DEPARTMENT OF THE NAVY
INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
101 STRAUSS AVE
INDIAN HEAD MD 20640-5035

5090
Ser 044SJ/99
9 Jul 02

Mr. Elmer Biles
6315 Indian Head Highway
Indian Head, MD 20640

Dear Mr. Biles:

We are forwarding the minutes from the Installation Restoration (IR) Program Restoration Advisory Board (RAB) meeting that was held on Thursday, June 20, 2002 at the Indian Head Senior Center, which is located at 100 Cornwallis Square, Indian Head, Maryland.

We would like to thank everyone that attended the RAB meeting. We hope to see all of you at the next RAB meeting, which is scheduled for Thursday, October 17, 2002, at the Indian Head Senior Center from 7:00 to 9:00 p.m.

If you have any comments or questions concerning this matter, please contact Mr. Shawn Jorgensen on (301) 744-2263 or Ms. Heidi Morgan on (301) 744-2265.

Sincerely,

CHERYL L. DESKINS
Acting Director,
Environmental Division
By direction of the Commander

Encl:
(1) Minutes from RAB Meeting of 20 Jun 02

Copy to:
RAB Members
Meeting Attendees
ATSDR (D. Jackson)
CH2M Hill (A. Estabrook)
TetraTech (G. Latulippe/A. Bernhardt)

INSTALLATION RESTORATION PROGRAM

INDIAN HEAD DIVISION,
NAVAL SURFACE WARFARE CENTER
101 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5035

RESTORATION ADVISORY BOARD (RAB) MEETING

Date of Meeting: June 20, 2002

Restoration Advisory Board (RAB) Member Participants:

Mr. Elmer Biles (C)
Mr. William Bohli (N)*
Mr. Curtis DeTore (S)
Mr. Wayne McBain (C)
Mr. Jeff Morris (N)
CDR Peter Webb (N)

RAB Members Not in Attendance:

Mr. Gary Davis (L)
Mr. Stephen Elder (L)
Mr. Vincent Hungerford (C)*
Mr. Dennis Orenshaw (F)
Mr. Fred Pinkney (F)
Ms. Karen Wiggen (L)

Additional Attendees:

Mr. Aaron Bernhardt (K)
Mr. Jeff Bossart (N)
Ms. Sherry Deskins (N)
Mr. Shawn Jorgensen (N)
Ms. Tara Landis (N)
Mr. George Latulippe (K)
Ms. Heidi Morgan (N)
Mr. Neal Parker (N)
Mr. Alex Schuman (N)

* Co-Chair

C = Community
F = Federal Official
K = Contractor
L = Local Official
N = Navy Official
R = Newspaper Reporter
S = State Official

ENCL (1)

Major Issues Discussed/Accomplished:

1. Meeting Introduction

Mr. William Bohli of the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC) began the meeting by introducing himself and welcoming everyone to the Indian Head Senior Center. Mr. Bohli stated that both Captain Siedband and Vince Hungerford, the community co-chair, would not be at the meeting, as they were both attending an awards ceremony. At the ceremony, IHDIV-NSWC would be receiving the Leading Edge Award.

Mr. Bohli then presented the meeting agenda, which is included as Attachment A.

2. Mattawoman Creek Study Update

Mr. Aaron Bernhardt of Tetra Tech NUS provided a brief history of sampling performed in the Mattawoman Creek and presented the status of the current Mattawoman Creek Study. Mr. Bernhardt prefaced his discussion with the fact that the Mattawoman Creek Study is still in the beginning stages and sample results have only been compared to screening values. Site-specific ecological and human health risk assessments will be performed using the sample results to determine if a potential risk exists in the creek to human health or the environment.

A copy of Mr. Bernhardt's presentation is included in Attachment B.

3. Upcoming Documents for Review and Upcoming Events

Mr. Shawn Jorgensen of IHDIV-NSWC provided a list of documents that will be available for the RAB to review, most of which will be sent out prior to the next RAB meeting in October 2002. The handout also contained a list of final documents and fieldwork that will be performed prior to the next RAB meeting. In addition, Mr. Jorgensen stated that he would like to set up a tour for RAB members to visit sites where work is being conducted. The best time to visit sites may be in August when construction work at IR Site 12 - Town Gut Landfill is being performed.

A copy of Mr. Jorgensen's presentation is provided in Attachment C.

4. Comments, Questions, and Answers

Numerous comments were made and questions asked during the meeting. These comments, questions, and answers are provided in Attachment D.

5. Conclusion

Mr. William Bohli concluded the meeting by thanking all in attendance. In addition, Mr. Bohli presented the tentative agenda for the next RAB meeting, which is scheduled for Thursday, October 17, 2002 at the Indian Head Senior Center. A copy of the tentative agenda is provided in Attachment E.

INDIAN HEAD DIVISION,
NAVAL SURFACE WARFARE CENTER
INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB) MEETING
AGENDA

June 20, 2002

7:00 - 7:10 **ARRIVAL/WELCOME**

Mr. William H. Bohli
Indian Head Division, Naval Surface Warfare Center
Head, Safety Department

7:10 - 8:40 **MATTAWOMAN CREEK STUDY UPDATE**

Mr. Aaron Bernhardt
Tetra Tech NUS
Senior Ecological Risk Assessor

8:40 - 9:00 **COMMENTS, QUESTIONS, AND ANSWERS**

9:00 **ADJOURN**

Attachment A

Mattawoman Creek Update

Tetra Tech NUS, Inc.

June 20, 2002

Attachment B

Presentation Objectives

- Conceptual Site Model
- Review sampling efforts
- Primary chemicals that were detected in various media
- Preliminary ecological results
- Preliminary human health results

Conceptual Site Model

- Site is Mattawoman Creek
  - Relatively large creek
  - Lower portion classified as tidal freshwater
  - Depths up to 17 feet deep
- Potential sources of contamination
  - Outfalls (site and non-site related)
  - Past waste management practices
  - Documented spills
  - Accidental discharges

Conceptual Site Model

- Initial list of COPCs (based on potential sources)
  - Metals, PAHs, Pesticides/PCBs, Explosives

- Potential receptors include:
  - Humans
  - Fish
  - Aquatic insects/invertebrates
  - Fish-eating wildlife
  - Aquatic vegetation

Sampling Events

- Mattawoman Creek was divided into 5 sampling areas based on:
  - Past sampling
  - IR sites
  - Aerial photographs & field visits with regulators
  - Discussions with IHDIV-NSWC Environmental Manager

Sampling Events

- Background/Reference Areas
  - 2 Upstream locations in Mattawoman Creek
  - 2 Reference locations from Nanjemoy Creek

SPAWAR Screening Event

- Conducted August 15 to 18, 2001
- Collected 48 sediment samples
  - 44 in Mattawoman Creek; 4 in Nanjemoy Creek
- Screening data for select metals (Cr, Cu, Pb, and Zn), total PAHs and total PCBs
- Available data was reviewed prior to main field event

Main Sampling Event

- Conducted September 5 to 9, 2001
  - Sediment
    - Chemistry
    - Toxicity Tests
    - Benthic Community Survey
  - Surface Water
  - Fish tissue (whole body and fillet)
  - Vegetation (Hydrilla)

Sample Summary

- 32 SW/SD samples were collected
  - Areas 1 to 5: Four to seven samples in each area
  - Area 6 and 7: Two samples in each area

- 33 Fish samples were collected
  - 19 Fillet samples
  - 14 Whole body samples

- 7 Vegetation (*Hydrilla*) samples were collected

Sample Summary

- 24 samples were collected for sediment toxicity and benthic community analysis
  - Areas 1 to 5: Three to four samples in each area
  - Area 6 and 7: Two samples in each area
  - 10-day mortality and growth testing using *Hyalella azteca*
  - Various community indices (e.g., number of taxa, species diversity)

Fish Tissue Sampling

- Whole-body samples for ERA
  - Mummichogs initially targeted, but only found in Nanjemoy Creek; Surrogate species were selected for Mattawoman Creek:
    - Pumpkinseed
    - Spottailed shiner
    - Golden shiner

Fish Tissue Sampling

- Filet samples for HHRA
  - Channel catfish were initially targeted because they are bottom feeders and likely to be consumed by humans in the area
    - During sampling, channel catfish were only found in Areas 1, 3 and 5
    - The following species were collected as surrogates:
      - White catfish
      - Brown bullhead catfish
      - Large-mouth bass
      - White perch

of Fish Samples in Each Area

Fish Species	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7
Fillet (Human Health)							
Channel Catfish	2		2		1		
Largemouth Bass	1	3	1	2	1	1	
White Catfish				3			
White Perch							1
Brown Bullhead						1	
Whole Body (Ecological)							
Mummichog							1
Shiner	1	1	1	1	1	1	
Pumpkinseed	1	1	1	1	1	1	1

Area 1 Sediment Results

- MTCSD001 to 005, 029, and 030
- Includes samples from CH2M Hill (Sites 11 and 17)
  - Few organic chemicals > Eco Screening Value (SV)
  - Several elevated lead detections
    - 76,400 mg/kg (may be from a lead fragment)
    - Several detections > 1,000 mg/kg
  - Other metals were also elevated in samples with high lead results

Area 2 Sediment Results

- MTCSD006 to 012
  - Elevated PAHs in MTCSD012
  - Low concentrations of metals

Area 3 Sediment Results

- MTCSD013 to 016
  - Relatively low concentrations
  - Most organic chemicals < Eco SVs
  - Some metals > Eco SVs
    - Low concentrations

Area 4 Sediment Results

- MTCSD017 to 021
- Includes samples from Sites 39 & 41
  - PAHs elevated in two samples (020 and 021)
  - Elevated silver in several samples
    - 39SD03, 04, and 07
  - Elevated mercury in several samples
    - 39SD07, and 08

Area 5 Sediment Results

- MTCSD022 to 026
- Low concentrations of organic chemicals
- Elevated metals in one sample (MTCSD026)
  - Arsenic = 70 mg/kg
  - Copper = 222 mg/kg
  - Lead = 3,010 mg/kg
  - Zinc = 71,000 mg/kg

Areas 6 and 7 Sediment Results

- MTCSD027 to 028 and NJCSD001 and 002
  - Low concentrations of organic chemicals
  - Low concentrations of metals

Concentration Plots

(located at end of presentation)

Surface Water Results

- Some VOCs detected, all below Eco SVs
- Few SVOCs detected, all below Eco SVs
- Several metals detected; Few exceeded the Eco SVs
- 3 Explosives detected (1 detection of 38)
- Perchlorate/Ammonia Perchlorate (6 detections of 48)

Fish Tissue Results

- Whole body samples
  - 2 Explosives (nitroglycerin and nitroguanidine)
  - Several metals - Similar to background
  - Few SVOCs - Similar to bkg. (may be lab related)
  - 2 Pesticides (max=17 ug/kg) ~ 2X background
  - 1 PCB (max=130 ug/kg) ~ 2X background

Fish Tissue Results

- Fillet samples
  - 5 Explosives (1,3-dinitrobenzene, 2-amino-4,6-dinitrotoluene, HMX, nitrocellulose, nitroguanidine)
    - 4 fish samples (not all explosives detected in each sample)
  - Perchlorate (1 fish sample)
  - Several metals - Similar to background
  - Few SVOCs - Similar to bkg. (may be lab related)
  - 5 Pesticides (max=110 ug/kg for DDE, other detected infrequently)
  - 1 PCB (max=380 ug/kg)

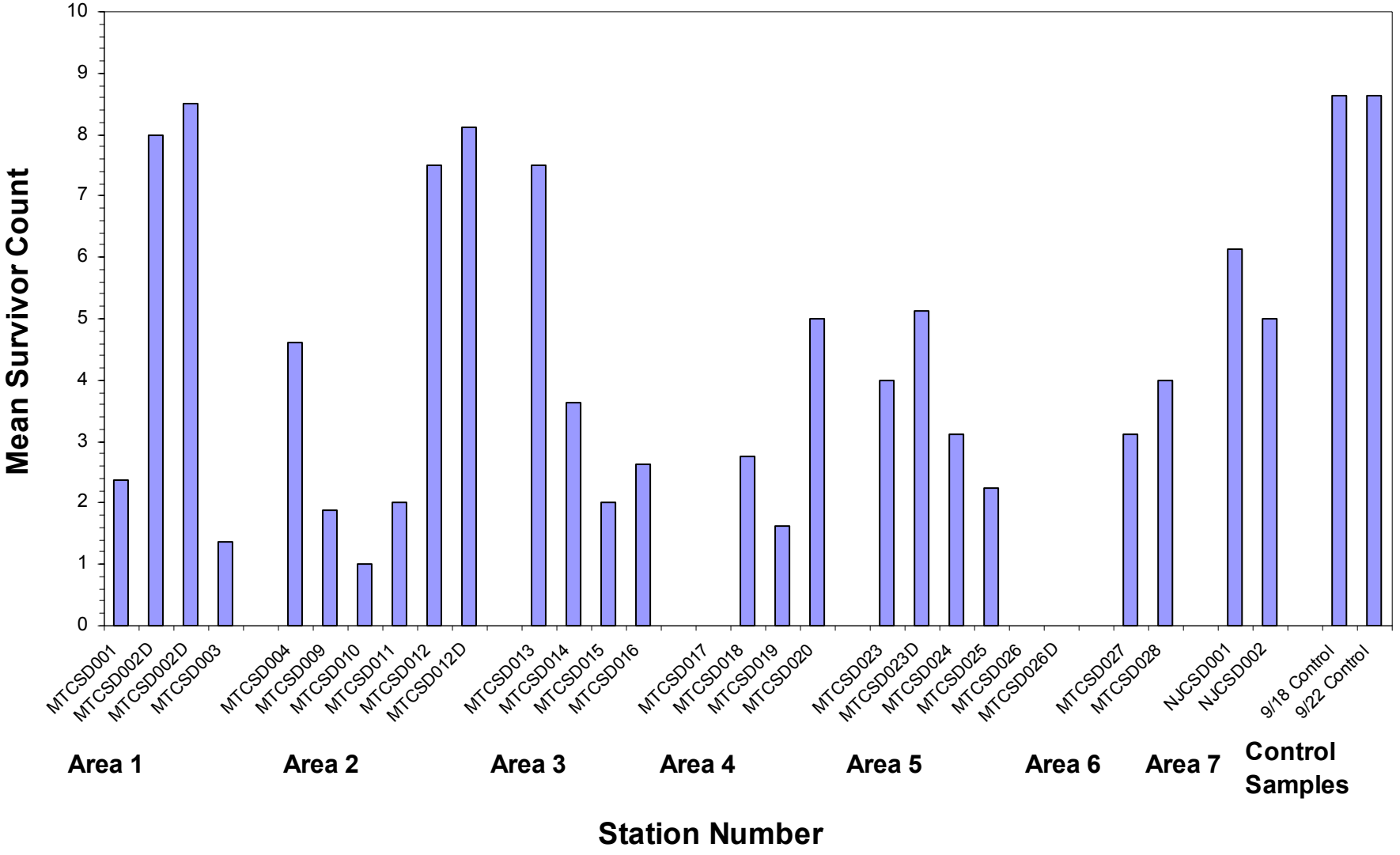
Food Chain Risks

- Great Blue Heron - Piscivorous bird
- Mink - Piscivorous mammal
- Mallard - Herbivorous bird
- Preliminary results indicate:
  - Risks to these species are not expected to be significant

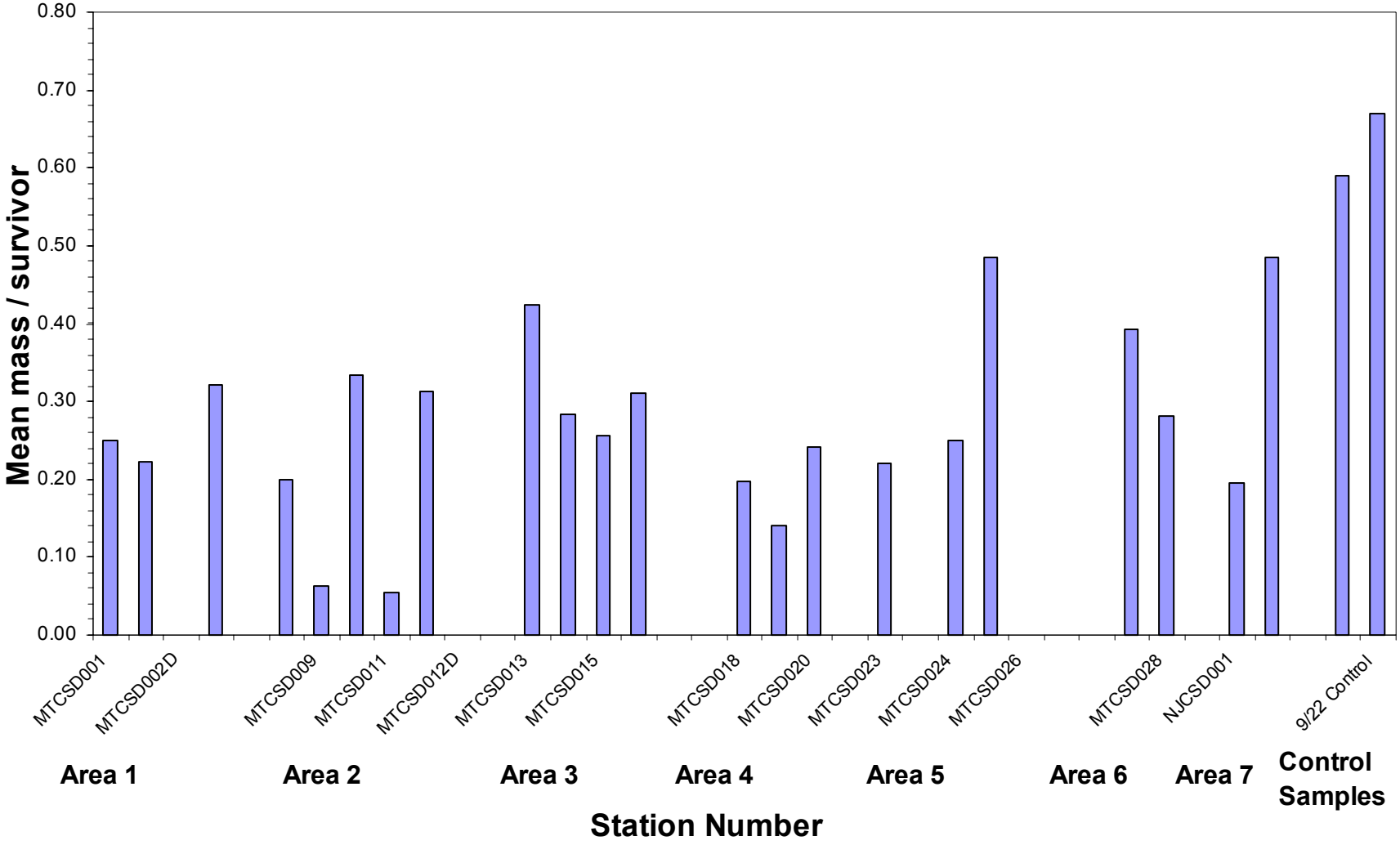
Sediment Toxicity Results

- Mean survival rates
  - 86% in lab controls
  - 50 and 61% in Nanjemoy Creek
  - 31 and 40% in upgradient samples
  - 0 % at MTCSD017 (near Site 39 discharge)
  - 0% at MTCSD026 and dup (near Site 28)
  - Several Mattawoman Creek samples had lower survival than reference
- Several Mattawoman Creek samples had lower growth than reference

Mean Survivor Count in Toxicity Tests at Each Station



Mean Mass per Survivor in Toxicity Tests at Each Station

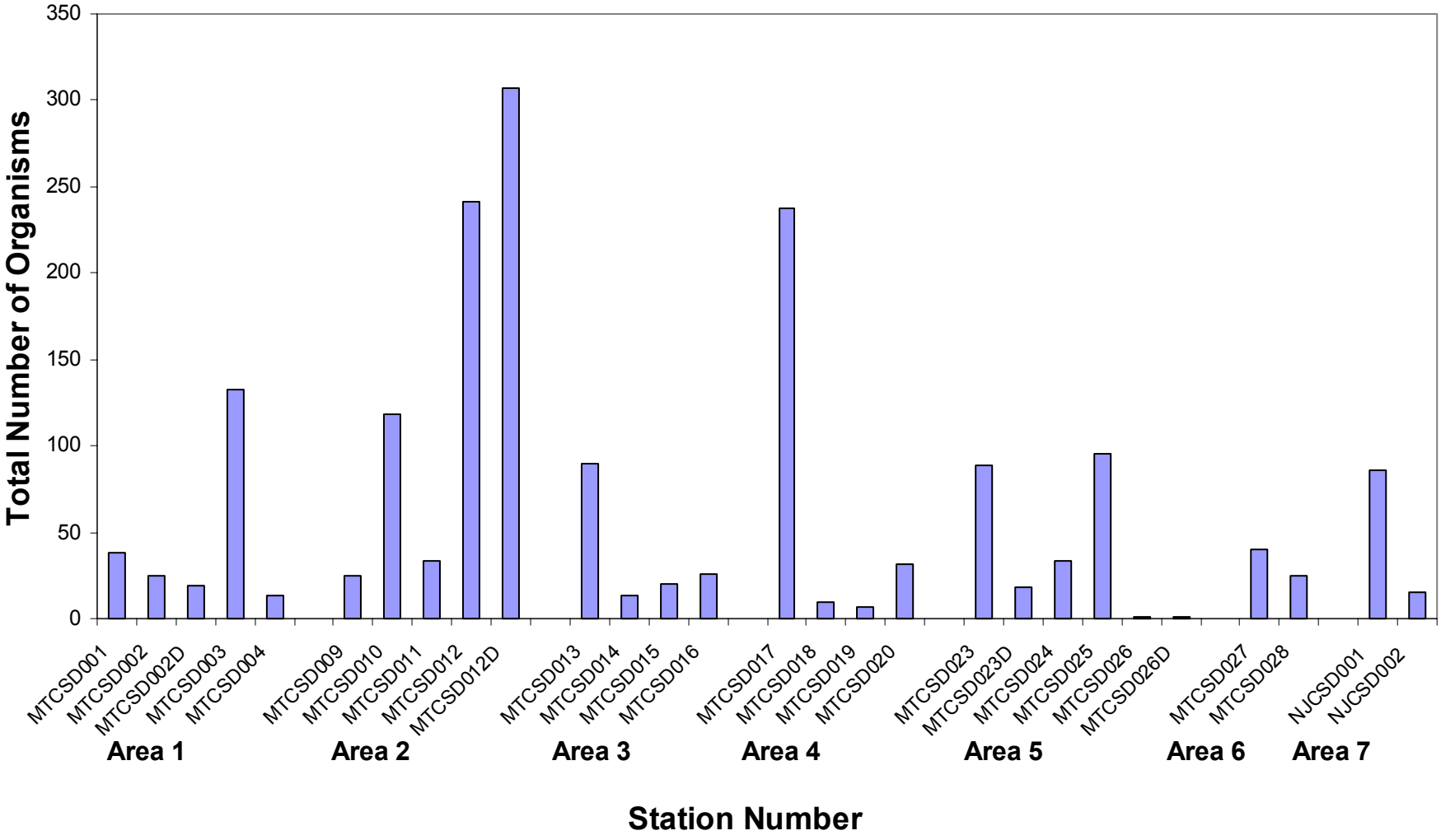


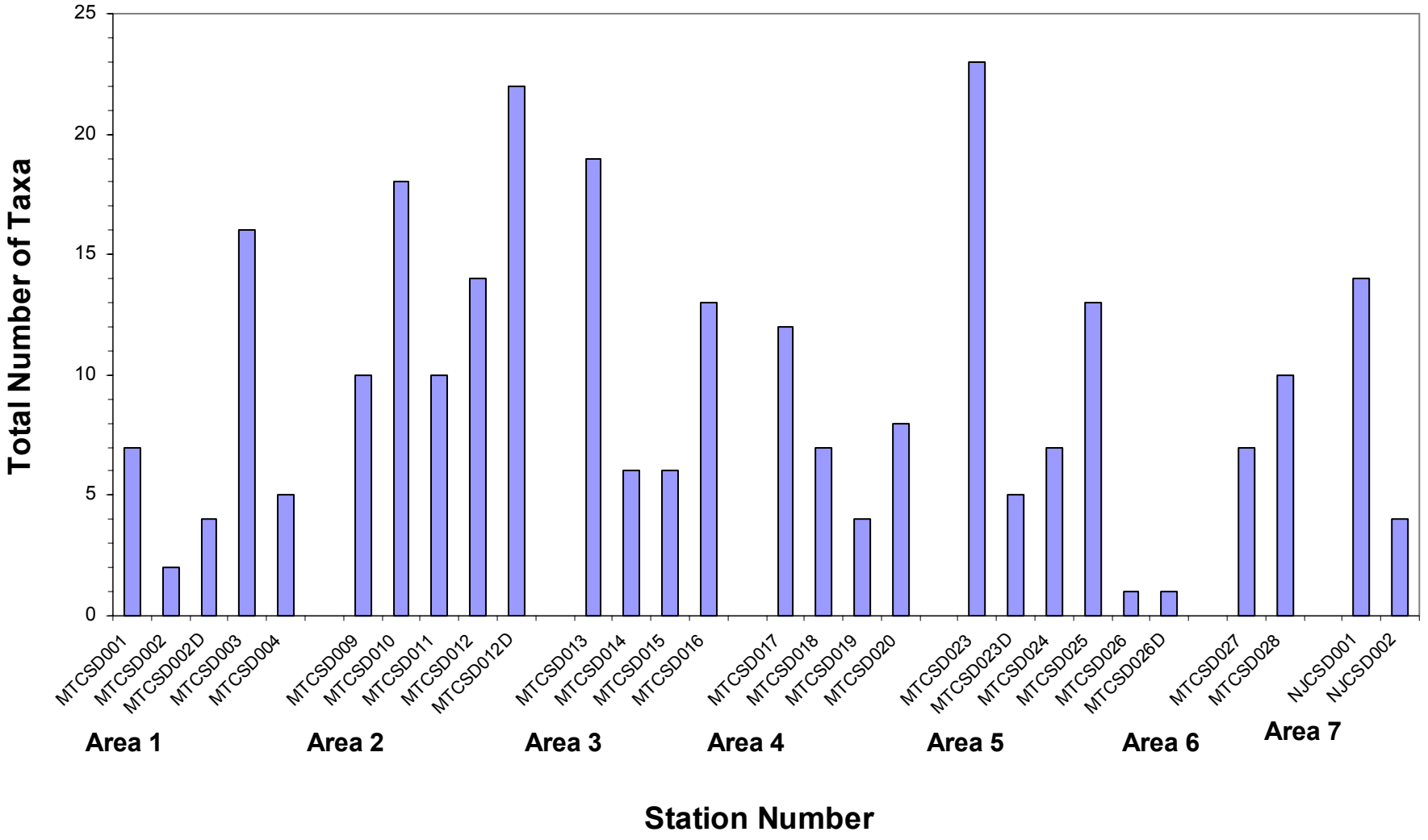
Benthic Community Results

- Total number of organisms
  - Lowest at MCTSD026
  - Also low at several other stations
- Total number of taxa
  - Lowest at MCTSD026
  - Also low at MTCSD002, and 019

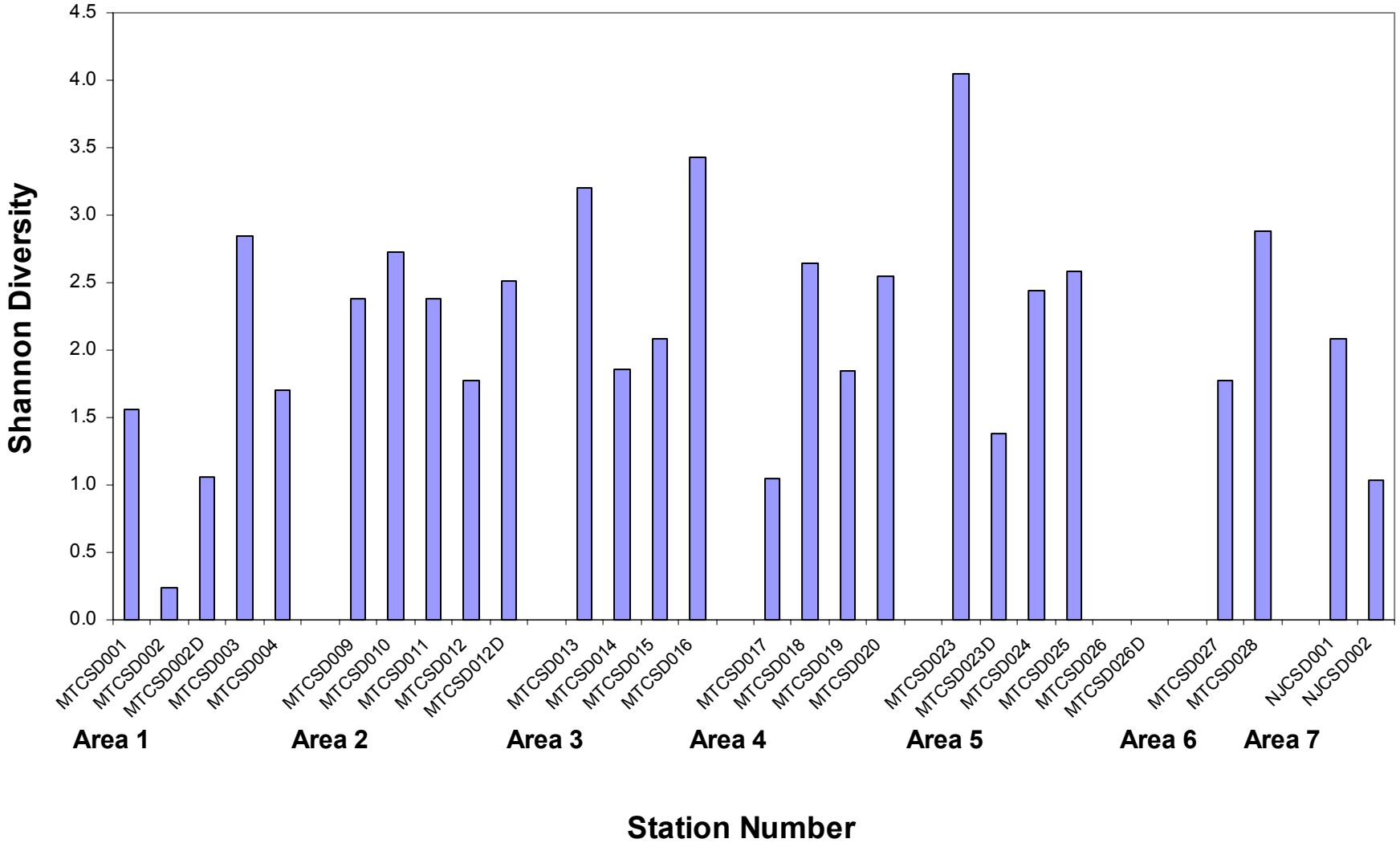
Benthic Community Results

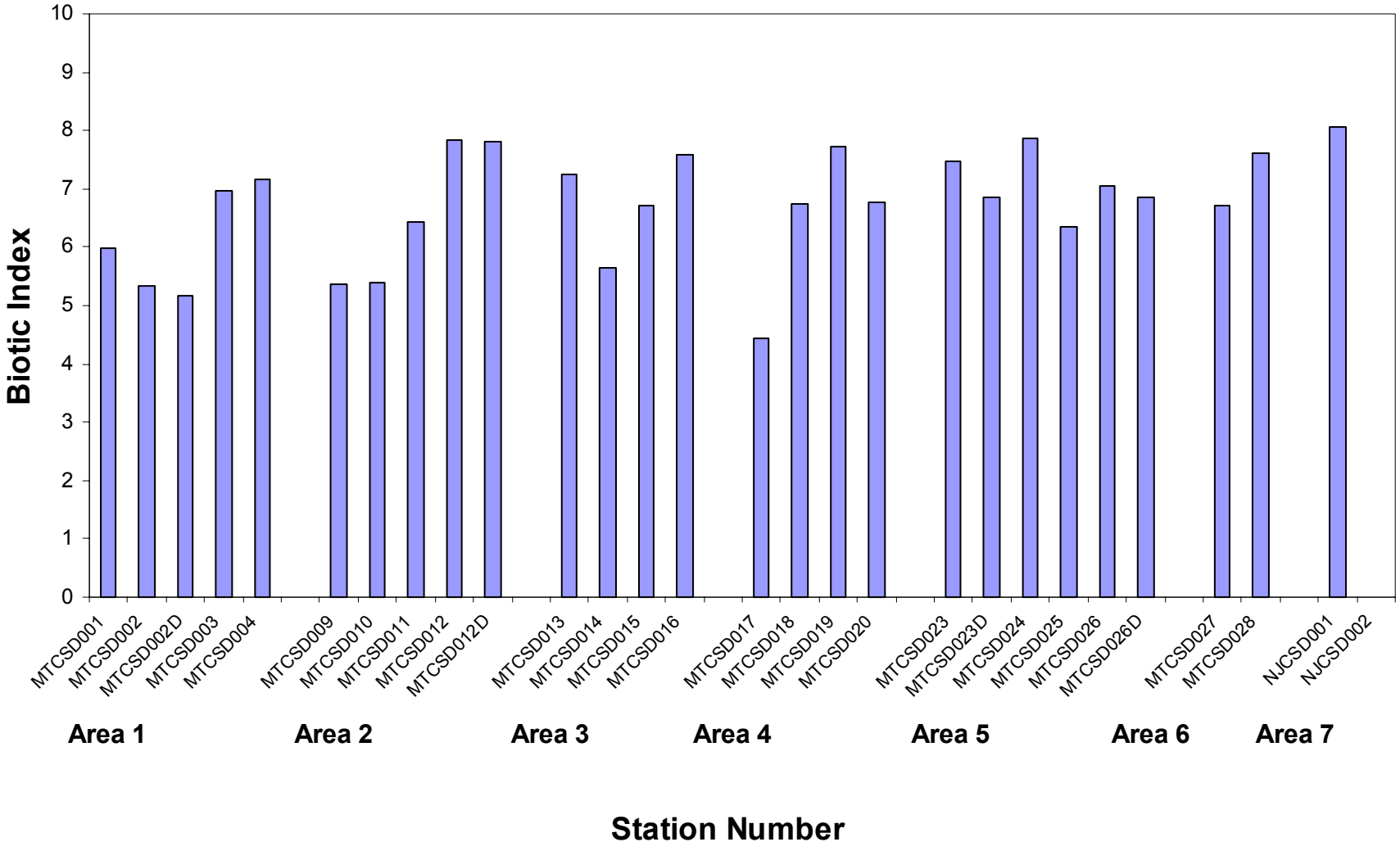
- Diversity Index
  - Indicates the diversity of the benthic population: Higher numbers are better
    - 0 at MCTSD026
    - Low at MTCSD002, and 017
- Biotic Index
  - Indication of pollution sensitive of tolerant organisms: Scale of 1 to 10
    - Lower numbers are better; Indicate higher percentage of pollution sensitive organisms
    - Most results are similar
    - Several samples have lower values than reference/upgradient


Total Number of Organisms at Each Station
Total Number of Organisms
350
300
250
200
150
100
50
0
MTCSD001
MTCSD002
MTCSD002D
MTCSD003
MTCSD004
MTCSD009
MTCSD010
MTCSD011
MTCSD012
MTCSD012D
MTCSD013
MTCSD014
MTCSD015
MTCSD016
MTCSD017
MTCSD018
MTCSD019
MTCSD020
MTCSD023
MTCSD023D
MTCSD024
MTCSD025
MTCSD026
MTCSD026D
MTCSD027
MTCSD028
NJCSD001
NJCSD002
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Station Number


Total Number of Taxa at Each Station
Total Number of Taxa
25
20
15
10
5
0
MTCSD001
MTCSD002
MTCSD002D
MTCSD003
MTCSD004
MTCSD009
MTCSD010
MTCSD011
MTCSD012
MTCSD012D
MTCSD013
MTCSD014
MTCSD015
MTCSD016
MTCSD017
MTCSD018
MTCSD019
MTCSD020
MTCSD023
MTCSD023D
MTCSD024
MTCSD025
MTCSD026
MTCSD026D
MTCSD027
MTCSD028
NJCSD001
NJCSD002
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Station Number

Shannon Diversity Index at Each Station




Biotic Index at Each Station
Biotic Index
10
9
8
7
6
5
4
3
2
1
0
MTCSD001
MTCSD002
MTCSD002D
MTCSD003
MTCSD004
MTCSD009
MTCSD010
MTCSD011
MTCSD012
MTCSD012D
MTCSD013
MTCSD014
MTCSD015
MTCSD016
MTCSD017
MTCSD018
MTCSD019
MTCSD020
MTCSD023
MTCSD023D
MTCSD024
MTCSD025
MTCSD026
MTCSD026D
MTCSD027
MTCSD028
NJCSD001
NJCSD002
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Station Number

Benthic Evaluation

- Will be evaluated in a weight of evidence approach
  - Sediment chemistry
  - Sediment toxicity test results
  - Benthic community data

Human Health Evaluation

- Receptors
  - Construction Workers/Dredge Workers
    - Sediment - Ingestion and dermal contact
    - Surface Water - Dermal Contact
  - Adolescent and Adult Recreational Users & Off-Site Residents
    - Sediment - Ingestion and dermal contact
    - Surface Water - Ingestion and dermal contact
    - Fish - Ingestion

Human Health Evaluation

- Chemicals of Potential Concern - Sediment
  - SVOCs (Benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenzo[a,h]anthracene, indeno(1,2,3,-cd)pyrene)
  - Metals (Aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, silver, thallium, zinc)

Human Health Evaluation

- Chemicals of Potential Concern - Surface Water
  - VOCs (Benzene, ethylbenzene, trichloroethene)
  - SVOCs (Naphthalene)
  - Metals (Arsenic, cadmium, lead, manganese)
  - Miscellaneous (Perchlorate)

Human Health Evaluation

- Chemicals of Potential Concern - Fish
  - SVOCs (4-Methylphenol, bis(2-ethylhexyl)phthalate)
  - Pesticides (DDE, Aroclor-1260, Dieldrin)
  - Explosives (1,3-Dintrobenzene, 2-amino-4,6-dintrotolune)
  - Metals (Arsenic, chromium, cyanide, manganese, mercury)
  - Miscellaneous (Perchlorate)

Human Health Evaluation

- Actual risks are still being calculated and checked
- Several of the COPCs likely will not be retained as COCs

Next Step

- July 2002
  - Preliminary calculations and text to BTAG for review and discussion
- December 2002
  - Draft document available for review

Installation Restoration Upcoming Documents for Review and Upcoming Events

Shawn Jorgensen
Remedial Project Manager
Indian Head Division, Naval Surface Warfare Center
June 20, 2002

Attachment C

NSWC Indian Head
Upcoming Documents and Events

Site(s)	Document For RAB Review	Date
Sites 11,13,17,21,25	Remedial Investigation Report	July-2002
Site 5	Site Screening Report	July-2002
Site 28	RI Work Plan (Revised)	July-2002
Site 13	Proposed Response Action Plan	August-2002
Site 42	Proposed Response Action Plan	August-2002
Site 57	Feasibility Study Report	September-2002
Sites 6, 39, 45	Remedial Investigation Report	September-2002
Lab Area	Remedial Investigation Report	September-2002
Seven Stump Neck Sites	Site Screening Report	September-2002
Mattawoman Creek	Mattawoman Creek Study	November-2002
Site 47	Remedial Investigation Report	January-2003

NSWC Indian Head
Upcoming Documents and Events

Site	Final Document	Date
Site 42	Feasibility Study Report	June-2002

Site	Work Phase	Date
Site 12	Removal Action	August-2002
Site 41	Removal Action	?-2002
Site 28	RI Fieldwork	September-2002

INSTALLATION RESTORATION PROGRAM

INDIAN HEAD DIVISION,
NAVAL SURFACE WARFARE CENTER
101 STRAUSS AVENUE
INDIAN HEAD, MARYLAND
20640-5035

RESTORATION ADVISORY BOARD (RAB) MEETING
COMMENTS, QUESTIONS AND ANSWERS

June 20, 2002

Mattawoman Creek Study Update

Question: What are PAHs?

Answer: PAHs are polyaromatic hydrocarbons. PAHs are anthropogenic, or manmade, chemicals, such as tars and oils.

Question: What is SPAWAR?

Answer: SPAWAR stands for Space and Naval Warfare Systems Command.

Question: What is a 10-day mortality test?

Answer: For the 10-day mortality test, a sediment sample is taken, split into a number of containers (typically 8), and 10 organisms are placed into each container. After 10 days, the organisms are counted to determine how many survived and how many died. The results in the site samples are then statistically compared to results in the control samples (which contain clean sediment) to determine if there is lower survival in the site samples. The results of the site samples also may be compared to the results from reference samples and upgradient samples to evaluate if some of the toxicity may be caused by natural conditions in the sediment.

Question: Why were no samples of shad and herring taken?

Answer: Shad and herring are more migratory.

Comment: Since they are only here for about three weeks out of the year, they would not be representative of fish that stay in the Mattawoman Creek area.

Comment: These species have a high commercial value in the area.

Attachment D

Question: Which side of the Creek had higher levels of contamination?

Answer: The north side (Indian Head side) had higher levels of chemicals, as expected.

Question: Was the mercury fairly high in the wide-mouthed bass?

Answer: In the past, a few of the wide-mouthed bass near Marsh Island and upgradient were similar to background.

Question: If I eat the fish or have eaten the fish in Mattawoman Creek, should I be concerned?

Answer: We can't answer that, yet. We know that there are some chemicals in the Creek and we are conducting a human health risk assessment using the results from the fillets, the portion that people eat.

Question: When you say "low concentrations" is that for eagles that eat the fish or for people?

Answer: Whether the values are high or low does not necessarily mean that the levels are acceptable or not. We need to look at the various scenarios and conduct our human health risk assessment using approved EPA models.

Question: When is the report due?

Answer: The Mattawoman Creek Study Report is due around the end of this calendar year.

Question: How confident are you that the samples are representative of the population?

Answer: The sampling is not meant to be representative of the population statistically. The Maryland Department of the Environment states that five fish should be used to determine contaminant levels in the fish. We have a total of 16 fish samples.

Question: Will the report discuss various indices (Shannon, etc.) used?

Answer: Yes.

Comment: All samples were taken on the north side, but most recreational activities occur on the south side of the Creek.

Comment: Some samples were taken on the south side of the stream channel and values were lower than on the north side.

Comment: If this is truly a Mattawoman Creek Study, then the south side should have been sampled, too.

Comment: If anything had been found on the south side, it would be very difficult to determine that Indian Head put it there.

Comment: There should not be higher concentrations on the south side of the Creek.

Comment: That is an assumption. You need to state that the samples are limited to the north side in the report. I have a concern with the sediments on the south side where most of the recreational activity occurs.

Comment: During the SPAWAR effort, several samples, approximately 8, were taken on the south side near Stump Neck Annex.

Comment: Much of the activity, including swimming and playing on the beach, occurs through the end of September on the east side of Bullitts Neck and at Gray's Beach. Also, a lot of catfish, bass, and perch can be caught right off of Bullitt's Neck on the west side.

Comment: From mid-April through November, bass tournaments take place. Bass are brought in from as far north as Blue Plains. So, depending on when sampling is done, you may or may not be getting bass from the Creek.

Upcoming Documents for Review and Upcoming Events

No questions were asked nor comments made on this topic.

INDIAN HEAD DIVISION,
NAVAL SURFACE WARFARE CENTER

INSTALLATION RESTORATION (IR) PROGRAM
RESTORATION ADVISORY BOARD (RAB)
MEETING AGENDA
(Tentative)

October 17, 2002

1. **Site 57 Feasibility Study (FS) Report**

2. **Site Screening Areas Report - Sites 32, 33, 34, 36, 37, 51, and 52**

3. **RI Report for Sites 6, 39, and 45**

4. **Lab Area RI Report**

5. **Progress of Site 12 Remedial Action**

Attachment E