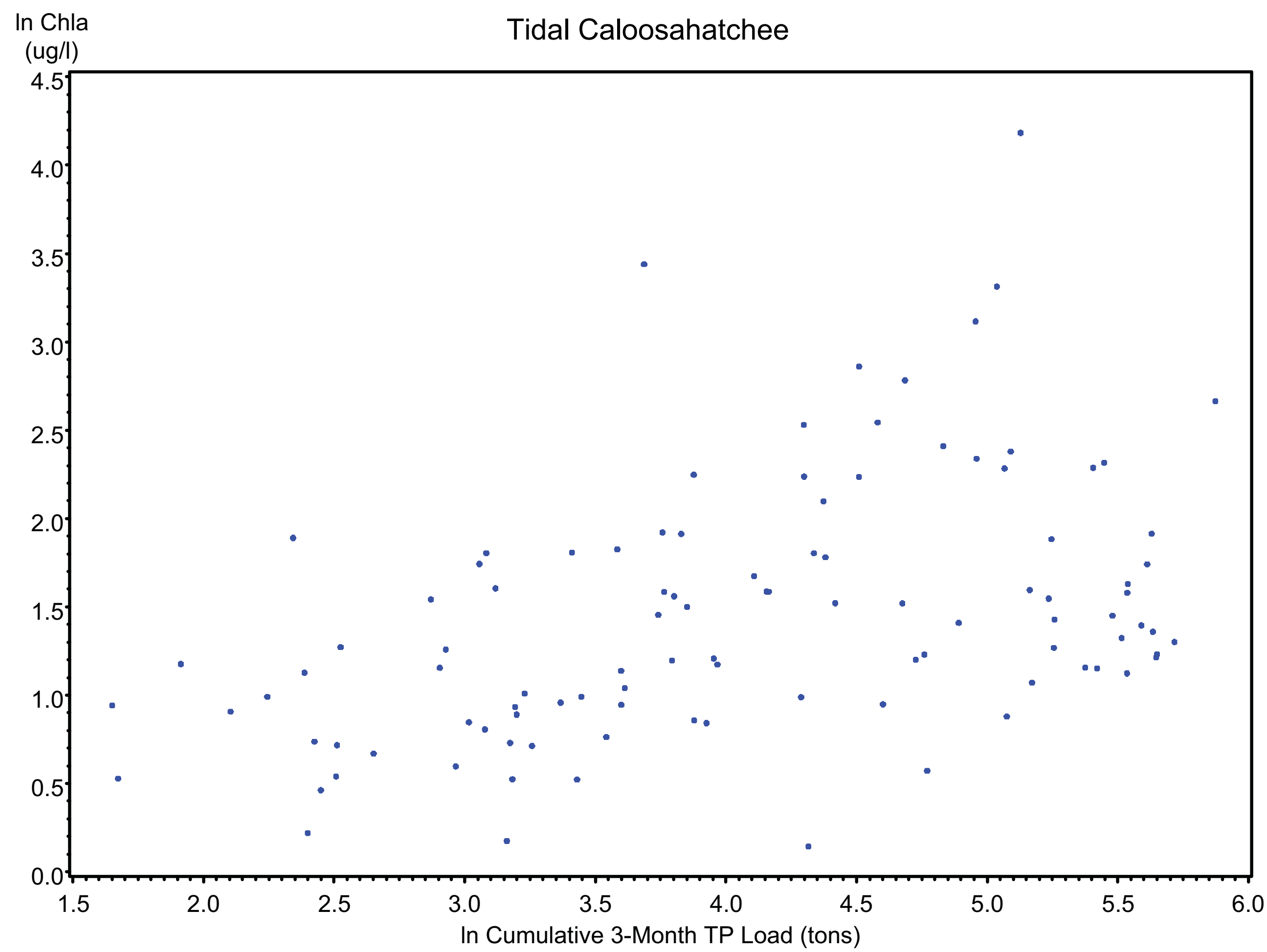

Tidal Caloosahatchee
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
Monthly TP Load (tons)

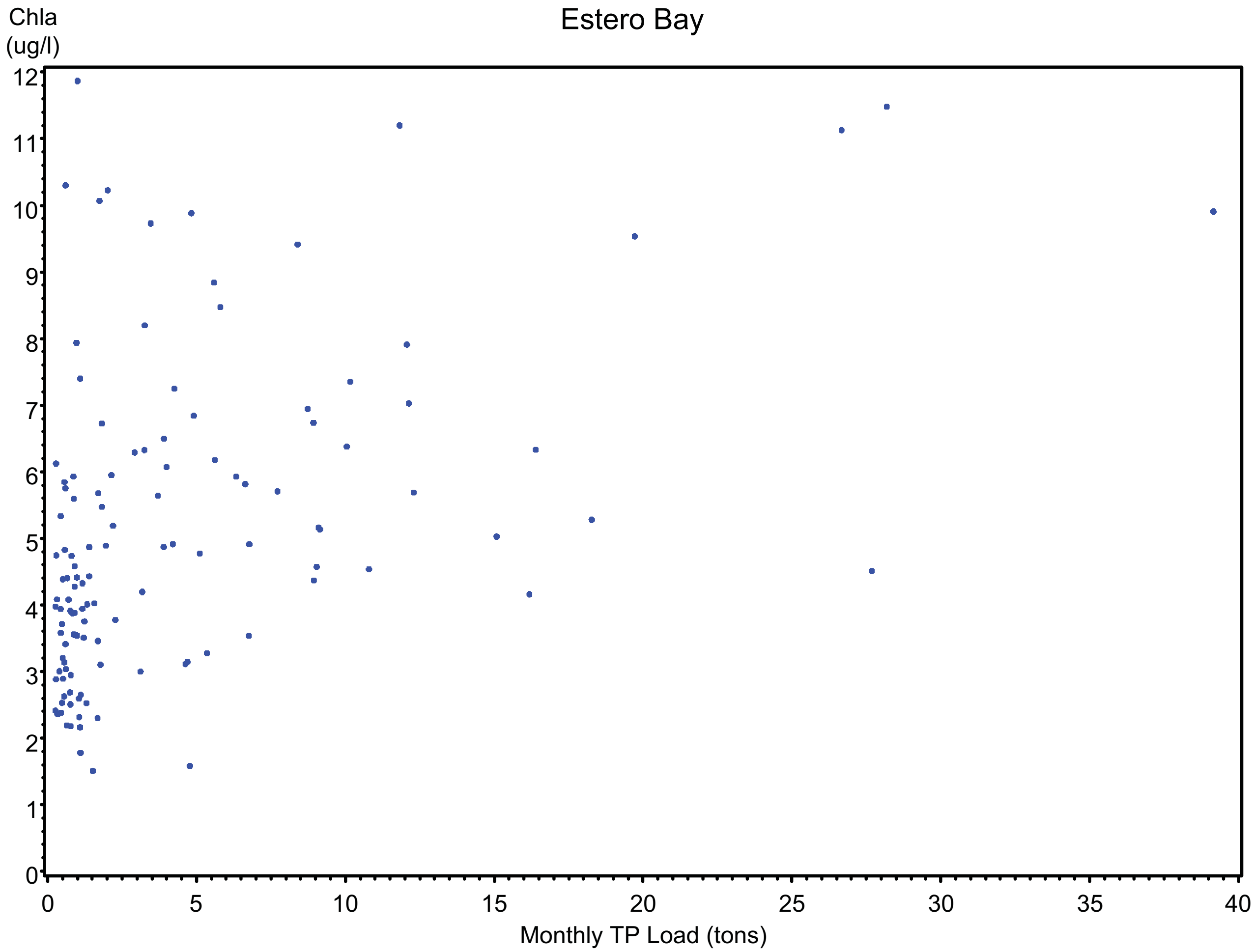

Tidal Caloosahatchee
ln Chla (ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
Cumulative 2-Month TP Load (tons)

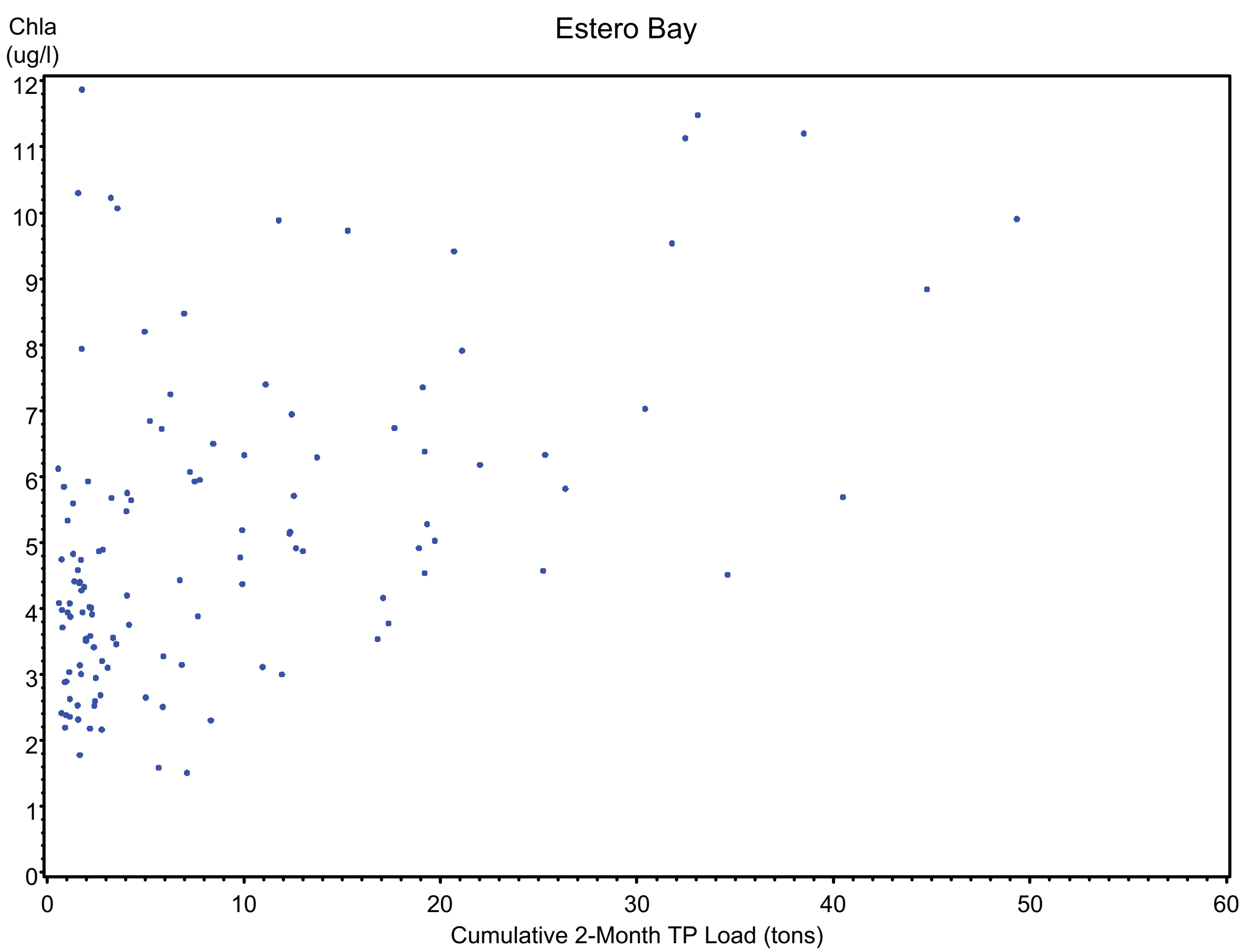

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175
200
225
250
275
300
Cumulative 3-Month TP Load (tons)

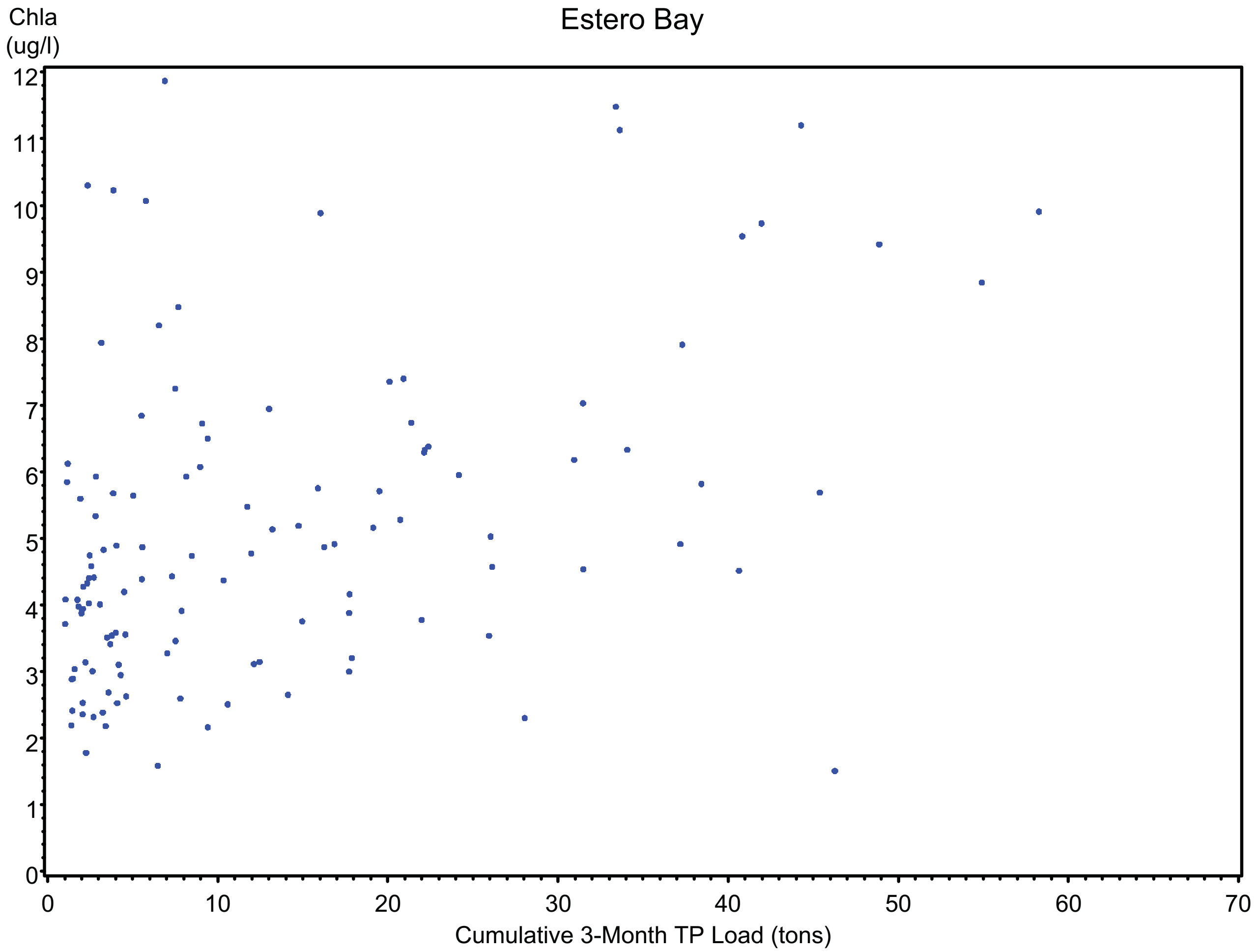

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
ln Monthly TP Load (tons)

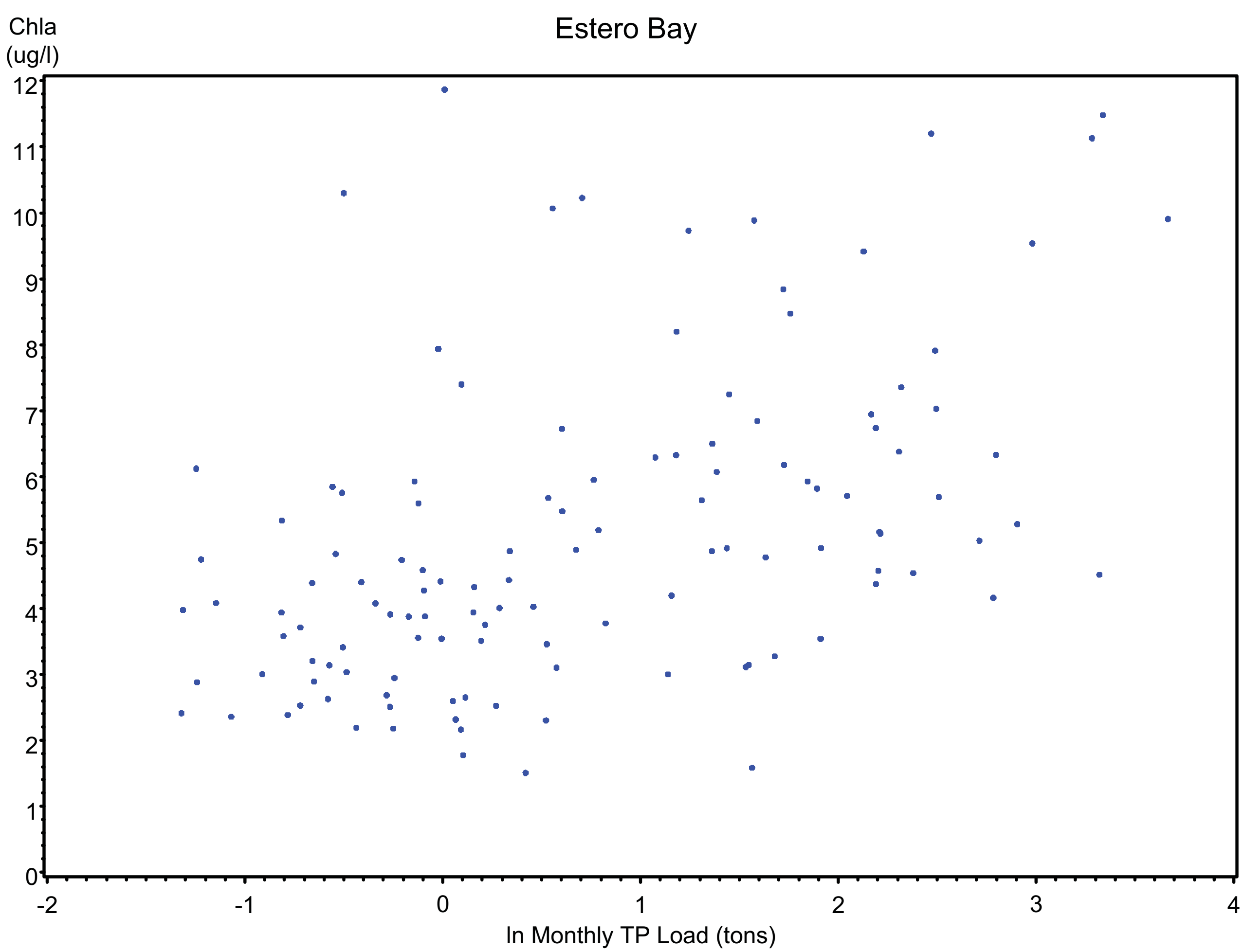

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
ln Cumulative 2-Month TP Load (tons)

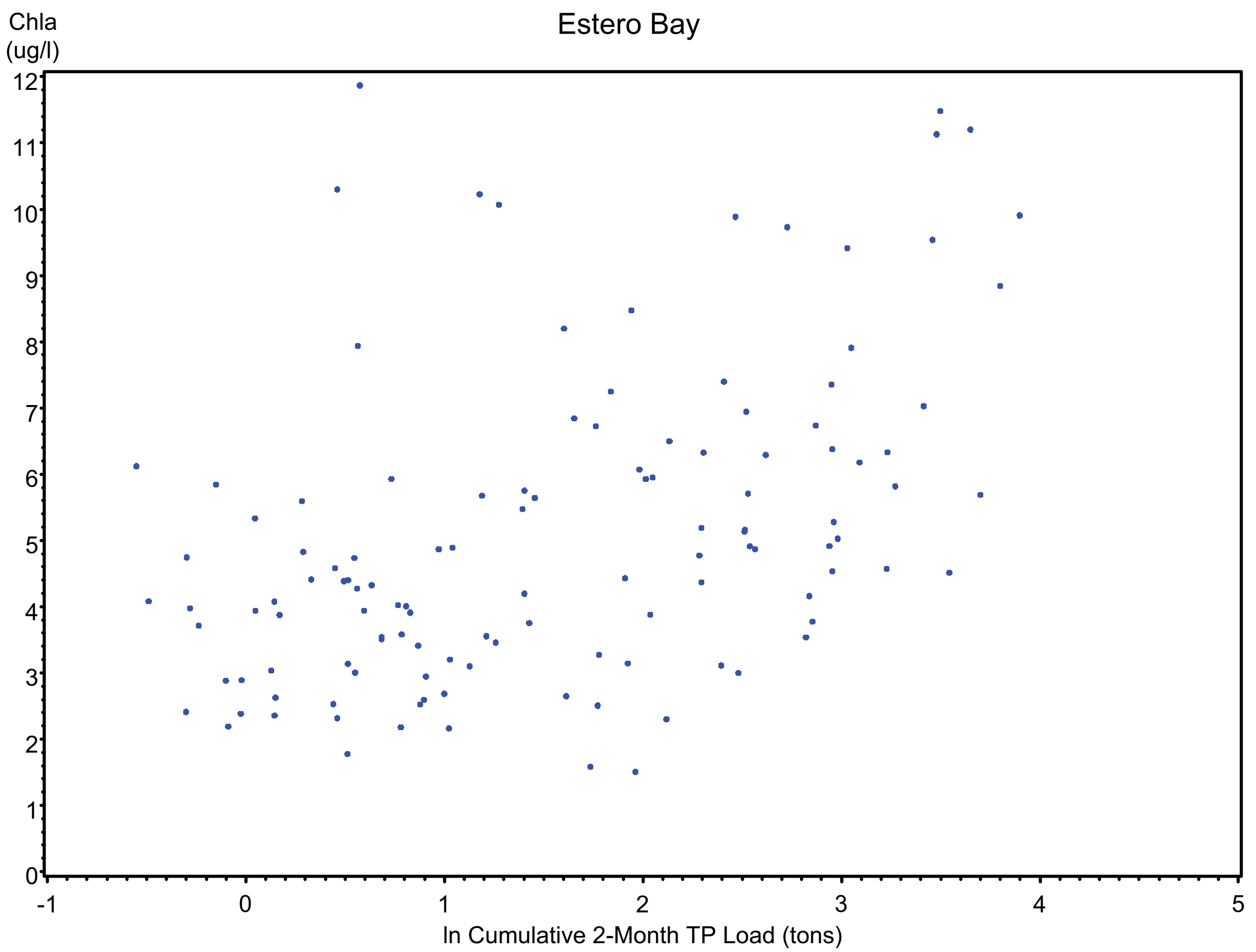

Tidal Caloosahatchee
ln Chla
(ug/l)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
ln Cumulative 3-Month TP Load (tons)


Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
5
10
15
20
25
30
35
40
Monthly TP Load (tons)

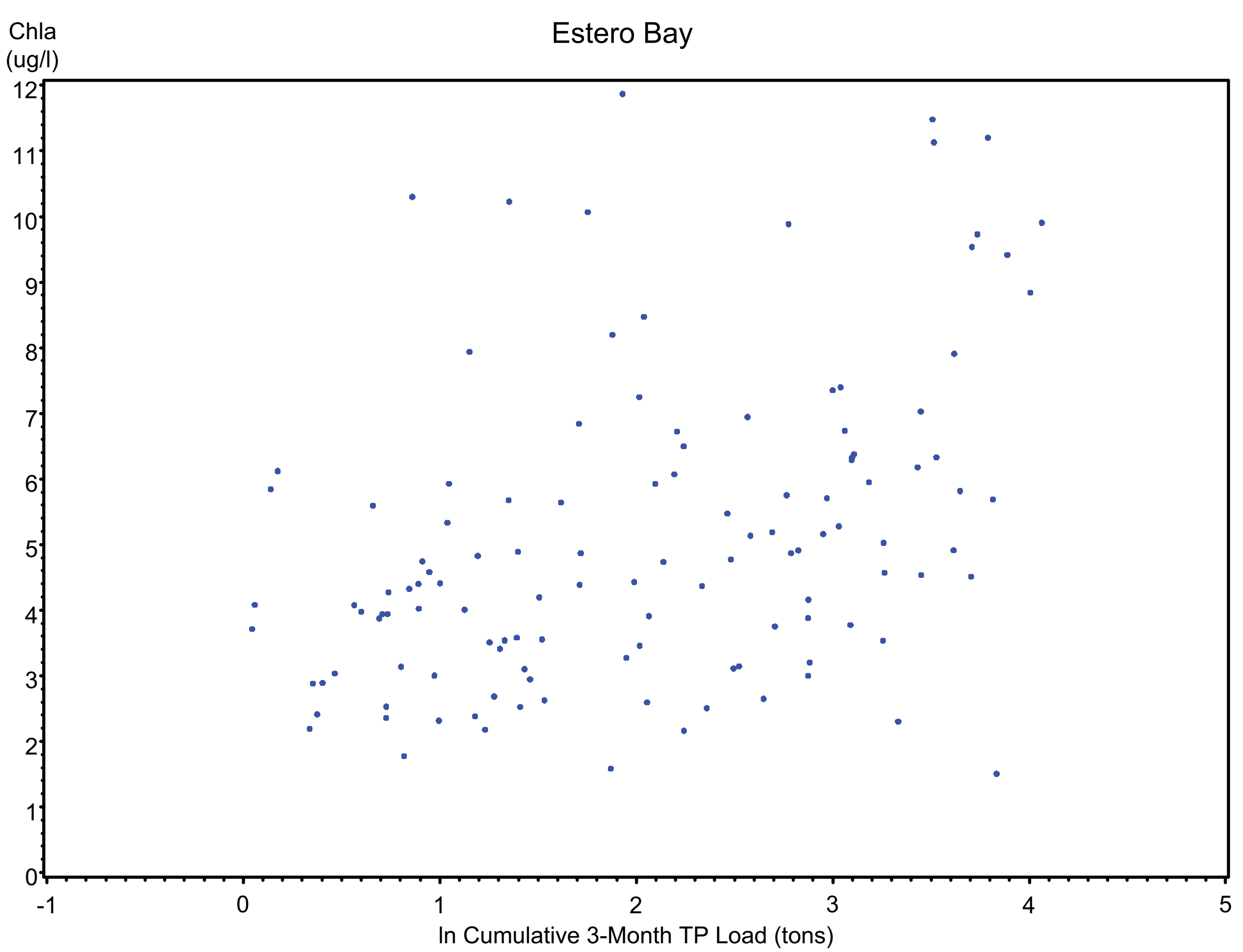

Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
10
20
30
40
50
60
Cumulative 2-Month TP Load (tons)


Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
10
20
30
40
50
60
70
Cumulative 3-Month TP Load (tons)

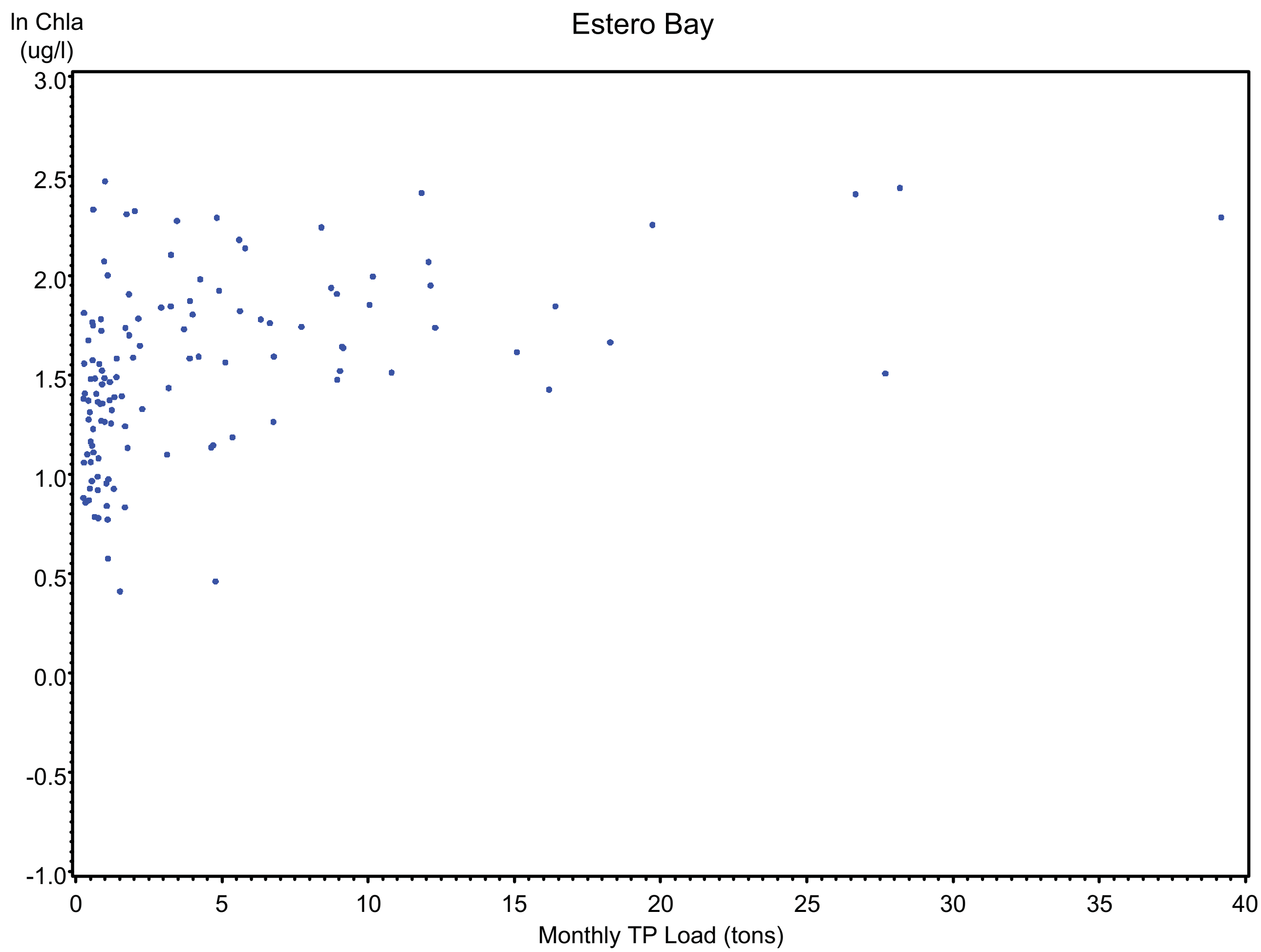

Estero Bay
Chla
(ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-2
-1
0
1
2
3
4
ln Monthly TP Load (tons)



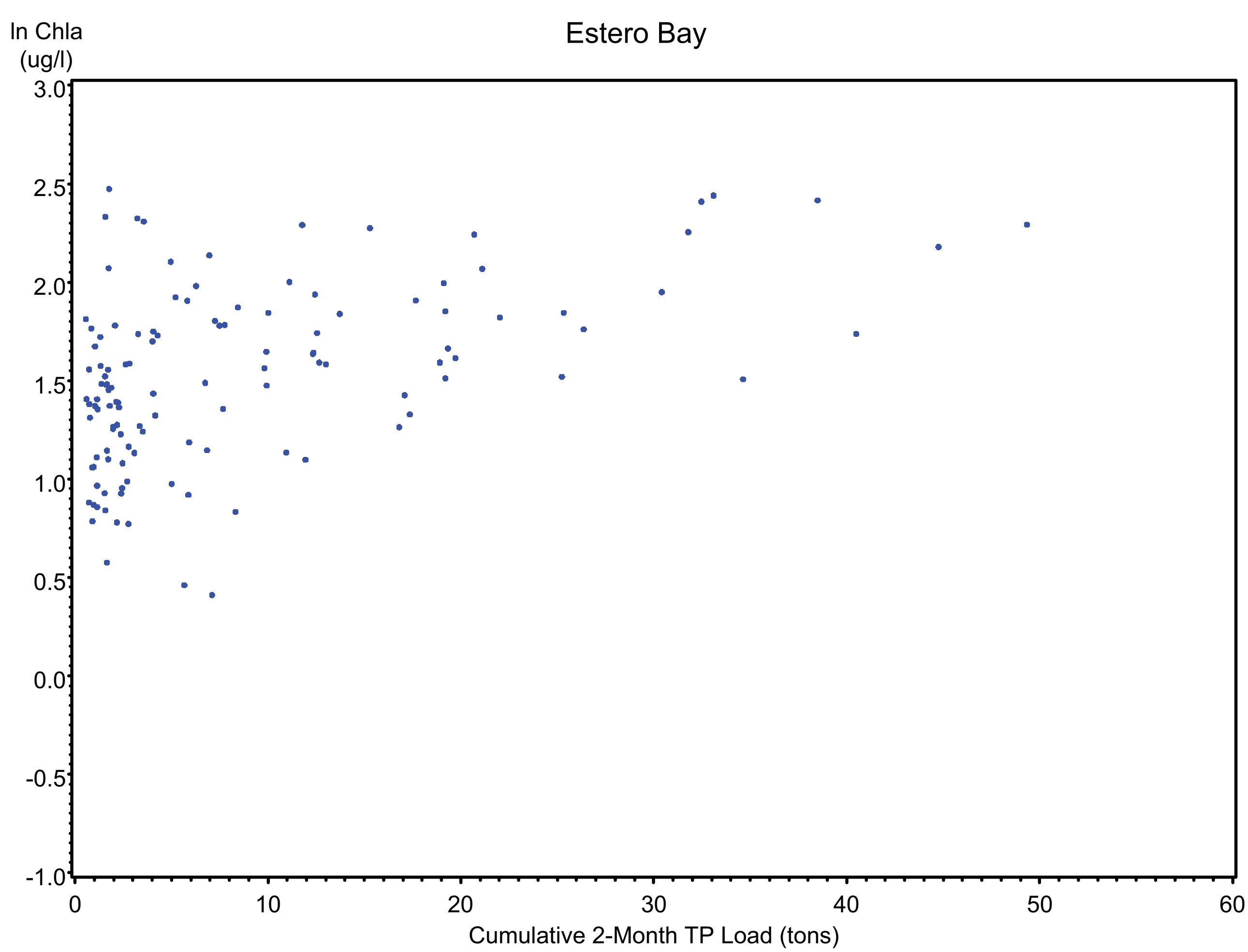
Estero Bay
Chla (ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-1
0
1
2
3
4
5
ln Cumulative 2-Month TP Load (tons)



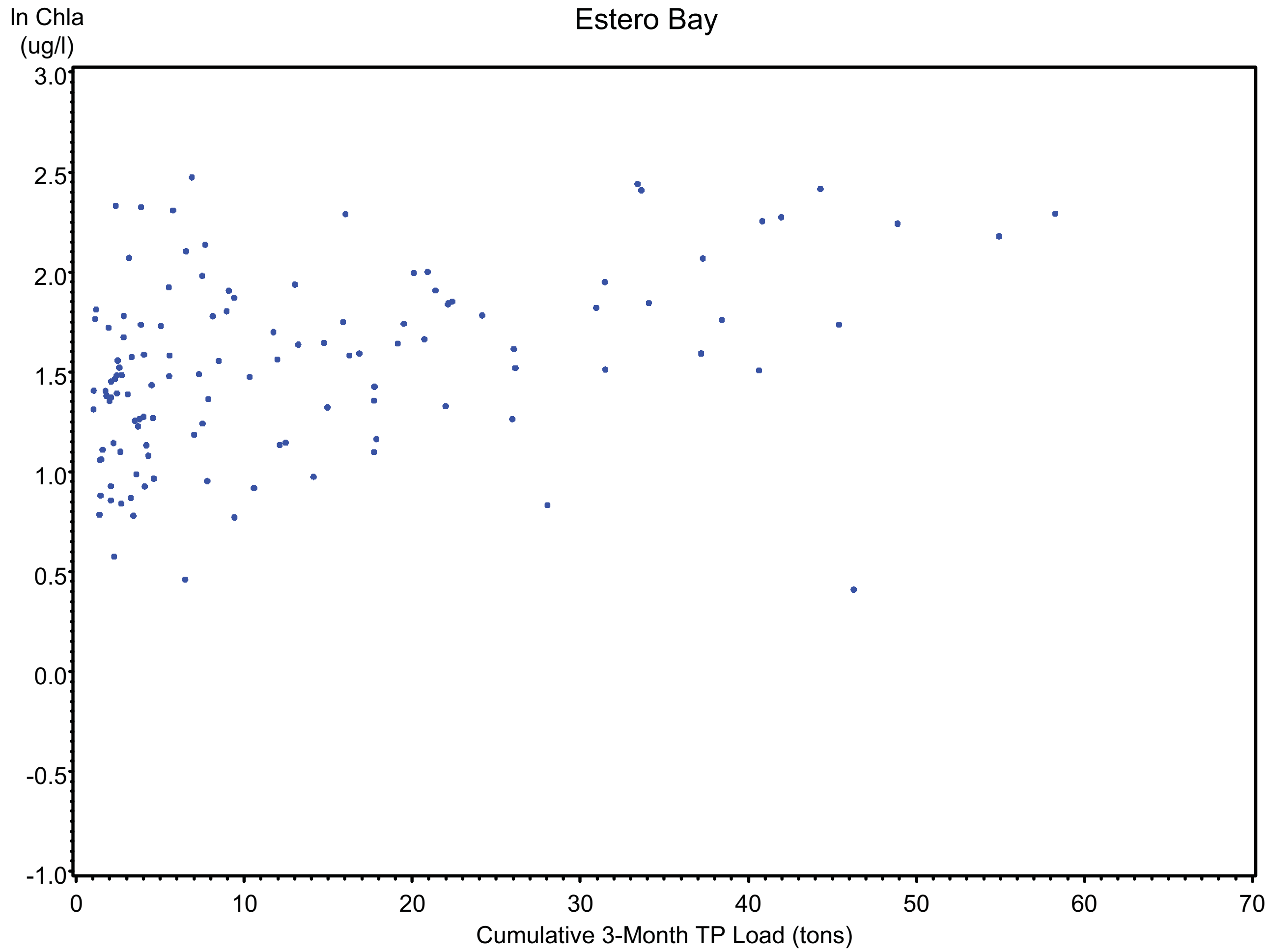
Estero Bay
Chla (ug/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
-1
0
1
2
3
4
5
ln Cumulative 3-Month TP Load (tons)



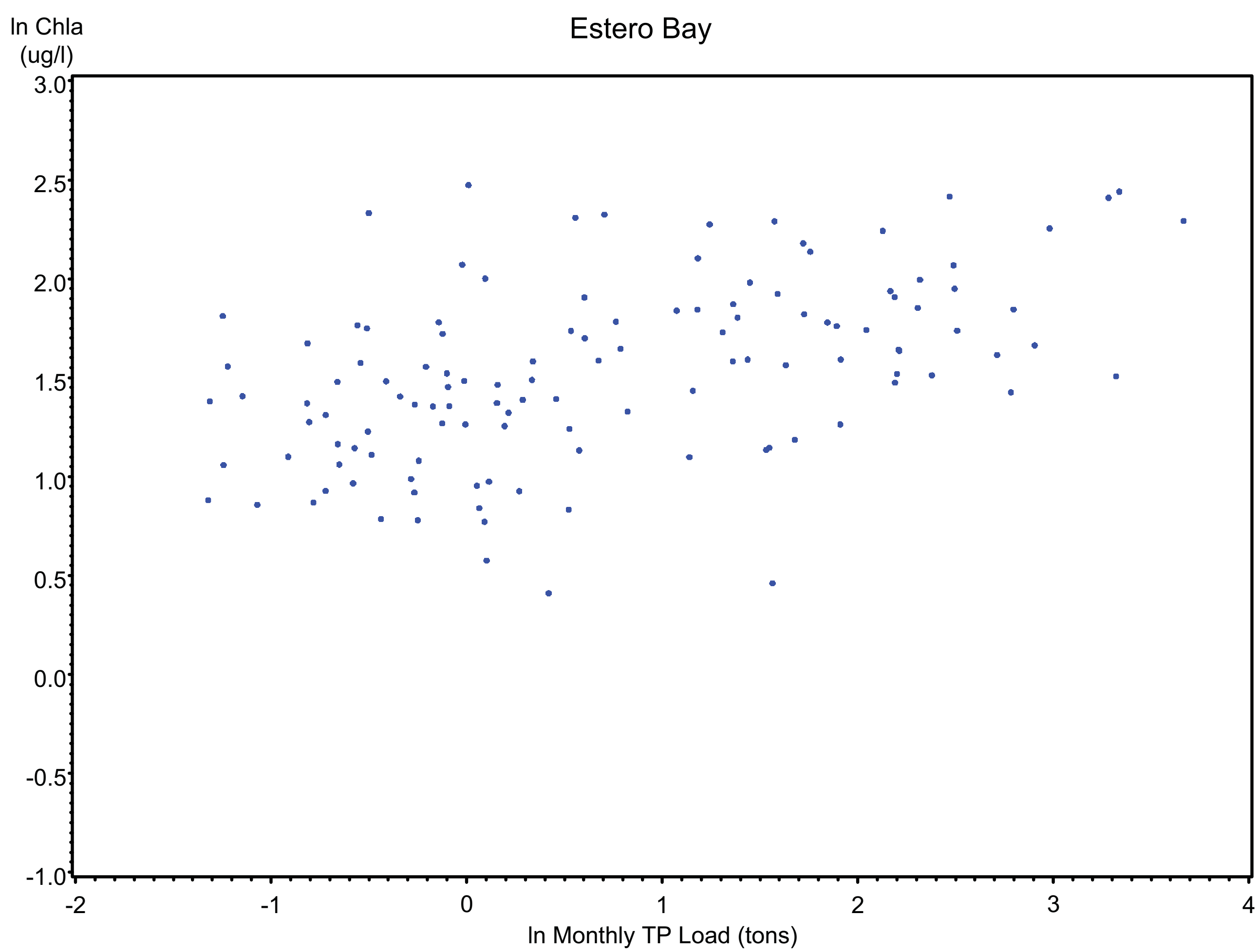
Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
5
10
15
20
25
30
35
40
Monthly TP Load (tons)



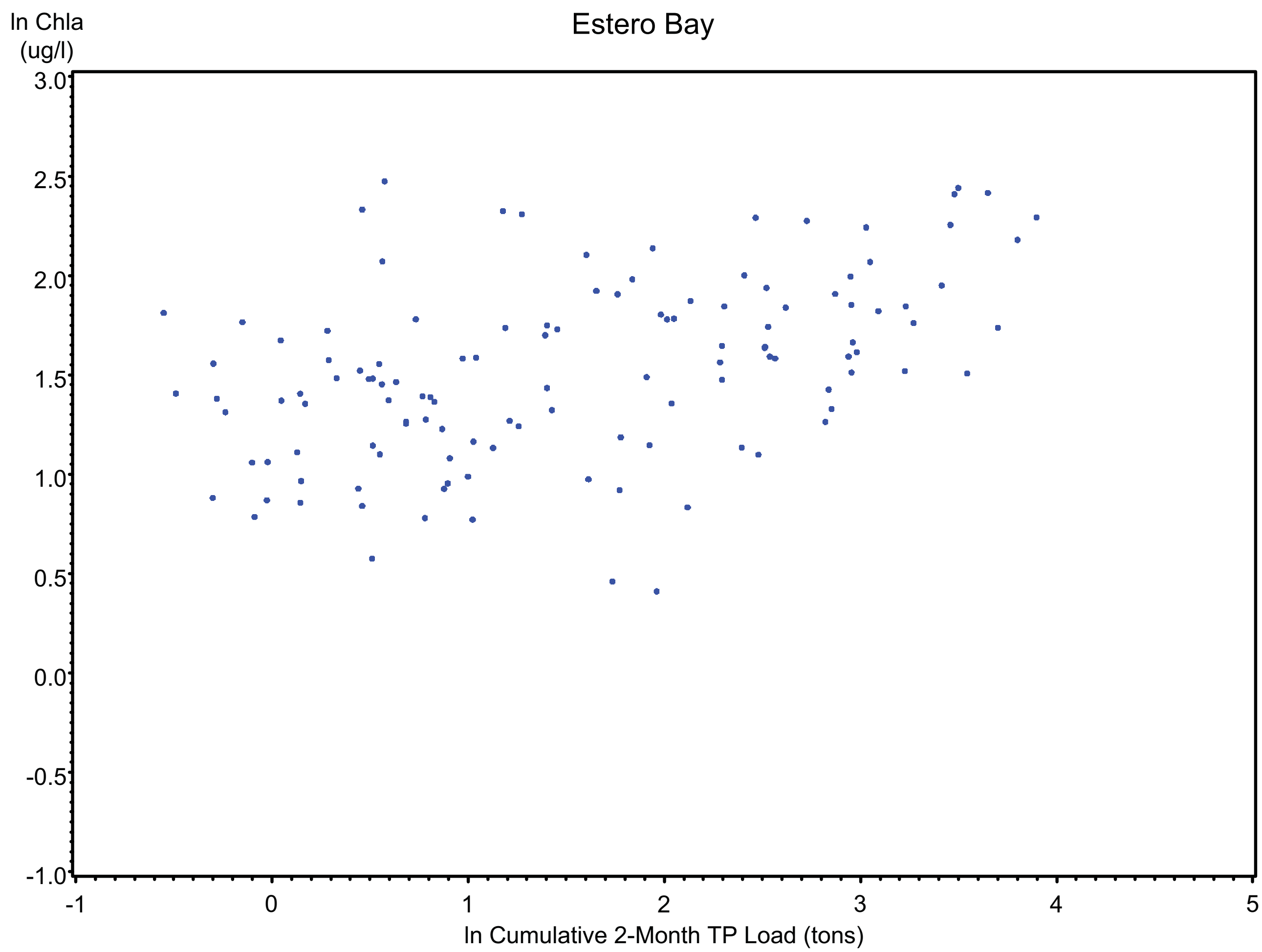
Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
10
20
30
40
50
60
Cumulative 2-Month TP Load (tons)



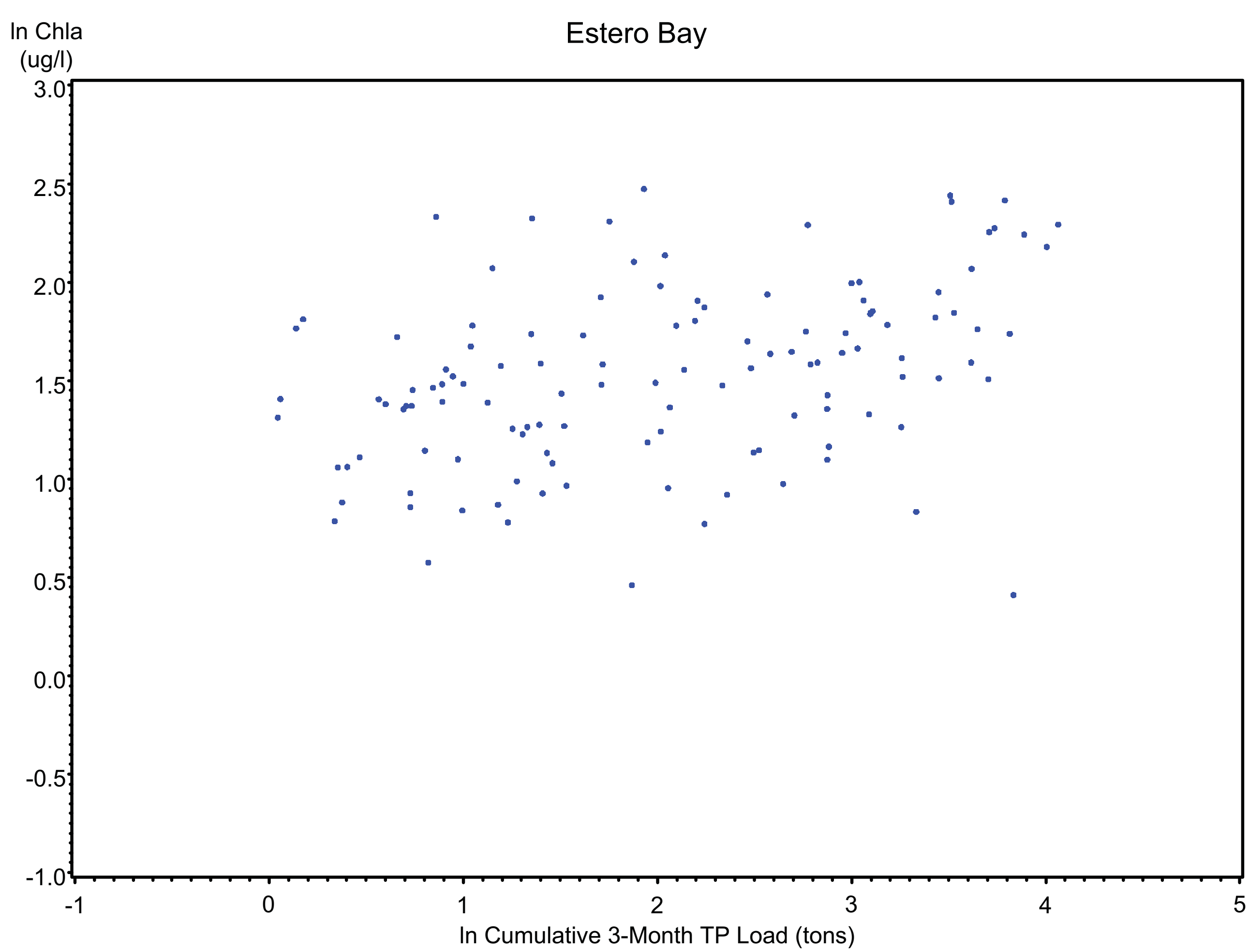
ln Chla
(ug/l)
Estero Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
10
20
30
40
50
60
70
Cumulative 3-Month TP Load (tons)



ln Chla
(ug/l)
Estero Bay
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-2
-1
0
1
2
3
4
ln Monthly TP Load (tons)



Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1
0
1
2
3
4
5
ln Cumulative 2-Month TP Load (tons)



Estero Bay
ln Chla
(ug/l)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1
0
1
2
3
4
5
ln Cumulative 3-Month TP Load (tons)