MER Assessment Corporation

RECOVERY SURVEY REPORT

FORMER HARDWOOD ISLAND, TREMONT, MAINE
ID: TISF HT

August 30, 2006

Prepared for

Friends of Blue Hill Bay

Prepared by
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PREFACE

All video recordings, water column profiles, redox and sulfide measurements, and benthic infauna preparation and analysis work was performed by MER Assessment Corporation. Additional work was performed as follows:

Copper and zinc analyses were performed by Tiffany Wilson of the Environmental Testing Laboratory, University of Maine, Orono, Maine 04473, (207) 581-3288, Tiffany.Wilson@umit.maine.edu.

Total organic carbon and total organic nitrogen analyses were performed by Linda Schick of the University of Maine, Darling Center, Walpole, Maine 04573, 563-3146 extension 236, lschick@maine.maine.edu.

Granulometry was carried out by S. W. Cole Engineering, Inc., 286 Portland Road, Gray, Maine 04039, (207) 657-2866, infogray@swcole.com

Introduction

This report presents the complete analysis of video recordings made and samples taken during a benthic monitoring survey conducted at the former Trumpet Island Salmon Farms, Inc.'s Hardwood Island, Tremont, Maine salmon aquaculture site on 29 April 2006; a brief, preliminary report was prepared and delivered to Friends of Blue Hill Bay (FOBHB) on 5 June 2006.

The general location of the site is shown in Figure 1. A site plan showing individual dive transects and sediment chemistry/ benthic core locations, indicated by distance and replicate number, is shown in Figure 2.

Methodology

The video survey was conducted along a transect as generally described below and specifically as described on the Dive Record and Observations Summary sheet for each dive.

1.0 Video recording

The video recording was begun approximately 60m from the center of the southern edge of the former cage system location based on GPS position taken using a Garmin 182 Chartplotter during the most recent Maine Department of Environmental Protection (DEP)/Department of Marine Resources (DMR) Finfish Aquaculture Monitoring Program survey carried out on September 3-4, 2004 (refer to Table 1); the video recording of the bottom continued along the approximate centerline of the former cage system footprint, then 60m beyond the approximate center of the northern edge of the former cage system location.

The video recordings were taken using a SeaViewer Sea-Drop 650 Series real-time color camera system attached to a stainless steel frame equipped with an Amphibico 35W/50W underwater arc lamp lighting package; the camera video feed was connected to a SeaViewer SeaTrak unit that embeds GPS (WGS84) and date/time data (GMT) directly on the video recording; the video was recorded on-board using a SONY GV-D800 NTSC portable digital video recorder and the camera was allowed to run continuously from time of deployment to time of recovery. A summary of the video recording observations is presented Table 2 Video Summary; a graphic representation of the video observation, developed using CorelDraw 9©, is included as Appendix 1.

Table 1 GPS station coordinates (WGS84)

Station	Distance from footprint	Latitude	Longitude
Video recording start	60 meters south	44º 18’ 27.8”	68º 26’ 46.6”
Video recording end	60 meters north	44º 18’ 36.9”	68º 26’ 46.1”
Station 1 Rep 1	30 meters north	44º 18’ 36.0”	68º 26’ 46.4”
Station 1 Rep 2	30 meters north	44º 18’ 35.9”	68º 26’ 45.8”
Station 1 Rep 3	30 meters north	44º 18’ 35.9”	68º 26’ 45.2”
Station 2 Rep 1	5 meters north	44º 18’ 35.1”	68º 26’ 46.3”
Station 2 Rep 2	5 meters north	44º 18’ 35.1”	68º 26’ 45.9”
Station 2 Rep 3	5 meters north	44º 18’ 35.1”	68º 26’ 45.3”
Prev. cage north edge	0 meters	44º 18’ 34.9”	68º 26’ 46.0”
Station 3 Rep 1	Center cage	44º 18’ 32.7”	68º 26’ 46.6”
Station 3 Rep 2	Center cage	44º 18’ 32.7”	68º 26’ 46.1”
Station 3 Rep 3	Center cage	44º 18’ 32.7”	68º 26’ 45.6”
Prev. cage south edge	0 meters	44º 18’ 29.7”	68º 26’ 46.4”
Station 4 Rep 1	5 meters south	44º 18’ 29.5”	68º 26’ 46.9”
Station 4 Rep 2	5 meters south	44º 18’ 29.5”	68º 26’ 46.3”
Station 4 Rep 3	5 meters south	44º 18’ 29.5”	68º 26’ 45.5”
Station 5 Rep 1	30 meters south	44º 18’ 28.7”	68º 26’ 46.9”
Station 5 Rep 2	30 meters south	44º 18’ 28.9”	68º 26’ 46.4”
Station 5 Rep 3	30 meters south	44º 18’ 28.7”	68º 26’ 45.8”
Ref 1 Rep 1-3 [Hard]	>100 meters away east	44º 18’ 35.9”	68º 26’ 40.8”
Ref 2 Rep 1-3 [Soft]	>100 meters away east	44º 18’ 29.5”	68º 26’ 42.0”

Figure 1. Site area

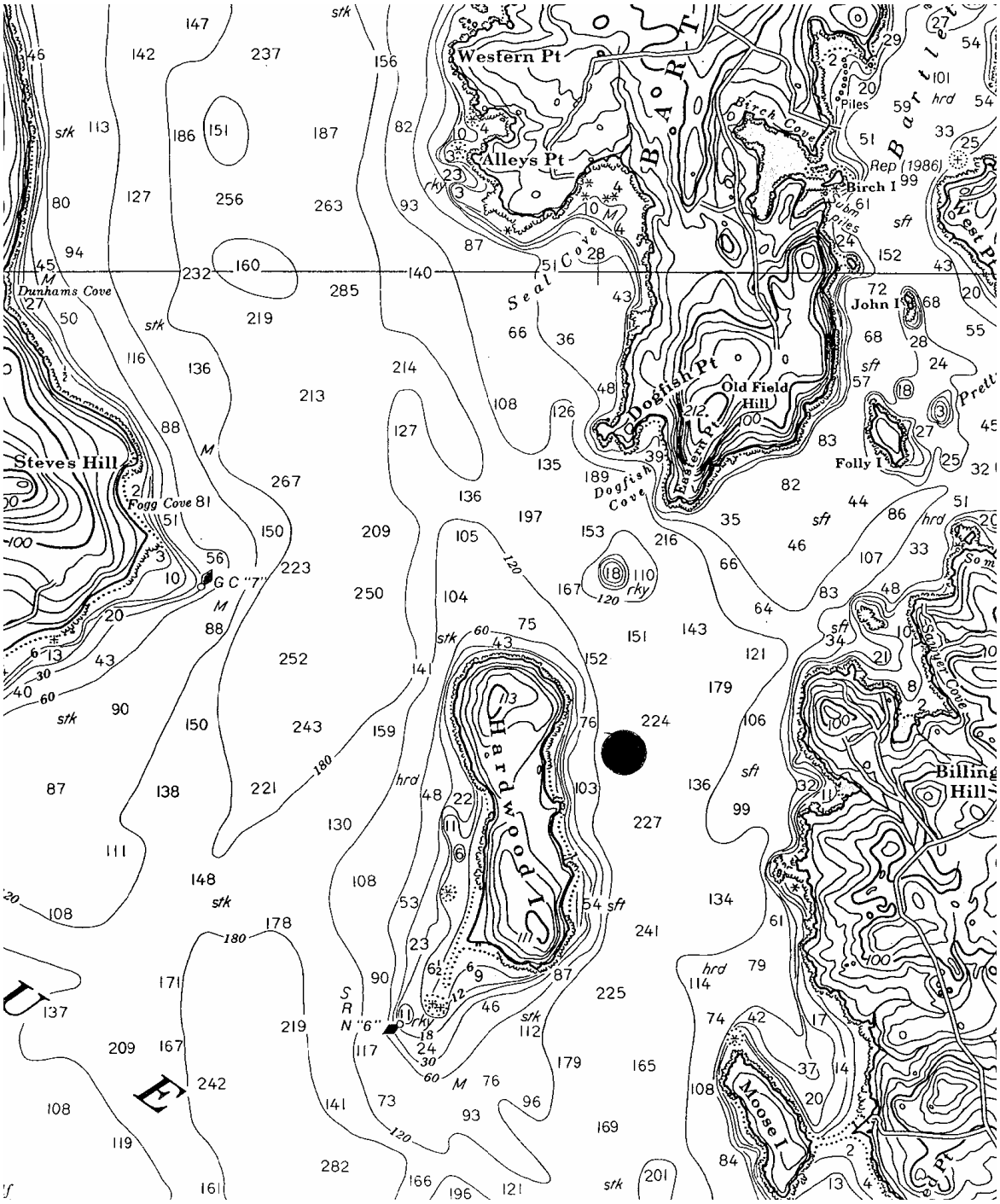


Figure 2. Site showing former cage system footprint, video transect and benthic sampling locations

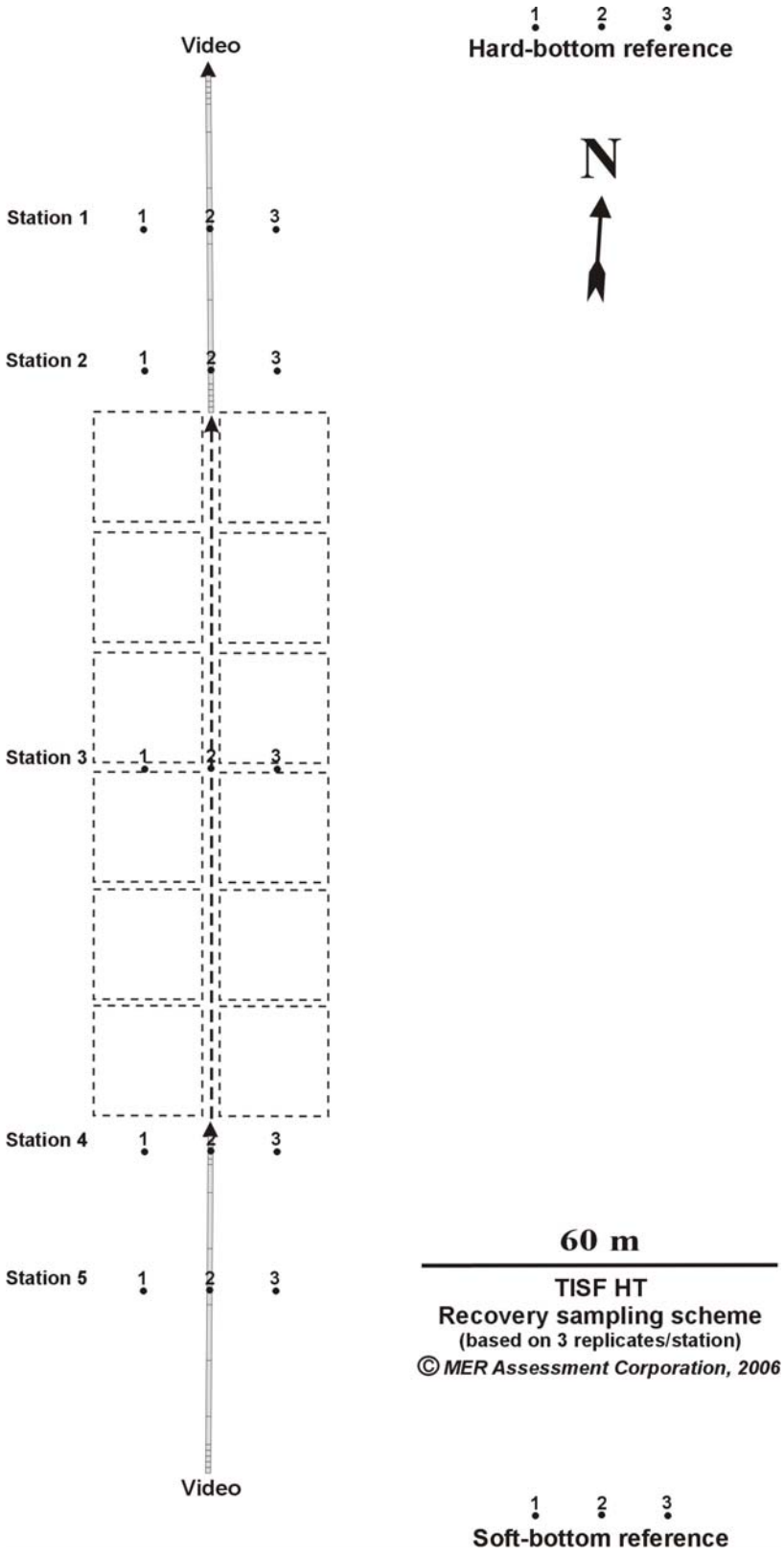


Table 2. Video Summary

MER ASSESSMENT CORPORATION
VIDEO SUMMARY

			DROP PARAMETERS			TIDES @ Pretty Marsh Harbor			
SITE:	HARDWOOD ISL	DURATION:	19 min	DEPTH:	~37.8m	HI:	1254 3.4m	PERSONNEL:	CSH, DSM, SK
DATE:	04/29/2006	START:	0839	DISTANCE:	300m	LO:	0639 -0.5m	WEATHER:	Sunny, calm
DROP:	1 OF 1	END:	0913	DIRECTION:	S - N	STAGE:	1.2m	CURRENT DIRECTION:	S - N

COMMENTS: Drop begins ~60m South of cage footprint proceeds through the cage footprint and continues ~60m North of previous cages. Rope seen through out the footprint. Couple of grow out net (or pieces) partially buried @12:59:30 and 13:01:36. Partially buried net ring @13:00:48 Net weight @13:05:14. Unidentifiable metal debris @ 13:09:13. Drop video due to depth. Site as had no fish for ~ 1 year. Time on tape GMT.

SEDIMENT TYPE: Light brown soft silt, light to moderate relic shells within footprint, becoming silt covered gravel/cobble on the North end.

OBSERVED ORGANISMS

FLORA:

1. Rock weed - rare
   Ascophyllum sp.
2. Kelp - rare
   Laminaria sp.

FAUNA:

1. Common sea star - common
   Asterias spp.
2. Frilled anemone - common
   Metridium senile
3. Mysid shrimp - common
   Order Mysidacea
4. Vein shrimp - common
   Dichelopandalus sp
5. Mud shrimp - common
   Crangon septemspinosa
6. Rock crab - common
   Cancer irroratus
7. Unidentifiable eel like fish - common
8. Bulbous sponge - rare
   Cliona celata
9. Sea scallop - rare
   Placopecten magellanicus
10. Wrymouth - rare
    Cryptacanthodes maculatus
11. Sculpin - rare
    Myoxocephalus sp.
12. Unidentifiable fish - rare

2.0. Benthic Analysis

The benthic sampling scheme used in this recovery monitoring project was designed to be consistent with the requirements of the Maine DEP's General Permit for Salmon Aquaculture and the Maine DMR's FAMP. Accordingly, three replicate samples were collected 30 m north of the former cage structure(s) northern edge, (Station 1), within 5 m of the former cage structure(s) northern edge (Station 2), at the approximate center of the cage system footprint (Station 3) and within 5m and at 30m from the southern edge of the former cage system location, (Stations 4 and 5, respectively); two reference stations were also sampled, one representing soft-bottom (Station 6) and the other hard bottom (Station 7) (refer to Figure 2).

2.1. Sediment chemistry

Three replicate sediment cores for sediment chemistry analyses, including redox potential, sulfide, total organic carbon (TOC), and metals (Cu and Zn) were taken as subsamples of benthic grabs collected, using a Wildco Ponar grab, at each station, as indicated in Figure 2 by the dots, using 4 in. diameter PVC pipe coring devices that were inserted to a depth of 10 cm or full resistance, whichever was greater. Sediment cores were removed from the corers by allowing the sediment column to slide out of the plastic corer so as not to disturb the sediment surface. Once exposed, the surface was divided into halves.

2.1.1. Redox measurement *(Method of Wildish et al., 1999)* (refer to Table 3)

One half of the core surface material was removed down to a depth of 2 cm and the sediment placed in a small 125 ml plastic container and thoroughly mixed with a plastic spoon for approximately 1-2 minutes. Following mixing, the redox potential was measured using an Accumet® AP63 pH/mV/Ion meter equipped with a Thermo Orion model 9678BN Combination Redox electrode filled with Thermo Orion Ag/AgCl Reference Electrode Filling Solution (900011) by immersing the electrode into the mixed sediment and waiting for the reading to stabilize while gently mixing the sediment with the electrode. Meter mV values were corrected by applying a +214 correction factor for temperature of 10^{O}C (Thermo Orion Platinum Redox Electrode Instruction Manual, Model 96-78-00, 2001, p. 5).

2.1.2. Sulfide measurement *(Method of Wildish et al., 1999)* (refer to Table 3)

After redox measurement, a 5 ml portion of the mixed sediment was removed with a modified 5 ml plastic syringe with the needle attachment end removed to form an open cylinder; the open end was immersed into the mixed sediment slurry and the sample extracted by pulling back on the plunger, thus obtaining a sample containing no bubbles. Immediately after obtaining the sample, the open end of the syringe was covered with plastic wrap insuring no air was trapped beneath the wrap. Aluminum foil was then placed over the end of the syringe to secure the plastic wrap in place. The syringe was then placed in a cooler with ice to maintain a temperature of $>5^{O}$C during transport to the laboratory for sulfide (S_2) analysis within >72 hrs. of sample collection.

Once at the lab, all syringes were allowed to warm to room temperature ($\approx 20^{O}$C) before analysis while the Accumet® AP63 pH/mV/Ion meter equipped with a Thermo Orion model 9616BN Combination Silver/Sulfide electrode filled with Thermo Orion Ionplus B Optimum Results™ Reference Electrode Filling Solution (900062) with standards prepared according to Wildish et al., 1999. The meter was standardized at 1.00 (100µM), 10.0 (1,000µM), and 100 (10,000µM). All samples were analyzed within a maximum of 3 hrs. Following analysis of all samples, measurements of the three standards were retaken and recorded on the calibration sheets. Actual S_2 µM values were calculated by multiplying the meter readings by 100.

2.1.3. Copper (Cu), zinc (Zn), and percent solids analyses (refer to Table 4)

Approximately 50-75 ml of sediment was taken from the second half of the divided surface sediment core and placed in a labeled 7"x 3" 100 ml *Nasco* Whirl-Pak®; samples were refrigerated until delivered to the analyzing facility. Copper and zinc analysis, and associated fine granulometry and percent moisture measurements, were performed by the University of Maine, Environmental Chemistry Lab, in Orono.

2.1.4. Total organic carbon (refer to Table 4)

Approximately 10-15 ml of sediment was taken as a subsample of the mixed sediment and placed in a labeled 7"x 3" 100 ml *Nasco* Whirl-Pak®; TOC samples were refrigerated until return to the lab, then frozen until delivered to the analyzing facility. TOC analysis was performed by the University of Maine, Ira C. Darling Center chemistry lab.

2.2. Granulometry

Three replicate sediment cores for granulometric analysis were taken at each station, as described above and shown in Figure 2, using 4 in. diameter PVC pipe coring devices as described above for infauna. The contents of the cores were transferred into labeled, doubled Zip-loc bags. Granulometric analyses were performed by S.W. Cole Engineering, Inc., Gray, Maine using standard wash method sediment granulometry methods. Results of the granulometry analyses are presented in tabulated form in Table 5 and graphically in Figures 3 and 4.

2.3. Infauna

Three replicate sediment cores for granulometric analysis were taken at each station, as described above and shown in Figure 2 using 4 in. diameter PVC pipe coring devices. The contents of the cores were washed through a U.S. Standard No. 18 sieve (1mm mesh), all material retained on the screen was transferred into plastic sample jars, and the jars filled with 10% buffered formalin. Several drops of a 1% Rose Bengal staining solution were added to each sample to assist in the sorting of organisms. After 5 days of fixing in 10% formalin, the formalin solution was decanted from the sample jars through a 1 mm mesh sieve and the formalin volume replaced with 70% ethanol to insure preservation of the organisms' integrity, particularly the bivalves and other calcareous forms. Results of the benthic infauna analyses are included here as Appendix I.

3.0 Water quality sampling

Sampling was carried out using MER Assessment Corporation's Yellow Spring Instruments (YSI) Model 6600 Sonde connected to a YSI MDS 650 handheld real-time display unit. The sonde is equipped with a pressure sensor to measure depth in meters, a temperature-conductivity sensor reporting salinity as practical salinity units (PSU), a dissolved oxygen sensor reporting both concentration in mg/L and percent saturation, and an optical turbidity sensor reporting in Nephelometric Turbidity Units (NTU).

The YSI 6600 allows individual data files to be created for each profile. Data collection frequency for the YSI 6600 is set at one record every 0.5 sec, *i.e.* 2 records/second. A file is created using the site identification code and station location; replicate profiles are appended to the initial data set under the same file name. During sampling the sonde is allowed to rest at the surface until the temperature and dissolved oxygen readings on the YSI MDS 650 display have stabilized. Following stabilization, the data logger is activated and the profiler lowered through the water column at a rate of approximately 0.25-0.30 m/sec (approx. 1 ft./sec). Once the sonde reaches bottom, the data logging is stopped; the collected data therefore represent descending measurements only; details of profiles are presented in Appendix II.

Two replicate profiles were made at the approximate center of the site on 29 April 2006 at 0804 and 0809, the summaries of which are shown in Table 7. Salinity and dissolved oxygen concentration and percent saturation were adjusted following the post-sampling calibration check (**Adj.** values shown in blue).

Results

Table 3. Sediment Chemistry Summary: Redox and sulfide

Site: HT Recovery
Date: 4/29/2006
Time 0700-1530
Tide: 13.0 H 06:33 AM LDT -1.6 L 12:44 PM LDT 11.6 H 06:45 PM LDT -0.1 L

	Warning	Impact limit
Eh	0 to -100	<-100
S_2 µM	1300-6000	>6000

Smpl. ID	mV	Eh	S_2 meter	S_2 µM	depth	T^O	Smell	Comment
Sta 1-1	-36	182	16.0	1600	2 cm	6	N	brown mud, rock
Sta 1-2	-33	185	14.2	1420	2 cm	6	N	rock, shell, brown mud - packed syringe
Sta 1-3	-29	189	10.3	1030	2 cm	6	N	rock, shell, brown mud - packed syringe
Mean	**-33**	**185**	**13.5**	**1350**				
S.D.		**4**		**291**				
Var.		**6**		**42450**				
Sta 2-1	-39	179	14.4	1440	2 cm	6	N	rock, brown mud - packed syringe
Sta 2-2	-18	200	16.8	1680	2 cm	6	Slight	brwn mud, slight smell - packed syringe
Sta 2-3	-68	150	15.6	1560	2 cm	6	N	rocks, brown mud
Mean	**-42**	**176**	**25.6**	**1560**				
S.D.		**25**		**120**				
Var.		**315**		**7200**				
Sta 3-1	-165	53	25.6	2560	2 cm	6	N	gray mud, mussel shells, shell hash
Sta 3-2	-194	24	20.2	2020	2 cm	6	N	gray mud, shell hash
Sta 3-3	-249	-31	32.4	3240	2 cm	6	N	brwn/gray mud, mussel shells, shell hash
Mean	**-203**	**15**	**26.1**	**2607**				
S.D.		**43**		**611**				
Var.		**910**		**186867**				
Sta 4-1	-165	53	15.5	1550	2 cm	6	N	brown mud
Sta 4-2	-163	55	14.5	1450	2 cm	6	N	brown mud
Sta 4-3	-158	60	10.3	1030	2 cm	6	N	brown mud
Mean	**-162**	**56**	**13.4**	**1343**				
S.D.		**4**		**276**				
Var.		**7**		**38067**				
Sta 5-1	-128	90	12.1	1210	2 cm	6	N	brown mud
Sta 5-2	-180	38	19.5	1950	2 cm	6	N	brown mud
Sta 5-3	-143	75	11.30	1130	2 cm	6	N	brown mud
Mean	**-150**	**68**	**14.30**	**1430**				
S.D.		**27**		**452**				
Var.		**358**		**102200**				
Ref 1-1 Hard	-30	188	2.47	247	2 cm	6	N	brown mud, rocks
Ref 1-2 Hard	-101	117	N/S	N/S	2 cm	6	N	rocks - no sulfide sample possible
Ref 1-3 Hard	-12	206	N/S	N/S	2 cm	6	N	rocks - no sulfide sample possible
Mean	**-48**	**170**	**2.47**	**247**				
S.D.		**47**		**N/A**				
Var.		**1107**		**N/A**				
Ref 2-1 Soft	-126	92	6.55	655	2 cm	6	N	brown mud
Ref 2-2 Soft	-121	97	2.17	217	2 cm	6	N	brown mud - syringe not quite filled
Ref 2-3 Soft	-117	101	7.43	743	2 cm	6	N	brown mud
Mean	**-121**	**97**	**5.38**	**538**				
S.D.		**5**		**282**				
Var.		**10**		**39689**				

Table 4. Sediment Chemistry Summary: Metals and TOC/TON

MER 2006 Sediment
Batch #9 delivered May 2006
Tiffany Wilson, Environmental Chemistry Laboratory, U. of Maine Metals analysis (copper and zinc)
Linda Schick, U. Maine Darling Center, Walpole (TOC and TON)

Cu ERL	34 mg/Kg	Cu ERM	240 mg/Kg
Zn ERL	150 mg/kg	Zn ERM	410 mg/kg

Sample	Cu mg/Kg (dry wt.)	Zn mg/Kg (dry wt.)	% solid	TOC %	TON %	> 1mm (g)	< 1mm (g)
ST1 REP1	9.5	44.1	77.6	1.00	0.18	9.43	13.14
ST1 REP2	7.2	62.3	78.2	1.01	0.18	19.99	9.36
ST1 REP3	27.9	60.3	80.2	1.25	0.20	11.98	9.95
Mean	**14.9**	**55.6**	**78.7**	**1.1**	**0.2**	**13.8**	**10.8**
S.D.	**11.4**	**10.0**	**1.4**	**0.1**	**0.0**	**5.5**	**2.0**
ST2 REP1	28.4	58.8	72.2	1.34	0.24	8.97	10.52
ST2 REP2	7.0	63.2	75.2	1.33	0.25	7.71	14.56
ST2 REP3	7.9	44.1	73.0	0.98	0.17	9.99	9.58
Mean	**14.4**	**55.4**	**73.5**	**1.2**	**0.2**	**8.9**	**11.6**
S.D.	**12.1**	**10.0**	**1.5**	**0.2**	**0.0**	**1.1**	**2.6**
ST3 REP1	90.0	83.2	63.5	2.25	0.38	12.57	30.13
ST3 REP2	69.6	81.1	62.8	2.06	0.36	5.74	24.33
ST3 REP3	28.7	83.3	56.1	2.34	0.43	8.85	15.36
Mean	**62.8**	**82.5**	**60.8**	**2.2**	**0.4**	**9.1**	**23.3**
S.D.	**31.2**	**1.2**	**4.1**	**0.1**	**0.0**	**3.4**	**7.4**
ST4 REP1	8.2	84.8	59.9	1.81	0.31	3.25	21.79
ST4 REP2	24.4	94.8	52.1	2.13	0.35	0.82	25.50
ST4 REP3	10.3	65.9	58.0	1.90	0.32	0.79	24.41
Mean	**14.3**	**81.8**	**56.7**	**2.0**	**0.3**	**1.6**	**23.9**
S.D.	**8.8**	**14.7**	**4.0**	**0.2**	**0.0**	**1.4**	**1.9**
ST5 REP1	28.8	66.0	61.9	1.64	0.28	1.08	21.52
ST5 REP2	72.8	70.1	61.4	1.66	0.27		
ST5 REP3	199.4	104.5	53.7	2.29	0.35		
Mean	**100.3**	**80.2**	**59.0**	**1.9**	**0.3**		
S.D.	**88.6**	**21.2**	**4.6**	**0.4**	**0.0**		
REF 1 REP1 Hard	4.5	32.0	72.1	0.83	0.14	6.54	11.33
REF 1 REP2 Hard	5.5	35.0	77.6	0.87	0.15	7.28	6.49
REF 1 REP3 Hard	3.8	29.2	77.4	0.92	0.16	7.13	2.85
Mean	**4.6**	**32.1**	**75.7**	**0.9**	**0.1**	**7.0**	**6.9**
S.D.	**0.9**	**2.9**	**3.1**	**0.0**	**0.0**	**0.4**	**4.3**
REF 2 REP1 Soft	7.7	48.2	56.8	1.33	0.21		
REF 2 REP2 Soft	9.5	43.1	60.2	1.43	0.24		
REF 2 REP3 Soft	6.7	44.3	59.5	1.43	0.23		
Mean	**7.9**	**45.2**	**58.8**	**1.4**	**0.2**		
S.D.	**1.4**	**2.7**	**1.8**	**0.1**	**0.0**		

ERL – Effects Range Low; ERM – Effects Range Medium

Table 5. Sediment Granulometry Summary

Sediment Conversion
Percent Passing to Percent Retained

Site: TISF HT
Date: 29 Apr 2006

	Station 1-1		Station 1-2		Station 1-3		Station 2-1		Station 2-2		Station 2-3	
	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained
1"	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0
3/4"	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0
1/2"	44	56.0	76	24.0	87	13.0	93	7.0	96	4.0	94	6.0
1/4"	14	30.0	48	28.0	78	9.0	86	7.0	86	10.0	79	15.0
# 4	11	3.0	44	4.0	73	5.0	84	2.0	82	4.0	76	3.0
# 10	9	2.0	38	6.0	62	11.0	79	5.0	74	8.0	70	6.0
# 20	8	1.0	35	3.0	53	9.0	72	7.0	68	6.0	65	5.0
# 40	8	0.0	31	4.0	45	8.0	62	10.0	62	6.0	59	6.0
# 60	6	2.0	25	6.0	34	11.0	46	16.0	48	14.0	46	13.0
# 100	3	3.0	15	10.0	21	13.0	26	20.0	26	22.0	24	22.0
# 230	1	2.0	6	9.0	10	11.0	10	16.0	10	16.0	8	16.0
<# 230		1.0		6.0		10.0		10.0		10.0		8.0
		100.0		**100.0**		**100.0**		**100.0**		**100.0**		**100.0**

	Station 3-1		Station 3-2		Station 3-3		Station 4-1		Station 4-2		Station 4-3	
	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained
1"	100.0	0.0	81.0	19.0	100.0	0.0			63.0	37.0	25.0	0.0
3/4"	73.0	27.0	68.0	13.0	82.0	18.0			51.0	12.0	7.0	18.0
1/2"	73.0	0.0	55.0	13.0	48.0	34.0			23.0	28.0	3.0	4.0
1/4"	37.0	36.0	29.0	26.0	31.0	17.0			13.0	10.0	3.0	0.0
# 4	34.0	3.0	24.0	5.0	29.0	2.0			12.0	1.0	3.0	0.0
# 10	26.0	8.0	18.0	6.0	23.0	6.0			7.0	5.0	2.0	1.0
# 20	21.0	5.0	14.0	4.0	19.0	4.0			6.0	1.0	2.0	0.0
# 40	17.0	4.0	12.0	2.0	16.0	3.0			5.0	1.0	2.0	0.0
# 60	13.0	4.0	9.0	3.0	11.0	5.0			4.0	1.0	1.0	1.0
# 100	13.0	0.0	4.0	5.0	4.0	7.0			2.0	2.0	1.0	0.0
# 230	5.0	8.0	2.0	2.0	2.0	2.0			1.0	1.0		1.0
<# 230		5.0		2.0		2.0				1.0		0.0
		100.0		**100.0**		**100.0**		**100.0**		**100.0**		**100.0**

Table 5. Sediment Granulometry Summary (Cont.)

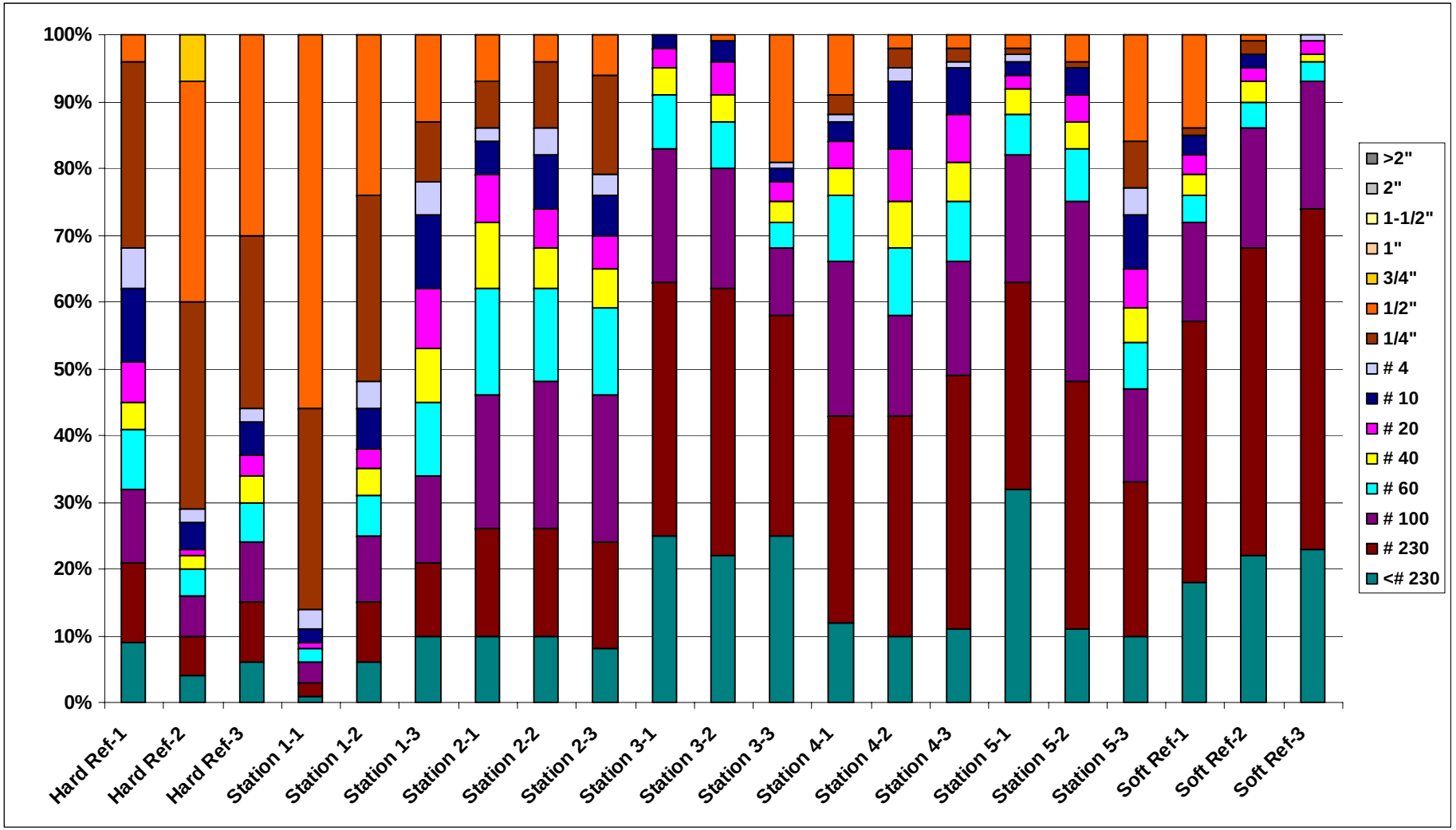
Sediment Conversion
Percent Passing to Percent Retained

Site: TISF HT
Date: 29 Apr 2006

	Station 5-1		Station 5-2		Station 5-3		Ref 1 Rep 1 Hard		Ref 1 Rep2 Hard		Ref 1 Rep 3 Hard	
	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained	Passing	Retained
1"	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0	100	0.0
3/4"	100	0.0	100	0.0	100	0.0	100	0.0	93	7.0	100	0.0
1/2"	98	2.0	96	4.0	84	16.0	96	4.0	60	33.0	70	30.0
1/4"	97	1.0	95	1.0	77	7.0	68	28.0	29	31.0	44	26.0
# 4	96	1.0	95	0.0	73	4.0	62	6.0	27	2.0	42	2.0
# 10	94	2.0	91	4.0	65	8.0	51	11.0	23	4.0	37	5.0
# 20	92	2.0	87	4.0	59	6.0	45	6.0	22	1.0	34	3.0
# 40	88	4.0	83	4.0	54	5.0	41	4.0	20	2.0	30	4.0
# 60	82	6.0	75	8.0	47	7.0	32	9.0	16	4.0	24	6.0
# 100	63	19.0	48	27.0	33	14.0	21	11.0	10	6.0	15	9.0
# 230	32	31.0	11	37.0	10	23.0	9	12.0	4	6.0	6	9.0
<# 230		32.0		11.0		10.0		9.0		4.0		6.0
		100.0		100.0		100.0		100.0		100.0		100.0

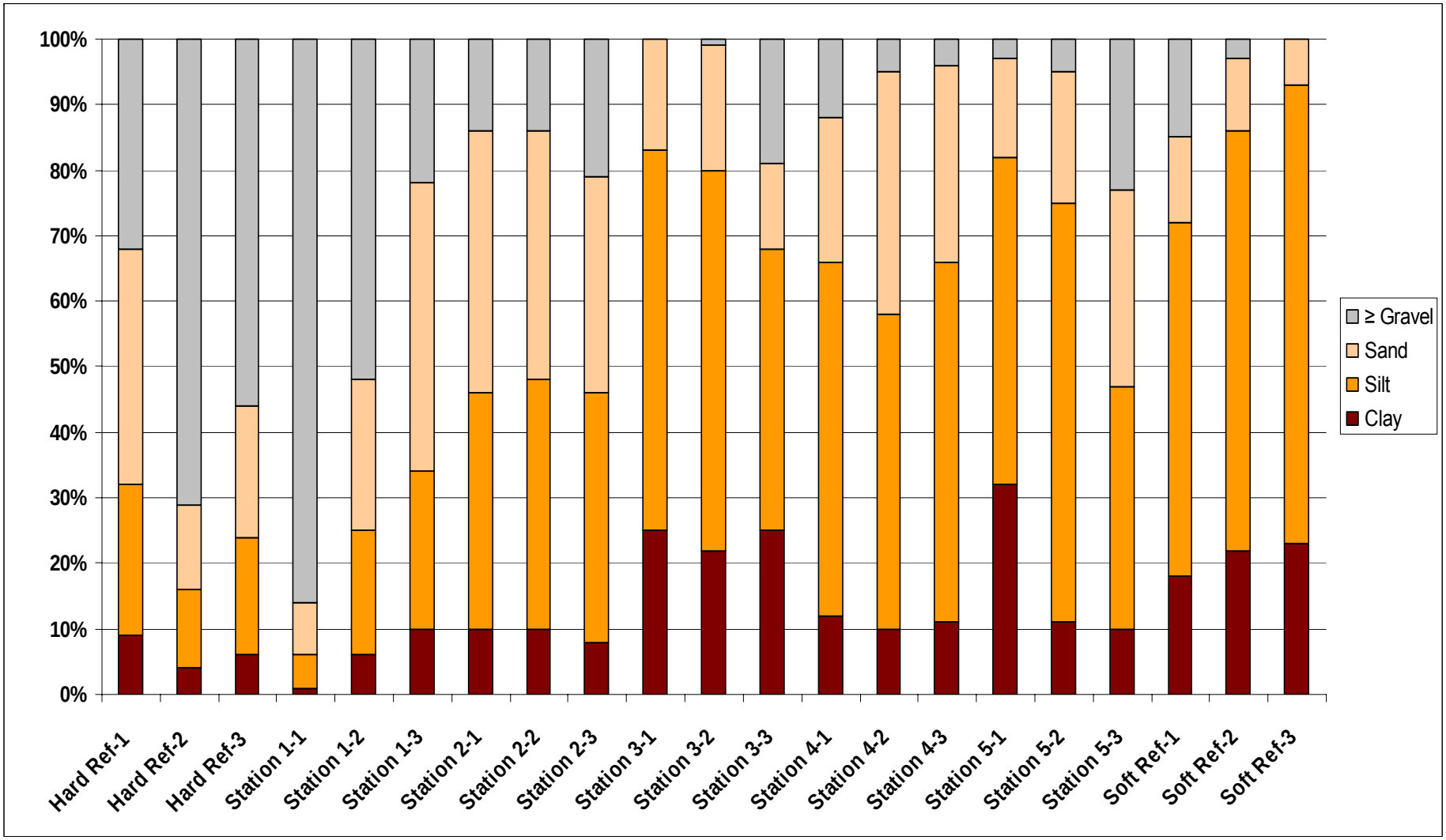
	Ref 2 Rep 1 Soft		Ref 2 Rep2 Soft		Ref 2 Rep 3 Soft							
	Passing	Retained	Passing	Retained	Passing	Retained						
1"	100	0.0	100	0.0	100	0.0						
3/4"	100	0.0	100	0.0	100	0.0						
1/2"	86	14.0	99	1.0	100	0.0						
1/4"	85	1.0	97	2.0	100	0.0						
# 4	85	0.0	97	0.0	99	1.0						
# 10	82	3.0	95	2.0	99	0.0						
# 20	79	3.0	93	2.0	97	2.0						
# 40	76	3.0	90	3.0	96	1.0						
# 60	72	4.0	86	4.0	93	3.0						
# 100	57	15.0	68	18.0	74	19.0						
# 230	18	39.0	22	46.0	23	51.0						
<# 230		18.0		22.0		23.0						
		100.0		100.0		100.0						

Figure 3. Full granulometry distribution by sieve size



Note: "Gravel" component (>2"-¼") for Stations 3 through Soft Reference likely mussel shells or shell hash rather than actual gravel.

Figure 4. Full granulometry distribution by grain size category



Note: "≥Gravel" component for Stations 3 through Soft Reference likely mussel shells or shell hash rather than actual gravel.

Table 6. Benthic infauna indices summary

Station 1 – 30m North

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	113	97	57	267	89.0	554
Abundance (organisms/0.1 m²)	1395	1197	704	3296	1098.7	84530
Species richness (No. species)	9	5	7	14	7.0	2.7
Distance in meters	30	30	30		30	
Rel. Diversity	0.334	0.324	0.502		0.387	0.007
% CAPITELLA	0.0	1.0	0.0		0.3	0.2

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	113	97	57	267	89.0	554
Abundance (organisms/0.1 m²)	1395	1197	704	3296	1098.7	84530
Family richness (No. families)	8	5	7	12	6.7	1.6
Distance in meters	30	30	30		30	
Rel. Diversity	0.343	0.324	0.502		0.390	0.006
% CAPITELLIDAE	0.0	1.0	1.8		0.928	0.518

Station 2 - 5m North

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	30	12	46	88	29.3	192
Abundance (organisms/0.1 m²)	370	148	568	1086	362.1	29396
Species richness (No. species)	7	3	9	10	6.3	6.2
Distance in meters	5	5	5		5	
Rel. Diversity	0.773	0.836	0.685		0.765	0.004
% CAPITELLA	20.0	50.0	6.5		25.5	330.2

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	30	12	46	88	29.3	192
Abundance (organisms/0.1 m²)	370	148	568	1086	362.1	29396
Family richness (No. families)	6	3	8	9	5.7	4.2
Distance in meters	5	5	5		5	
Rel. Diversity	0.779	0.836	0.632		0.749	0.007
% CAPITELLIDAE	20.0	50.0	6.5		25.5	330.2

Table 6. Benthic infauna indices summary (Cont.)

Station 3 – Center cage system

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	6	5	17	28	9.3	29.6
Abundance (organisms/0.1 m²)	74	62	210	345	115.2	4504
Species richness (No. species)	4	4	4	7	4.0	0.0
Distance in meters	0	0	0		0	
Rel. Diversity	0.896	0.961	0.725		0.861	0.010
% CAPITELLA	50.0	0.0	29.4		26.5	421.0

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	6	5	17	28	9.3	29.6
Abundance (organisms/0.1 m²)	74	62	210	345	115.2	4504
Family richness (No. families)	4	4	4	7	4.0	0.0
Distance in meters	0	0	0		0	
Rel. Diversity	0.896	0.961	0.725		0.861	0.010
% CAPITELLIDAE	50.0	0.0	29.4		26.5	421.0

Station 4 - 5m South

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	4	5	11	20	6.7	9.6
Abundance (organisms/0.1 m²)	49	62	136	247	82.3	1456
Species richness (No. species)	3	3	2	4	2.7	0.2
Distance in meters	5	5	5		5	
Rel. Diversity	0.946	0.865	0.439		0.750	0.049
% CAPITELLA	0.0	0.0	0.0		0.0	0.0

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	4	5	11	20	6.7	9.6
Abundance (organisms/0.1 m²)	49	62	136	247	82.3	1456
Family richness (No. families)	3	3	2	4	2.7	0.2
Distance in meters	5	5	5		5	
Rel. Diversity	0.946	0.865	0.439		0.750	0.049
% CAPITELLIDAE	0.0	0.0	0.0		0.0	0.0

Table 6. Benthic infauna indices summary (Cont.)

Station 5 – 30m South

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	10	13	12	35	11.7	1.6
Abundance (organisms/0.1 m²)	123	160	148	432	144.0	237.1
Species richness (No. species)	2	3	2	3	2.3	0.2
Distance in meters	30	30	30		30	
Rel. Diversity	0.722	0.719	0.918		0.787	0.009
% CAPITELLA	0.0	7.7	0.0		2.6	13.1

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	10	13	12	35	11.7	1.6
Abundance (organisms/0.1 m²)	123	160	148	432	144.0	237.1
Family richness (No. families)	2	3	2	3	2.3	0.2
Distance in meters	30	30	30		30	
Rel. Diversity	0.722	0.719	0.918		0.787	0.009
% CAPITELLIDAE	0.0	7.7	0.0		2.6	13.1

Reference 1 – Hard substrate reference

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	383	572	253	1208	402.7	17153
Abundance (organisms/0.1 m²)	4728	7061	3123	14913	4971	2614185
Species richness (No. species)	23	24	19	36	22.0	4.7
Distance in meters	>100	>100	>100		>100	
Rel. Diversity	0.431	0.413	0.503		0.449	0.002
% CAPITELLA	0.0	0.0	0.0		0.0	0.0

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	383	572	253	1208	402.7	17153
Abundance (organisms/0.1 m²)	4728	7061	3123	14913	4971	2614185
Family richness (No. families)	20	19	17	31	18.7	1.6
Distance in meters	>100	>100	>100		>100	
Rel. Diversity	0.435	0.341	0.481		0.419	0.003
% CAPITELLIDAE	4.2	4.4	7.9		5.5	2.9

Table 6. Benthic infauna indices summary (Cont.)

Reference 2 – Soft substrate reference

SPECIES level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	154	147	222	523	174.3	1144.2
Abundance (organisms/0.1 m²)	1901	1815	2741	6456	2152	174378
Species richness (No. species)	10	9	8	15	9.0	0.7
Distance in meters	>100	>100	>100		>100	
Rel. Diversity	0.322	0.215	0.325		0.287	0.003
% CAPITELLA	0.0	0.0	0.0		0.0	0.0

FAMILY level analysis	Rep 1	Rep 2	Rep 3	Total	Mean	Var.
Total organisms	154	147	222	523	174.3	1144.2
Abundance (organisms/0.1 m²)	1901	1815	2741	6456	2152	174378
Family richness (No. families)	9	8	7	13	8.0	0.7
Distance in meters	>100	>100	>100		>100	
Rel. Diversity	0.329	0.219	0.344		0.298	0.003
% CAPITELLIDAE	0.0	0.7	0.9		0.5	0.1

Table 7. Temperature, salinity, dissolved oxygen and turbidity profile results 04/29/20065

Cast	Depth	Temp	Salinity	DO Conc	DO_{sat}	Turbidity	Adj. sal	Adj. DO	Adj. %
8:04	(m)	°C	psu	mg/L	%	NTU	psu	mg/L	%
Mean	18.05	5.89	32.19	12.28	121.73	1.46	32.01	10.30	119.2
Max	36.43	5.94	32.25	12.36	122.60	1.84	32.07	10.31	120.1
Min	0.54	5.82	32.14	12.08	119.60	1.29	31.96	10.29	117.2
8:09									
Mean	17.84	5.89	32.19	12.20	120.94	1.48	32.01	10.30	118.5
Max	35.85	5.95	32.25	12.28	121.90	2.15	32.07	10.31	119.4
Min	0.55	5.82	32.14	11.99	118.80	1.29	31.96	10.28	116.3

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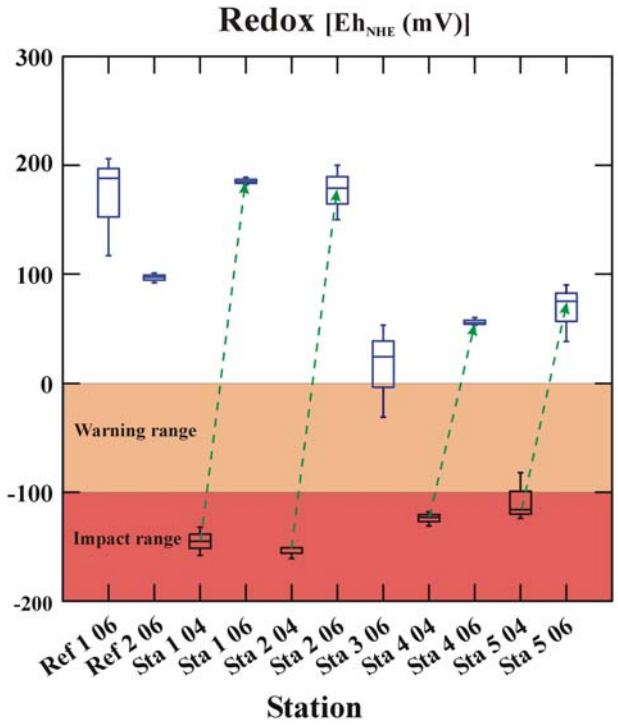
Discussion

The Maine Pollutant Discharge Elimination System (MPDES) General Permit for Atlantic Salmon Aquaculture (MEG130000), hereafter referred to as the "permit", sets forth specific thresholds for the individual metrics used to monitor the benthic environment around salmon aquaculture operations; thresholds have been established for both Warning Level and Impact Limit (refer to Table G.1. Sediment Mixing Zone impact thresholds under or within 30 m of net pen(s)). The threshold values are defined as the mean of the three replicates taken at each location. The following is a discussion of the results presented here in the context of the permit thresholds; representation of data was developed using SYSTAT11®.

The Warning Level and Impact Limit values for redox are -100 to 0 mV_{NHE} and <-100 mV_{NHE}, respectively. As the results in Table 3 shows, the redox values at Stations 1 and 2 have recovered to Reference 1 levels and Stations 4 and 5 are only slightly below Reference 2 levels. Only one value was found in the negative range, one of three replicates taken at Station 3 directly within the previous cage footprint. These numerical results for redox are consistent with the video observations which showed no remaining *Beggiatoa* sp. (sulfur-reducing bacterial growth indicative of hypoxic/anoxic conditions within the sediments) and no other indications of either hypoxia or anoxia.

Figure 5 is a graphic representation of the redox range and mean obtained for each station in April 2006 (blue boxes) compared to the range and mean for similar stations sampled in September 2004 as part of the DMR FAMP (black boxes). The Warning range (0 to -100 mV) and Impact range (< -100) are shown in orange and red, respectively, and the green dashed arrows highlight the change over the intervening period. With exception of one value at Station 3, the redox values have improved from consistent Impact level values to consistently acceptable values, a clear indication that substantial recovery has occurred in the benthic habitat since cessation of operation in July 2005.

Figure 5. Range and mean representations of redox values by station with comparison to fall 2004 values for Stations 1, 2, 4, and 5.

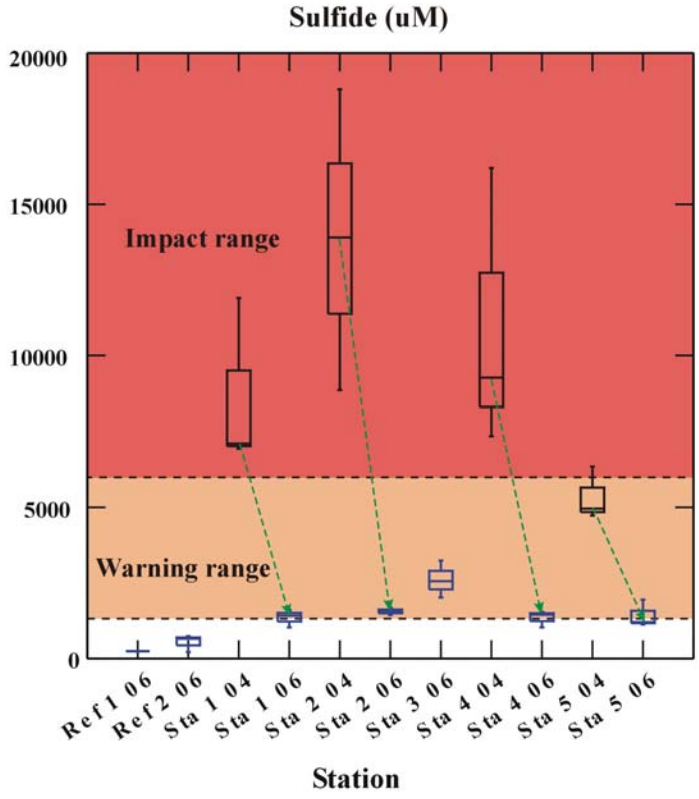


Systat is a registered trademark of SYSTAT Software, Inc.

The Warning Level and Impact Limit values for sulfide are 1,300 to 6,000 µM and >6,000 µM, respectively. As shown in Table 3, the mean values for Stations 1-4 are within the Warning Level range, although only Stations 2 and 3 have all replicate values within the Warning Level; nevertheless, none of the values approaches the Impact Limit level of 6,000 µM.

Similar to Figure 5, above, Figure 6 is a graphic representation of the sulfide range and mean obtained for each station in April 2006 (blue boxes) compared to the range and mean for similar stations sampled in September 2004 as part of the DMR FAMP (black boxes). The Warning range (1,600 to 3,000 µM) and Impact range (>6,000 µM) are shown in orange and red, respectively, and the green dashed arrows highlight the change over the intervening period. In nearly every each case where comparison is possible, sulfide has decreased from nearly consistent Impact level values in 2004 to low level Warning Level values in 2006, another clear indication that substantial recovery has occurred in the benthic habitat since cessation of operation in July 2005.

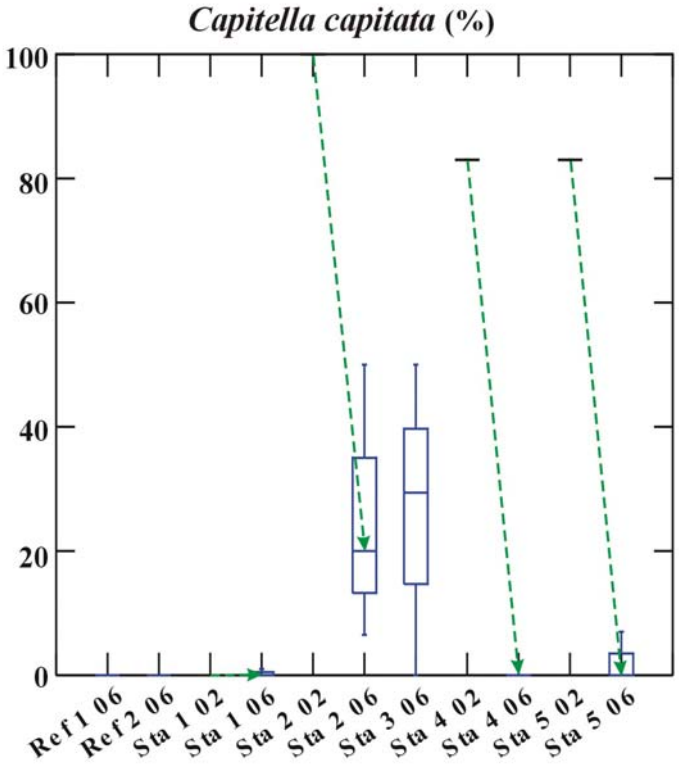
Figure 6. Range and mean representations of sulfide values by station with comparison to fall 2004 values for Stations 1, 2, 4, and 5.



The most recent previous benthic infauna sampling was been carried out at the site in the fall of 2002 during full operation; where possible, results from that sampling are compared to the results reported here.

Threshold values for benthic infauna relate to pollution-tolerant and pollution-intolerant taxa, taxa (species/family) richness, and abundance reduction or azoic conditions. The DEP has not yet developed lists of pollution-tolerant and pollution-intolerant taxa; however, *Capitella capitata* is a recognized opportunistic pollution-tolerant species indicative of degraded environments resulting from organic loading and is therefore often used as an indicator species.

Figure 7. Range and mean representations of percent *C. capitata* dominance values by station with comparison to fall 2002 values for Stations 1, 2, 4, and 5.

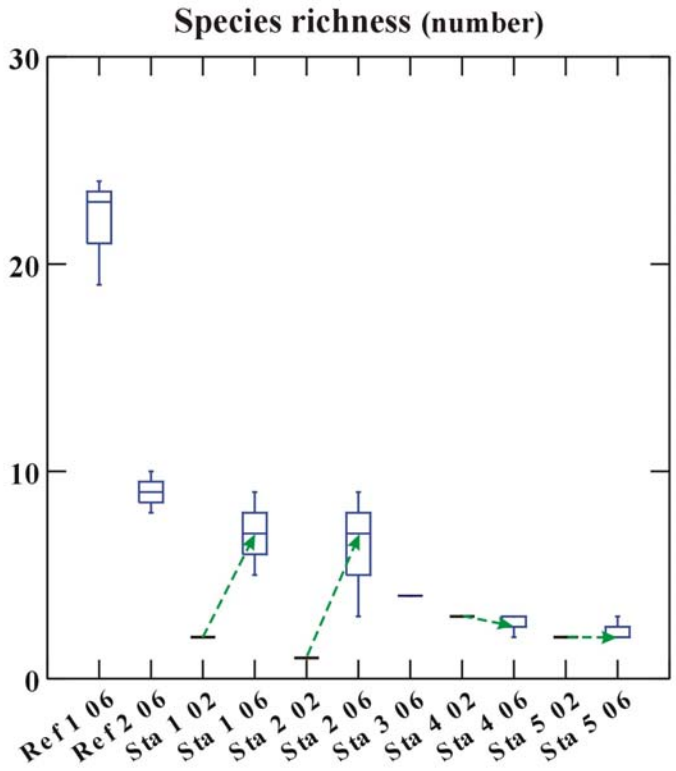


According to the permit the Warning Level and Impact Limit values for pollution-tolerant taxa are >70% dominance and "Report information", respectively. The request to report information rather than assignment of an Impact Limit value reflects the need for proper interpretation of percent dominance data in the context of other data, including video observation of surface impacts and sediment chemistry.

The mean percent dominance by *C. capitata* for each station is shown in Figure 7. As shown, *C. capitata* dominance is below the 70% threshold. The highest mean values are found at Station 2 and 3 where the values are 25.5% and 26.5%, respectively, and the highest individual replicate values is only 50%; these values also show significant declines in percent dominance when compared to the values found in 2002 during full operation, as indicated by the green dashed arrows. These results are consistent with the video observations and redox and sulfide values; *C. capitata* is opportunistic in colonizing hypoxic to anoxic sediments, occasionally at extremely high abundance when all other species are excluded. The generally low to moderate dominance values found in 2006 further suggest that the sediment habitat is recovering, particularly with respect to the oxic condition of the sediment, thus making the sediment less suitable for *C. capitata* and more suitable to colonization by other species; the recovery process is clearly underway and further recovery is expected.

The taxa richness data, specifically species richness, indicates that, although a number of species are found along with C. capitata at all stations, the richness level remains below that for the hard-bottom stations (Stations 1 and 2) when compared to the reference and substantially lower for the soft-bottom stations (Stations 3, 4, and 5) when compared to the soft-bottom reference, as shown in Figure 8.

Figure 8. Range and mean representations of species richness values by station with comparison to fall 2002 values for Stations 1, 2, 4, and 5.

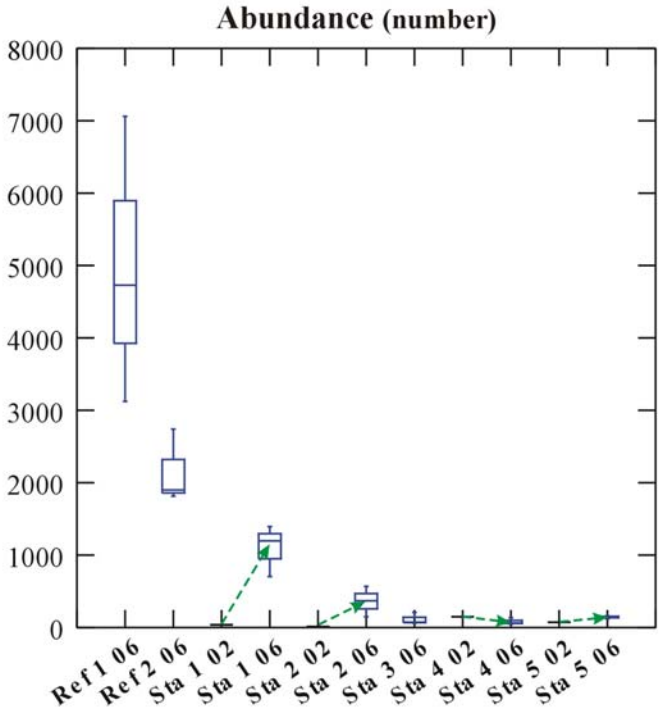


According to the permit, the Warning Level and Impact Limit values for taxa richness are >25% reduction in total number of taxa compared to the mean for the reference site and "Report information", respectively. Again, the request to report information rather than assignment of an Impact Limit value reflects the need for proper interpretation of species richness and abundance data, discussed below, in the context of other data, including video observation of surface impacts and sediment chemistry.

Numerically, Stations 1 and 2 show taxa reductions of 61.1% and 72.2%, respectively, compared to Reference 1 and Stations 3, 4, and 5 show taxa reductions of 53.3%, 73.3%, and 80.0%, respectively, compared to Reference 2. Although these station values are below their respective reference station values, Stations 1 and 2 show substantial improvement over the results of the 2002 monitoring during full operation, as indicated by the green dashed arrows; Stations 4 and 5, however, show little change, even a slight decrease at Station 4, compared to the 2002 results. The improvement at Stations 1 and 2 is likely related to the coarseness of the sediment at these stations compared to the very soft, fine sediments found at Station 4 and 5; experience has shown that recovery of coarse sediment bottoms generally proceeds more rapidly than soft sediment bottoms (Heinig, pers. obs.).

Regarding abundance, the permit Warning Level and Impact Limit values are >50% reduction in total number of taxa compared to the mean for the reference site and "Report information", respectively. The abundance values for each station are shown in Figure 9.

Figure 9. Range and mean representations of abundance values by station with comparison to fall 2002 values for Stations 1, 2, 4, and 5.



Numerically, Stations 1 and 2 show abundance reductions of 77.9% and 92.7%, respectively, compared to Reference 1 and Stations 3, 4, and 5 show abundance reductions of 94.6%, 96.2%, and 93.3%, respectively, compared to Reference 2. These high abundance percent reductions are not completely surprising since, during the early stages of recovery, benthic conditions improve thus making the bottom less suitable for the opportunistic species, which consequently decrease in number (sometimes dramatically), while colonization by returning species may lag behind, depending on the spawning time of the latter; this would be particularly true during the first year of recovery when achievement of "suitable"
benthic conditions may be out of phase with the spawning/recruitment period of returning species. Nevertheless, as with species richness, Stations 1 and 2 show improvement over the fall 2002 monitoring results, while Station 4 and 5 show little change, even a decrease at Station 4, compared to 2002.

The permit does not establish Warning Levels and Impact Limits for copper or zinc although these are required to be measured. The Effects Range Low (ERL)/Effects Range Median (ERM) levels for copper and zinc are 34 mg•Kg^{-1}/270 mg•Kg^{-1} dry weight and 150 mg•Kg^{-1}/410 mg•Kg^{-1} dry weight, respectively (Long *et al*., 1995). As presented in Table 4, all of the zinc values obtained for all stations are below the ERL level for zinc. The results for copper are generally below the ERL level, however, elevated mean values above the ERL level are seen at Stations 3 and 5, one replicate at the latter station showing an anomalous high value of 199.4 mg•Kg^{-1}, possibly the result of a piece of bottom paint, copper rivet, or other copper-containing item, in the sample. The range and means for copper values for each station, including the anomalous outlier, are shown in Figure 10; Figure 11 shows the same data with the outlier at Station 5 having been omitted.

It is important to note that the sediment quality guideline ERL is not a threshold of any chemical concentration in sediment indicating an increased probability of toxicity. Furthermore, there is no basis for assuming that multiple concentrations above an ERL increase the probability of toxicity (O'Connor, 2004).

Figure 10. Range and mean representations of copper values by station

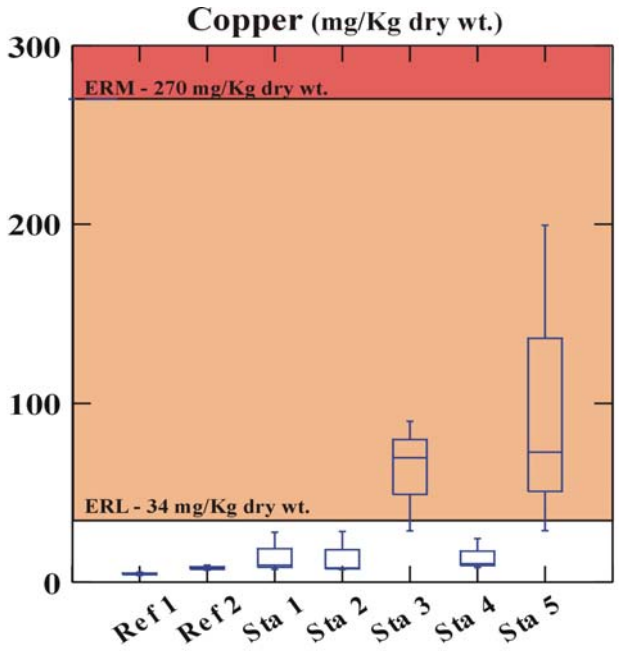
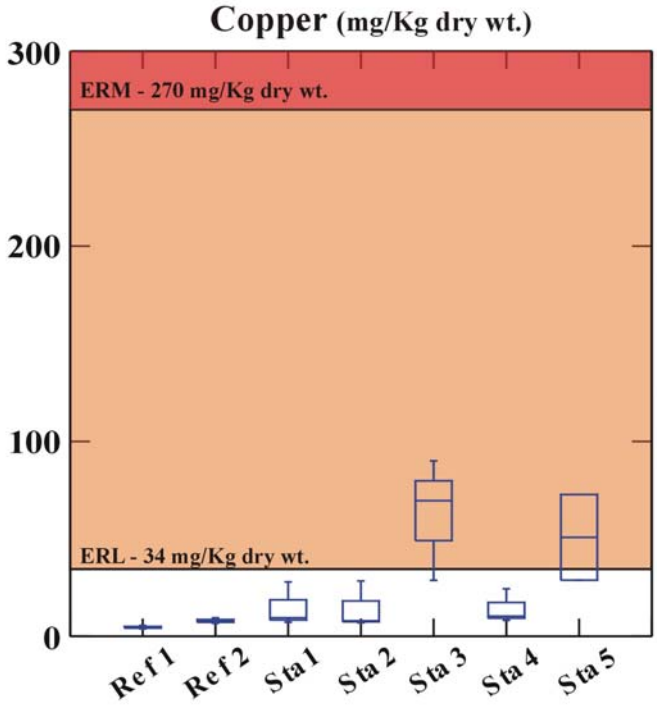


Figure 11. Range and mean representations of copper values by station, omitting anomalous outlier value at Station 5.



Finally, the water column profiles indicate that oxygen levels throughout the water column, including at depth (36.4 m and 35.9 m for Cast 1 and 2, respectively), are above saturation and that ample oxygen is available to continue the recovery process.

Conclusions

The video observation, combined with the redox and sulfide results, indicate that the sediment condition has improved substantially from the last time the site was monitored in the fall of 2004. However, although the habitat appears to have substantially recovered after only 9 months since cessation of operations in the spring of 2005, the benthic infauna results indicate that the recovery of the benthic community within and adjacent to the former cage footprint is lagging behind sediment recovery, since taxa richness and abundance of organisms levels are below those found at the respective soft- and hard-bottom reference locations. Despite the clear improvement in reduced dominance by *C. capitata*, as stated earlier, the lag in improvement in both species richness and abundance may be the result of asynchronous habitat recovery and species recruitment; an increase in both species richness and abundance would be expected once recruits (of various taxa) encounter the improved habitat, particularly once the sulfide levels subside to near reference levels. Therefore, given the improvement in the biological indices already seen, the fact that the habitat appears to have substantially improved bodes well for further improvement in these biological indices in the future. It should be noted that the initial rate of recovery seen here is similar to that seen elsewhere, including along the Maine coast, over soft bottom sites (Heinig, pers. obsv.; Johannessen *et al*., 1994).

Additionally, even though considerable effort is put into locating an appropriate reference station for each sediment type, no reference will be a perfect match. A review of the granulometry results (see Table 5 and Figures 3 and 4) shows that sediments across the site follow a gradient from hard substrate at the north to soft substrate at the south, thus neither of the reference stations used in this study perfectly matches any of the previous cage location stations. Differences in granulometry can profoundly affect suitability of the substrate for specific species and some level of flexibility, therefore, needs to be allowed when comparing results between stations, particularly references. Furthermore, certain species may recruit to the area only occasionally or infrequently, and return of such species may therefore take considerable time. Nevertheless, it is apparent that considerable improvement in the benthic community remains to be made as the recovery process proceeds.

Since recovery is not complete, additional sampling is recommended, however, as previously mentioned to Friend of Blue Hill Bay, the timing of future sampling depends on the objectives of the study and the level of detail desired. If the objective is simply to determine if recovery is proceeding, the sampling interval can be lengthy, *i.e.* once annually in which case the next sampling should occur in the spring of 2007. If the objective is to study the *process* of recovery, then the interval between samplings should be shorter and resampling in the fall of 2006 should then be considered.

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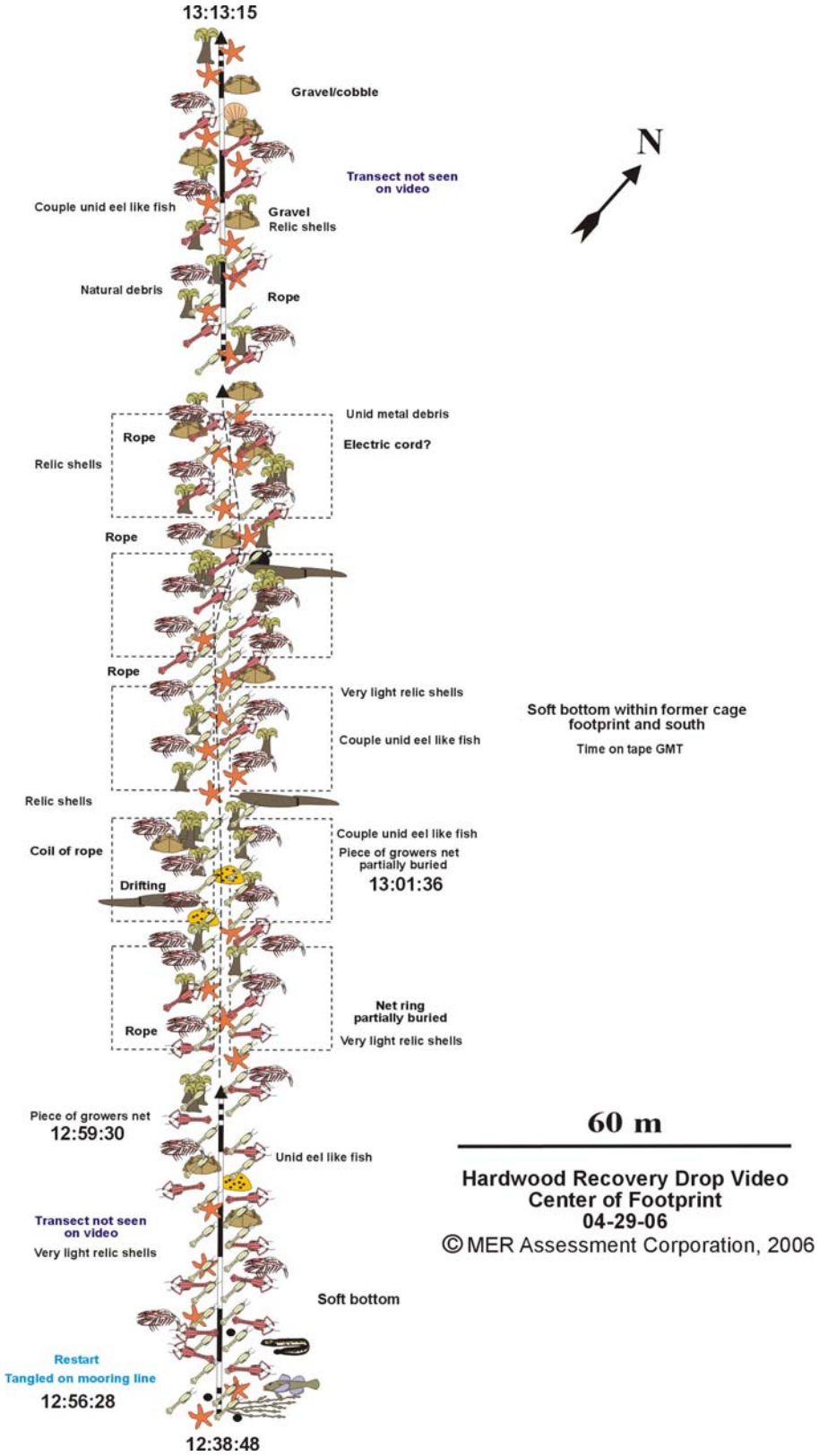
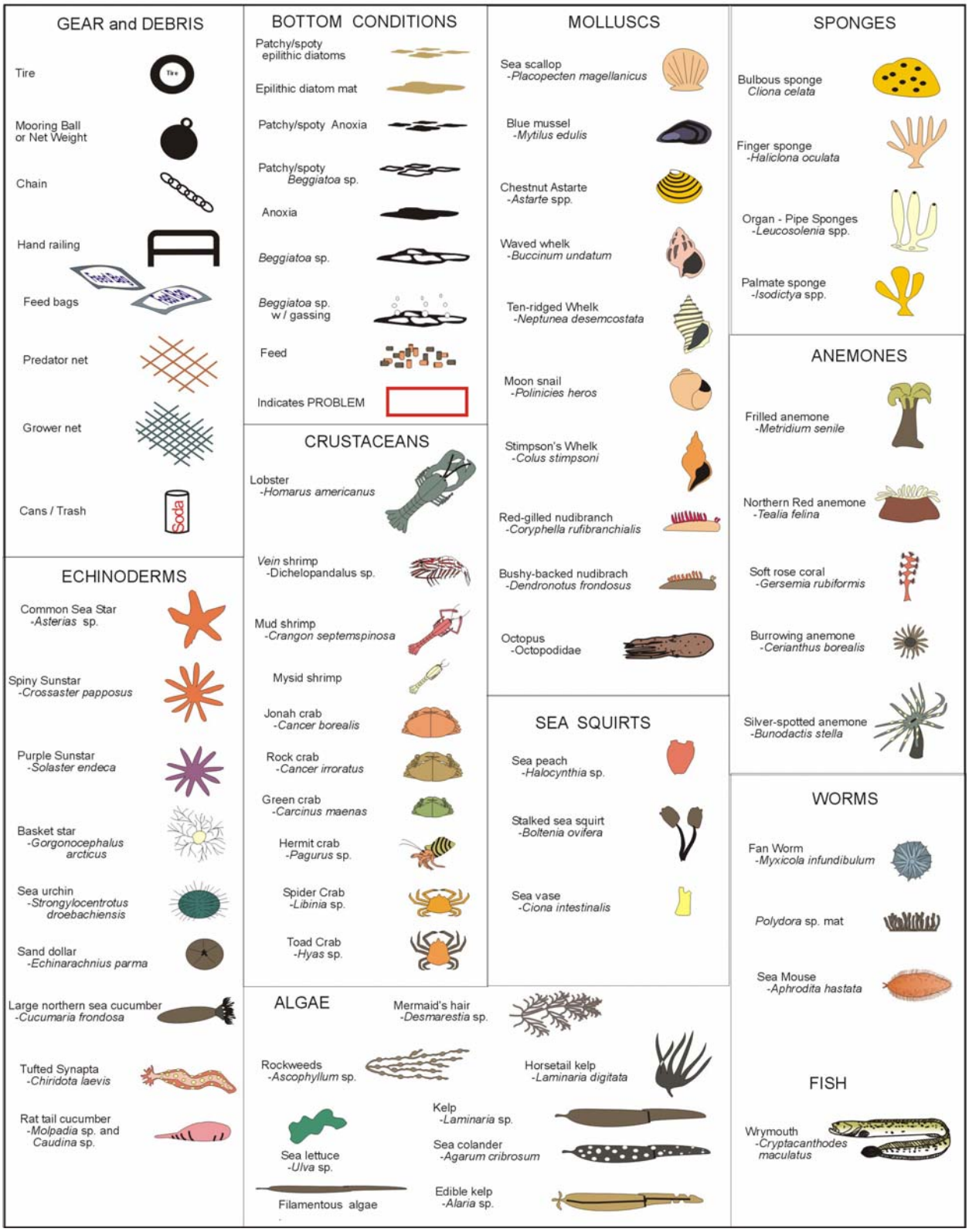
APPENDIX I

Video graphic representation


13:13:15
Gravel/cobble
Transect not seen on video
Couple unid eel like fish
Gravel
Relic shells
Natural debris
Rope
Unid metal debris
Rope
Electric cord?
Relic shells
Rope
Rope
Very light relic shells
Soft bottom within former cage footprint and south
Couple unid eel like fish
Time on tape GMT
Relic shells
Couple unid eel like fish
Coil of rope
Piece of growers net partially buried
Drifting
13:01:36
Net ring partially buried
Rope
Very light relic shells
Piece of growers net
12:59:30
Unid eel like fish
Transect not seen on video
Very light relic shells
Soft bottom
Restart
Tangled on mooring line
12:56:28
12:38:48
N
60 m
Hardwood Recovery Drop Video
Center of Footprint
04-29-06
© MER Assessment Corporation, 2006

Video Observation Legend



APPENDIX II

Benthic Infauna Data

Station 1 – 30m North

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Capitellidae		0		1		1
Capitella capitata	0		1		0	
Mediomastus ambiseta	0		0		1	
Lumbrineridae		0		1		1
Lumbrineris spp.	0		1		1	
Nephtyidae		4		11		9
Aglaophamus neotenus	3		11		9	
Nephtys sp.	1		0		0	
Nereidae		3		0		2
Nereis spp.	3		0		2	
Phyllodocidae		1		0		0
Eteone spp.	1		0		0	
Serpulidae		2		0		0
Spirorbis spp.	2		0		0	
Sigalionidae		1		0		0
Pholoe minuta	1		0		0	
Spionidae		95		83		41
Prionospio steenstrupi	95		83		41	
Order Amphipoda						
Metilidae		1		0		0
Maera sp.	1		0		0	
Order Heterodontida						
Cardiidae		0		0		2
Cerastoderma pinnulatum	0		0		2	
NEMATODA		6		1		0
Unid.	6		1		0	
NEMERTEA		0		0		1
Unid.	0		0		1	

Station 2 – 5m North

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Capitellidae		6		6		3
Capitella capitata	6		6		3	
Nephtyidae		10		1		22
Aglaophamus neotenus	9		1		19	
Nephtys sp.	1		0		3	
Paraonidae		0		0		1
Tauberia gracilis	0		0		1	
Pectinaridae		1		0		1
Pectinaria (Cistena) gouldii	1		0		1	

Station 2 – 5m North (Cont.)

	REP 1		REP 2		REP 3	
	Species	**Family**	**Species**	**Family**	**Species**	**Family**
Phyllodocidae		1		0		1
Eteone spp.	1		0		1	
Sigalionidae		0		0		1
Pholoe minuta	0		0		1	
Spionidae		11		5		16
Prionospio steenstrupi	11		5		16	
MOLLUSCA						
Order Protobranchia						
Nuculidae		1		0		0
Nucula proxima	1		0		0	
NEMERTEA		0		0		1
Unid.	0		0		1	

Station 3 – Center cage

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Capitellidae		3		0		5
Capitella capitata	3		0		5	
Nephtyidae		1		2		10
Aglaophamus neotenus	1		2		10	
Pectinaridae		0		1		0
Pectinaria (Cistena) gouldii	0		1		0	
Polynoidae		1		0		0
Harmathoe sp.	1		0		0	
Spionidae		0		1		1
Prionospio steenstrupi	0		1		1	
CRUSTACEA						
Order Amphipoda						
Corophiidae		1		0		0
Corophium spp.	1		0		0	
NEMERTEA		0		1		1
Unid.	0		1		1	

Station 4 – 5m South

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Nephtyidae		2		3		10
Aglaophamus neotenus	2		3		10	
Pectinaridae		1		0		0
Pectinaria (Cistena) gouldii	1		0		0	
Spionidae		1		1		1
Prionospio steenstrupi	1		1		1	
CRUSTACEA						
Order Cumacea		0		1		0
Diastylis spp.	0		1		0	

Station 5 – 30m South

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Capitellidae		0		1		0
Capitella capitata	0		1		0	
Nephtyidae		8		9		8
Aglaophamus neotenus	8		9		8	
Spionidae		2		3		4
Prionospio steenstrupi	2		3		4	

Reference 1 – Hard bottom

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Ampharetidae		0		2		0
Ampharete sp.	0		2		0	
Capitellidae		16		25		20
Capitella capitata	0		0		0	
Mediomastus ambiseta	16		25		20	
Cirratulidae		2		0		1
Tharyx spp.	2		0		1	
Cossuridae		1		2		1
Cossura longicirrata	1		2		1	
Dorvilleidae		0		1		0
Protodorvillea kefersteini	0		1		0	
Goniadidae		0		1		0
Goniada spp.	0		1		0	
Lumbrineridae		32		30		20
Lumbrineris spp.	0		3		1	
Ninoe nigripes	32		27		19	

Reference 1 – Hard bottom (Cont.)

	REP 1		REP 2		REP 3	
	Species	**Family**	**Species**	**Family**	**Species**	**Family**
Maldanidae		1		0		0
Praxillela spp.	1		0		0	
Nephtyidae		11		15		7
Aglaophamus neotenus	6		7		7	
Nephtys sp.	5		8		0	
Nereidae		23		8		16
Nereis spp.	23		8		16	
Opheliidae		2		3		1
Ophelina acuminata	2		3		1	
Pectinaridae		1		0		1
Cistena granulata	1		0		1	
Phyllodocidae		1		7		1
Eteone spp.	1		7		1	
Sabellariidae		0		0		1
Sabellaria vulgaris	0		0		1	
Sabellidae		0		0		1
Potamilla spp.	0		0		1	
Spionidae		264		451		166
Prionospio steenstrupi	263		407		160	
Spio setosa	1		42		6	
Unid.	0		2		0	
Terebellidae		1		0		0
Polycirrus sp.	1		0		0	
CHORDATA						
Ascidiacea		0		2		0
Molgula sp.	0		2		0	
CRUSTACEA						
Order Amphipoda						
Photidae		1		2		0
Photis spp.	1		2		0	
Phoxocephalidae		0		2		0
Harpinia propinqua	0		2		0	
Stenothoidae		1		0		0
Metopella angusta	1		0		0	
MOLLUSCA						
Class Bivalvia						
Lyonsiidae		0		0		1
Lyonsia hyalina	0		0		1	
Myidae		0		0		1
Mya truncata	0		0		1	
Order Protobranchia						
Nuculidae		11		12		10
Nucula delphinodonta	2		1		0	
Nucula proxima	9		11		10	

Reference 1 – Hard bottom (Cont.)

	REP 1		REP 2		REP 3	
	Species	**Family**	**Species**	**Family**	**Species**	**Family**
Order Heterodontida						
Thyasiridae		2		0		0
Thyasira gouldii	2		0		0	
Cardiidae		0		3		1
Cerastoderma pinnulatum	0		3		1	
Class Polyplacophora						
Ischnochitonidae		1		0		0
Tonicella (Ischnochiton) ruba	1		0		0	
Class Gastropoda						
Acmaeidae		0		2		0
Tectura (Acmea) testudinalis	0		2		0	
Order Neogastropoda						
Buccinidae		10		0		4
Buccinum undatum	10		0		4	
NEMATODA		1		1		0
Unid.	1		1		0	
NEMERTEA		1		3		0
Unid.	1		3		0	

Reference 2 – Soft bottom

	REP 1		REP 2		REP 3	
ANNELIDA	**Species**	**Family**	**Species**	**Family**	**Species**	**Family**
CLASS POLYCHAETA						
Capitellidae		0		1		2
Mediomastus ambiseta	0		1		2	
Cirratulidae		1		0		1
Tharyx spp.	1		0		1	
Cossuridae		2		0		0
Cossura longicirrata	2		0		0	
Lumbrineridae		1		2		5
Lumbrineris spp.	0		0		0	
Ninoe nigripes	1		2		5	
Nephtyidae		6		3		2
Aglaophamus neotenus	5		3		1	
Nephtys sp.	1		0		1	
Nereidae		1		0		0
Nereis spp.	1		0		0	
Sabellidae		1		0		0
Potamilla spp.	1		0		0	
Spionidae		14		4		29
Prionospio steenstrupi	14		3		29	
Spio setosa	0		1		0	

Reference 2 – Soft bottom (Cont.)

	REP 1		REP 2		REP 3	
	Species	**Family**	**Species**	**Family**	**Species**	**Family**
CRUSTACEA						
Order Amphipoda						
Metilidae		0		1		0
Casco bigelowi	0		1		0	
MOLLUSCA						
Class Bivalvia						
Order Protobranchia						
Nuculidae		127		134		181
Nucula proxima	127		134		181	
Order Heterodontida						
Thyasiridae		1		0		0
Thyasira gouldii	1		0		0	
NEMATODA		0		1		0
Unid.	0		1		0	
NEMERTEA		0		1		2
Unid.	0		1		2	

APPENDIX III

Water column profile data

Cast 1

DateTime	Depth	Temp	Salinity	DO Conc	DO%	DO Chrg	NTU	Adj. sal	Adj. DO	Adj. %
M/D/Y	m	C	ppt	mg/L	%					
4/29/2006 8:04	0.5	5.93	32.14	12.36	122.6	46	1.42	31.96	10.291	120.1%
4/29/2006 8:04	0.5	5.93	32.14	12.36	122.6	46	1.35	31.96	10.291	120.1%
4/29/2006 8:04	0.5	5.93	32.14	12.36	122.6	46	1.35	31.96	10.291	120.1%
4/29/2006 8:05	0.5	5.93	32.14	12.36	122.6	46	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.6	5.93	32.14	12.36	122.6	46	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.6	5.93	32.14	12.36	122.6	46	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.6	5.93	32.14	12.36	122.6	46	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.6	5.93	32.14	12.36	122.6	47	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.6	5.93	32.14	12.36	122.6	47	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.7	5.93	32.14	12.36	122.6	47	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.7	5.93	32.14	12.36	122.6	47	1.48	31.96	10.291	120.1%
4/29/2006 8:05	0.8	5.93	32.15	12.36	122.6	47	1.48	31.97	10.290	120.1%
4/29/2006 8:05	0.9	5.93	32.15	12.36	122.6	47	1.48	31.97	10.290	120.1%
4/29/2006 8:05	1.0	5.93	32.15	12.36	122.6	47	1.48	31.97	10.290	120.1%
4/29/2006 8:05	1.0	5.93	32.15	12.36	122.6	47	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.1	5.93	32.14	12.36	122.6	46	1.42	31.96	10.291	120.1%
4/29/2006 8:05	1.2	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.3	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.4	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.5	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.6	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.7	5.93	32.15	12.36	122.6	46	1.42	31.97	10.290	120.1%
4/29/2006 8:05	1.8	5.93	32.15	12.36	122.6	46	1.35	31.97	10.290	120.1%
4/29/2006 8:05	1.9	5.93	32.15	12.36	122.6	47	1.35	31.97	10.290	120.1%
4/29/2006 8:05	2.0	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	2.1	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	2.2	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	2.3	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	2.4	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	2.5	5.92	32.15	12.35	122.6	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	2.6	5.92	32.15	12.35	122.6	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	2.7	5.92	32.15	12.35	122.6	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	2.9	5.92	32.15	12.35	122.6	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	3.0	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	3.1	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	3.2	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	3.4	5.92	32.15	12.36	122.6	47	1.35	31.97	10.293	120.1%
4/29/2006 8:05	3.5	5.92	32.15	12.35	122.5	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	3.6	5.92	32.16	12.35	122.5	47	1.35	31.98	10.292	120.0%
4/29/2006 8:05	3.7	5.92	32.15	12.35	122.5	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	3.9	5.92	32.15	12.35	122.5	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	4.0	5.92	32.15	12.35	122.5	47	1.35	31.97	10.293	120.0%
4/29/2006 8:05	4.1	5.92	32.16	12.35	122.5	47	1.35	31.98	10.292	120.0%
4/29/2006 8:05	4.2	5.92	32.16	12.35	122.5	47	1.35	31.98	10.292	120.0%
4/29/2006 8:05	4.3	5.92	32.16	12.35	122.5	47	1.35	31.98	10.292	120.0%
4/29/2006 8:05	4.5	5.92	32.16	12.35	122.6	47	1.35	31.98	10.292	120.0%
4/29/2006 8:05	4.6	5.92	32.16	12.35	122.6	47	1.42	31.98	10.292	120.0%
4/29/2006 8:05	4.7	5.92	32.16	12.35	122.6	46	1.42	31.98	10.292	120.0%

4/29/2006 8:05	4.8	5.92	32.16	12.35	122.6	46	1.42	**31.98**	**10.292**	**120.0%**
4/29/2006 8:05	4.9	5.93	32.16	12.35	122.5	46	1.42	**31.98**	**10.289**	**120.0%**
4/29/2006 8:05	5.0	5.93	32.16	12.35	122.5	46	1.42	**31.98**	**10.289**	**120.0%**
4/29/2006 8:05	5.1	5.93	32.16	12.35	122.5	46	1.42	**31.98**	**10.289**	**120.0%**
4/29/2006 8:05	5.3	5.93	32.17	12.35	122.5	46	1.35	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.4	5.93	32.17	12.35	122.5	46	1.48	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.5	5.93	32.17	12.35	122.5	46	1.42	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.6	5.93	32.17	12.35	122.5	47	1.42	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.7	5.93	32.17	12.35	122.5	47	1.42	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.8	5.93	32.17	12.35	122.5	47	1.42	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	5.9	5.93	32.17	12.35	122.5	47	1.42	**31.99**	**10.289**	**120.0%**
4/29/2006 8:05	6.0	5.94	32.17	12.35	122.5	47	1.42	**31.99**	**10.286**	**120.1%**
4/29/2006 8:05	6.1	5.94	32.17	12.35	122.5	47	1.35	**31.99**	**10.286**	**120.1%**
4/29/2006 8:05	6.3	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	6.4	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	6.5	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	6.6	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	6.7	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	6.9	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.0	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.1	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.2	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.3	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.5	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.6	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.7	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	7.9	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.0	5.94	32.17	12.34	122.5	47	1.29	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.1	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.2	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.4	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.5	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.6	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.7	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	8.9	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.0	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.1	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.2	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.3	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.5	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.6	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.7	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	9.8	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.0	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.1	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.2	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.3	5.94	32.17	12.34	122.5	47	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.4	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.6	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.7	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.8	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**
4/29/2006 8:05	10.9	5.94	32.17	12.34	122.5	46	1.35	**31.99**	**10.286**	**120.0%**

4/29/2006 8:05	11.0	5.94	32.17	12.34	122.5	46	1.35	31.99	10.286	120.0%
4/29/2006 8:05	11.2	5.94	32.17	12.33	122.4	46	1.35	31.99	10.286	119.9%
4/29/2006 8:05	11.3	5.94	32.17	12.33	122.4	46	1.35	31.99	10.286	119.9%
4/29/2006 8:05	11.4	5.94	32.17	12.33	122.4	47	1.35	31.99	10.286	119.9%
4/29/2006 8:05	11.5	5.94	32.17	12.33	122.4	47	1.35	31.99	10.286	119.9%
4/29/2006 8:05	11.6	5.94	32.17	12.33	122.4	47	1.35	31.99	10.286	119.9%
4/29/2006 8:05	11.7	5.94	32.17	12.34	122.4	47	1.35	31.99	10.286	120.0%
4/29/2006 8:05	11.8	5.94	32.17	12.34	122.4	47	1.29	31.99	10.286	120.0%
4/29/2006 8:05	11.9	5.93	32.17	12.34	122.4	47	1.29	31.99	10.289	119.9%
4/29/2006 8:05	12.0	5.93	32.17	12.33	122.4	47	1.35	31.99	10.289	119.8%
4/29/2006 8:05	12.1	5.93	32.17	12.33	122.4	47	1.35	31.99	10.289	119.8%
4/29/2006 8:05	12.2	5.93	32.17	12.34	122.4	46	1.29	31.99	10.289	119.9%
4/29/2006 8:05	12.3	5.93	32.17	12.34	122.4	46	1.29	31.99	10.289	119.9%
4/29/2006 8:05	12.4	5.92	32.17	12.34	122.4	46	1.29	31.99	10.291	119.9%
4/29/2006 8:05	12.5	5.92	32.17	12.34	122.4	46	1.29	31.99	10.291	119.9%
4/29/2006 8:05	12.6	5.92	32.17	12.34	122.4	46	1.29	31.99	10.291	119.9%
4/29/2006 8:05	12.7	5.92	32.17	12.34	122.4	46	1.29	31.99	10.291	119.9%
4/29/2006 8:05	12.8	5.92	32.17	12.33	122.3	46	1.29	31.99	10.291	119.8%
4/29/2006 8:05	12.9	5.91	32.17	12.33	122.3	46	1.29	31.99	10.294	119.8%
4/29/2006 8:05	13.0	5.91	32.17	12.34	122.4	47	1.78	31.99	10.294	119.9%
4/29/2006 8:05	13.2	5.91	32.17	12.34	122.4	47	1.78	31.99	10.294	119.9%
4/29/2006 8:05	13.3	5.91	32.17	12.34	122.4	47	1.78	31.99	10.294	119.9%
4/29/2006 8:05	13.4	5.91	32.18	12.34	122.4	47	1.72	32.00	10.293	119.9%
4/29/2006 8:06	13.5	5.91	32.18	12.34	122.4	47	1.72	32.00	10.293	119.9%
4/29/2006 8:06	13.6	5.91	32.18	12.34	122.4	47	1.72	32.00	10.293	119.9%
4/29/2006 8:06	13.7	5.9	32.18	12.33	122.3	47	1.66	32.00	10.295	119.8%
4/29/2006 8:06	13.9	5.9	32.18	12.33	122.3	47	1.72	32.00	10.295	119.8%
4/29/2006 8:06	14.0	5.9	32.17	12.33	122.3	47	1.72	31.99	10.296	119.8%
4/29/2006 8:06	14.1	5.9	32.18	12.33	122.3	47	1.84	32.00	10.295	119.8%
4/29/2006 8:06	14.2	5.9	32.17	12.34	122.3	47	1.84	31.99	10.296	119.9%
4/29/2006 8:06	14.4	5.9	32.18	12.34	122.3	47	1.84	32.00	10.295	119.9%
4/29/2006 8:06	14.5	5.9	32.18	12.34	122.3	47	1.84	32.00	10.295	119.9%
4/29/2006 8:06	14.6	5.9	32.18	12.34	122.3	47	1.78	32.00	10.295	119.9%
4/29/2006 8:06	14.7	5.9	32.18	12.33	122.3	47	1.78	32.00	10.295	119.8%
4/29/2006 8:06	14.8	5.9	32.18	12.33	122.3	47	1.72	32.00	10.295	119.8%
4/29/2006 8:06	14.9	5.9	32.18	12.33	122.3	46	1.72	32.00	10.295	119.8%
4/29/2006 8:06	15.0	5.89	32.18	12.33	122.3	46	1.66	32.00	10.298	119.7%
4/29/2006 8:06	15.1	5.89	32.18	12.33	122.3	46	1.72	32.00	10.298	119.7%
4/29/2006 8:06	15.2	5.89	32.18	12.33	122.3	46	1.66	32.00	10.298	119.7%
4/29/2006 8:06	15.3	5.89	32.18	12.33	122.3	46	1.66	32.00	10.298	119.7%
4/29/2006 8:06	15.5	5.89	32.18	12.33	122.3	46	1.66	32.00	10.298	119.7%
4/29/2006 8:06	15.6	5.89	32.18	12.32	122.2	46	1.66	32.00	10.298	119.6%
4/29/2006 8:06	15.7	5.89	32.18	12.32	122.2	46	1.6	32.00	10.298	119.6%
4/29/2006 8:06	15.8	5.89	32.18	12.32	122.2	47	1.6	32.00	10.298	119.6%
4/29/2006 8:06	15.9	5.89	32.18	12.32	122.2	47	1.6	32.00	10.298	119.6%
4/29/2006 8:06	16.0	5.89	32.18	12.32	122.2	47	1.54	32.00	10.298	119.6%
4/29/2006 8:06	16.1	5.89	32.18	12.32	122.2	47	1.54	32.00	10.298	119.6%
4/29/2006 8:06	16.2	5.89	32.18	12.32	122.2	47	1.54	32.00	10.298	119.6%
4/29/2006 8:06	16.3	5.89	32.18	12.32	122.2	47	1.54	32.00	10.298	119.6%
4/29/2006 8:06	16.4	5.89	32.18	12.31	122.1	47	1.54	32.00	10.298	119.5%
4/29/2006 8:06	16.5	5.89	32.18	12.31	122.1	47	1.54	32.00	10.298	119.5%
4/29/2006 8:06	16.6	5.89	32.18	12.31	122.1	46	1.54	32.00	10.298	119.5%

4/29/2006 8:06	16.7	5.89	32.18	12.31	122.1	46	1.54	32.00	10.298	119.5%
4/29/2006 8:06	16.8	5.89	32.18	12.31	122.1	46	1.48	32.00	10.298	119.5%
4/29/2006 8:06	16.9	5.89	32.18	12.31	122.1	46	1.48	32.00	10.298	119.5%
4/29/2006 8:06	17.0	5.89	32.18	12.31	122.1	46	1.48	32.00	10.298	119.5%
4/29/2006 8:06	17.1	5.89	32.18	12.31	122.1	46	1.48	32.00	10.298	119.5%
4/29/2006 8:06	17.2	5.89	32.18	12.3	122	46	1.54	32.00	10.298	119.4%
4/29/2006 8:06	17.3	5.89	32.18	12.3	122	46	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.4	5.89	32.18	12.3	122	47	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.5	5.89	32.18	12.3	122	47	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.5	5.89	32.18	12.3	122	47	1.54	32.00	10.298	119.4%
4/29/2006 8:06	17.6	5.89	32.18	12.3	122	47	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.7	5.89	32.18	12.3	122	47	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.8	5.89	32.18	12.3	122	47	1.48	32.00	10.298	119.4%
4/29/2006 8:06	17.9	5.89	32.18	12.29	121.9	47	1.48	32.00	10.298	119.3%
4/29/2006 8:06	18.0	5.89	32.18	12.29	121.9	47	1.42	32.00	10.298	119.3%
4/29/2006 8:06	18.1	5.89	32.18	12.29	121.9	47	1.42	32.00	10.298	119.3%
4/29/2006 8:06	18.2	5.89	32.18	12.29	121.9	47	1.42	32.00	10.298	119.3%
4/29/2006 8:06	18.3	5.89	32.18	12.29	121.9	47	1.42	32.00	10.298	119.3%
4/29/2006 8:06	18.5	5.89	32.19	12.29	121.9	47	1.35	32.01	10.297	119.4%
4/29/2006 8:06	18.6	5.89	32.18	12.29	121.9	47	1.35	32.00	10.298	119.3%
4/29/2006 8:06	18.7	5.89	32.19	12.29	121.9	47	1.35	32.01	10.297	119.4%
4/29/2006 8:06	18.8	5.89	32.19	12.28	121.8	47	1.35	32.01	10.297	119.3%
4/29/2006 8:06	18.9	5.89	32.19	12.28	121.8	47	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.0	5.89	32.18	12.28	121.8	46	1.35	32.00	10.298	119.3%
4/29/2006 8:06	19.1	5.89	32.19	12.28	121.8	46	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.2	5.89	32.19	12.28	121.8	46	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.4	5.89	32.19	12.28	121.8	46	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.5	5.89	32.19	12.28	121.8	46	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.6	5.89	32.19	12.28	121.8	46	1.35	32.01	10.297	119.3%
4/29/2006 8:06	19.7	5.89	32.19	12.27	121.6	46	1.35	32.01	10.297	119.2%
4/29/2006 8:06	19.8	5.89	32.19	12.27	121.6	46	1.42	32.01	10.297	119.2%
4/29/2006 8:06	19.9	5.89	32.19	12.27	121.6	47	1.42	32.01	10.297	119.2%
4/29/2006 8:06	20.0	5.89	32.19	12.27	121.6	47	1.42	32.01	10.297	119.2%
4/29/2006 8:06	20.2	5.89	32.19	12.27	121.6	47	1.42	32.01	10.297	119.2%
4/29/2006 8:06	20.3	5.89	32.19	12.27	121.6	47	1.35	32.01	10.297	119.2%
4/29/2006 8:06	20.4	5.89	32.19	12.27	121.6	47	1.42	32.01	10.297	119.2%
4/29/2006 8:06	20.5	5.89	32.19	12.27	121.6	47	1.48	32.01	10.297	119.2%
4/29/2006 8:06	20.7	5.89	32.19	12.26	121.6	47	1.48	32.01	10.297	119.1%
4/29/2006 8:06	20.8	5.89	32.19	12.26	121.6	47	1.48	32.01	10.297	119.1%
4/29/2006 8:06	20.9	5.89	32.19	12.26	121.6	47	1.48	32.01	10.297	119.1%
4/29/2006 8:06	21.1	5.89	32.19	12.26	121.6	47	1.48	32.01	10.297	119.1%
4/29/2006 8:06	21.2	5.89	32.19	12.26	121.6	47	1.42	32.01	10.297	119.1%
4/29/2006 8:06	21.3	5.89	32.19	12.26	121.6	47	1.42	32.01	10.297	119.1%
4/29/2006 8:06	21.4	5.89	32.19	12.26	121.6	47	1.42	32.01	10.297	119.1%
4/29/2006 8:06	21.6	5.89	32.19	12.26	121.6	47	1.35	32.01	10.297	119.1%
4/29/2006 8:06	21.7	5.89	32.19	12.25	121.5	47	1.42	32.01	10.297	119.0%
4/29/2006 8:06	21.8	5.89	32.19	12.25	121.5	47	1.42	32.01	10.297	119.0%
4/29/2006 8:06	21.9	5.89	32.18	12.25	121.5	47	1.42	32.00	10.298	119.0%
4/29/2006 8:06	22.1	5.89	32.18	12.25	121.5	47	1.48	32.00	10.298	119.0%
4/29/2006 8:06	22.2	5.89	32.18	12.25	121.5	47	1.42	32.00	10.298	119.0%
4/29/2006 8:06	22.3	5.89	32.19	12.25	121.5	47	1.42	32.01	10.297	119.0%
4/29/2006 8:06	22.4	5.89	32.19	12.25	121.5	47	1.42	32.01	10.297	119.0%

4/29/2006 8:06	22.5	5.89	32.19	12.25	121.5	47	1.42	32.01	10.297	119.0%
4/29/2006 8:06	22.7	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	22.8	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	22.9	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.0	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.1	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.3	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.4	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.5	5.89	32.19	12.24	121.4	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.6	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.8	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	23.9	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	24.1	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	24.2	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	24.3	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	24.5	5.89	32.19	12.24	121.3	47	1.42	32.01	10.297	118.9%
4/29/2006 8:06	24.6	5.89	32.19	12.24	121.3	47	1.35	32.01	10.297	118.9%
4/29/2006 8:06	24.8	5.89	32.19	12.23	121.3	47	1.35	32.01	10.297	118.8%
4/29/2006 8:06	24.9	5.89	32.19	12.23	121.3	47	1.35	32.01	10.297	118.8%
4/29/2006 8:06	25.0	5.89	32.19	12.23	121.3	47	1.35	32.01	10.297	118.8%
4/29/2006 8:06	25.2	5.89	32.19	12.23	121.3	47	1.35	32.01	10.297	118.8%
4/29/2006 8:06	25.3	5.89	32.19	12.23	121.3	47	1.42	32.01	10.297	118.8%
4/29/2006 8:06	25.5	5.89	32.19	12.23	121.3	47	1.42	32.01	10.297	118.8%
4/29/2006 8:06	25.6	5.89	32.19	12.23	121.3	47	1.42	32.01	10.297	118.8%
4/29/2006 8:06	25.8	5.88	32.19	12.23	121.3	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	25.9	5.88	32.19	12.22	121.2	47	1.42	32.01	10.299	118.6%
4/29/2006 8:06	26.1	5.88	32.19	12.22	121.2	47	1.42	32.01	10.299	118.6%
4/29/2006 8:06	26.2	5.88	32.19	12.22	121.2	47	1.42	32.01	10.299	118.6%
4/29/2006 8:06	26.4	5.88	32.19	12.23	121.2	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	26.6	5.88	32.19	12.23	121.2	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	26.7	5.88	32.19	12.23	121.2	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	26.9	5.88	32.19	12.23	121.2	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	27.1	5.88	32.19	12.23	121.2	47	1.42	32.01	10.299	118.7%
4/29/2006 8:06	27.2	5.87	32.19	12.22	121.1	47	1.42	32.01	10.302	118.6%
4/29/2006 8:06	27.4	5.87	32.19	12.22	121.1	47	1.42	32.01	10.302	118.6%
4/29/2006 8:06	27.5	5.87	32.19	12.22	121.1	47	1.42	32.01	10.302	118.6%
4/29/2006 8:06	27.6	5.87	32.2	12.22	121.1	47	1.42	32.02	10.301	118.6%
4/29/2006 8:06	27.8	5.87	32.2	12.22	121.1	47	1.42	32.02	10.301	118.6%
4/29/2006 8:06	27.9	5.87	32.2	12.22	121.1	47	1.42	32.02	10.301	118.6%
4/29/2006 8:07	28.1	5.87	32.2	12.22	121.1	47	1.42	32.02	10.301	118.6%
4/29/2006 8:07	28.2	5.87	32.2	12.22	121.1	47	1.35	32.02	10.301	118.6%
4/29/2006 8:07	28.3	5.86	32.2	12.22	121.1	47	1.35	32.02	10.303	118.6%
4/29/2006 8:07	28.5	5.86	32.2	12.22	121.1	47	1.35	32.02	10.303	118.6%
4/29/2006 8:07	28.6	5.86	32.2	12.22	121.1	46	1.35	32.02	10.303	118.6%
4/29/2006 8:07	28.7	5.86	32.2	12.22	121.1	46	1.35	32.02	10.303	118.6%
4/29/2006 8:07	28.9	5.86	32.2	12.22	121.1	46	1.35	32.02	10.303	118.6%
4/29/2006 8:07	29.0	5.86	32.2	12.22	121.1	46	1.35	32.02	10.303	118.6%
4/29/2006 8:07	29.1	5.86	32.2	12.22	121.1	46	1.35	32.02	10.303	118.6%
4/29/2006 8:07	29.2	5.85	32.21	12.22	121.1	46	1.35	32.03	10.305	118.6%
4/29/2006 8:07	29.4	5.85	32.21	12.21	121	46	1.35	32.03	10.305	118.5%
4/29/2006 8:07	29.5	5.85	32.21	12.21	121	46	1.35	32.03	10.305	118.5%
4/29/2006 8:07	29.6	5.85	32.21	12.21	121	47	1.29	32.03	10.305	118.5%

4/29/2006 8:07	29.7	5.85	32.21	12.21	121	47	1.35	**32.03**	**10.305**	**118.5%**
4/29/2006 8:07	29.8	5.85	32.21	12.21	121	47	1.29	**32.03**	**10.305**	**118.5%**
4/29/2006 8:07	29.9	5.85	32.21	12.21	121	47	1.6	**32.03**	**10.305**	**118.5%**
4/29/2006 8:07	30.0	5.85	32.21	12.21	121	47	1.54	**32.03**	**10.305**	**118.5%**
4/29/2006 8:07	30.2	5.85	32.21	12.21	121	47	1.54	**32.03**	**10.305**	**118.5%**
4/29/2006 8:07	30.3	5.85	32.21	12.2	120.9	47	1.54	**32.03**	**10.305**	**118.4%**
4/29/2006 8:07	30.4	5.85	32.21	12.2	120.9	47	1.54	**32.03**	**10.305**	**118.4%**
4/29/2006 8:07	30.5	5.85	32.21	12.2	120.9	47	1.54	**32.03**	**10.305**	**118.4%**
4/29/2006 8:07	30.7	5.85	32.21	12.2	120.9	47	1.54	**32.03**	**10.305**	**118.4%**
4/29/2006 8:07	30.8	5.85	32.21	12.2	120.9	47	1.54	**32.03**	**10.305**	**118.4%**
4/29/2006 8:07	30.9	5.84	32.21	12.2	120.9	47	1.54	**32.03**	**10.308**	**118.4%**
4/29/2006 8:07	31.1	5.84	32.22	12.2	120.9	47	1.54	**32.04**	**10.307**	**118.4%**
4/29/2006 8:07	31.2	5.84	32.22	12.2	120.9	47	1.54	**32.04**	**10.307**	**118.4%**
4/29/2006 8:07	31.3	5.84	32.22	12.19	120.7	47	1.54	**32.04**	**10.307**	**118.3%**
4/29/2006 8:07	31.5	5.84	32.22	12.19	120.7	47	1.54	**32.04**	**10.307**	**118.3%**
4/29/2006 8:07	31.6	5.84	32.22	12.19	120.8	46	1.48	**32.04**	**10.307**	**118.3%**
4/29/2006 8:07	31.8	5.84	32.22	12.19	120.8	46	1.48	**32.04**	**10.307**	**118.3%**
4/29/2006 8:07	31.9	5.83	32.22	12.19	120.8	46	1.54	**32.04**	**10.309**	**118.2%**
4/29/2006 8:07	32.1	5.83	32.23	12.19	120.8	46	1.54	**32.05**	**10.309**	**118.3%**
4/29/2006 8:07	32.2	5.83	32.23	12.19	120.8	46	1.54	**32.05**	**10.309**	**118.3%**
4/29/2006 8:07	32.4	5.83	32.23	12.19	120.8	46	1.54	**32.05**	**10.309**	**118.3%**
4/29/2006 8:07	32.6	5.83	32.23	12.18	120.6	46	1.54	**32.05**	**10.309**	**118.2%**
4/29/2006 8:07	32.7	5.83	32.24	12.18	120.6	46	1.6	**32.06**	**10.308**	**118.2%**
4/29/2006 8:07	32.9	5.83	32.24	12.18	120.6	47	1.6	**32.06**	**10.308**	**118.2%**
4/29/2006 8:07	33.1	5.83	32.24	12.18	120.6	47	1.6	**32.06**	**10.308**	**118.2%**
4/29/2006 8:07	33.2	5.82	32.24	12.18	120.6	47	1.6	**32.06**	**10.310**	**118.1%**
4/29/2006 8:07	33.4	5.82	32.24	12.18	120.6	47	1.6	**32.06**	**10.310**	**118.1%**
4/29/2006 8:07	33.5	5.82	32.24	12.18	120.6	47	1.6	**32.06**	**10.310**	**118.1%**
4/29/2006 8:07	33.7	5.82	32.24	12.18	120.6	47	1.6	**32.06**	**10.310**	**118.1%**
4/29/2006 8:07	33.8	5.82	32.24	12.16	120.4	47	1.6	**32.06**	**10.310**	**117.9%**
4/29/2006 8:07	34.0	5.82	32.24	12.16	120.4	47	1.6	**32.06**	**10.310**	**117.9%**
4/29/2006 8:07	34.1	5.82	32.24	12.16	120.4	46	1.6	**32.06**	**10.310**	**117.9%**
4/29/2006 8:07	34.4	5.82	32.24	12.16	120.4	46	1.6	**32.06**	**10.310**	**117.9%**
4/29/2006 8:07	34.6	5.82	32.25	12.16	120.4	46	1.6	**32.07**	**10.310**	**117.9%**
4/29/2006 8:07	34.7	5.82	32.25	12.16	120.4	46	1.6	**32.07**	**10.310**	**117.9%**
4/29/2006 8:07	34.9	5.82	32.25	12.16	120.4	46	1.6	**32.07**	**10.310**	**117.9%**
4/29/2006 8:07	35.1	5.82	32.25	12.14	120.2	46	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	35.3	5.82	32.25	12.14	120.2	46	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	35.4	5.82	32.24	12.14	120.2	47	1.6	**32.06**	**10.310**	**117.7%**
4/29/2006 8:07	35.5	5.82	32.25	12.14	120.2	47	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	35.6	5.82	32.24	12.14	120.2	47	1.6	**32.06**	**10.310**	**117.7%**
4/29/2006 8:07	35.7	5.82	32.25	12.14	120.2	47	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	35.8	5.82	32.25	12.14	120.2	47	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	35.9	5.82	32.25	12.14	120.2	47	1.6	**32.07**	**10.310**	**117.8%**
4/29/2006 8:07	36.0	5.82	32.25	12.12	120	47	1.6	**32.07**	**10.310**	**117.6%**
4/29/2006 8:07	36.0	5.82	32.25	12.12	120	47	1.6	**32.07**	**10.310**	**117.6%**
4/29/2006 8:07	36.1	5.82	32.24	12.12	120	47	1.6	**32.06**	**10.310**	**117.6%**
4/29/2006 8:07	36.1	5.82	32.25	12.12	120	47	1.6	**32.07**	**10.310**	**117.6%**
4/29/2006 8:07	36.2	5.82	32.24	12.12	120	47	1.6	**32.06**	**10.310**	**117.6%**
4/29/2006 8:07	36.2	5.82	32.25	12.12	120	47	1.6	**32.07**	**10.310**	**117.6%**
4/29/2006 8:07	36.2	5.82	32.24	12.12	120	47	1.6	**32.06**	**10.310**	**117.6%**
4/29/2006 8:07	36.2	5.82	32.25	12.12	120	47	1.6	**32.07**	**10.310**	**117.6%**

4/29/2006 8:07	36.3	5.82	32.24	12.1	119.8	47	1.6	32.06	10.310	117.4%
4/29/2006 8:07	36.3	5.82	32.25	12.1	119.8	47	1.6	32.07	10.310	117.4%
4/29/2006 8:07	36.3	5.82	32.24	12.1	119.8	47	1.6	32.06	10.310	117.4%
4/29/2006 8:07	36.3	5.82	32.24	12.1	119.8	47	1.6	32.06	10.310	117.4%
4/29/2006 8:07	36.4	5.82	32.24	12.1	119.8	47	1.6	32.06	10.310	117.4%
4/29/2006 8:07	36.4	5.82	32.24	12.1	119.8	47	1.6	32.06	10.310	117.4%
4/29/2006 8:07	36.4	5.82	32.25	12.1	119.8	47	1.6	32.07	10.310	117.4%
4/29/2006 8:07	36.4	5.82	32.25	12.08	119.6	47	1.6	32.07	10.310	117.2%
4/29/2006 8:07	36.4	5.82	32.25	12.08	119.6	47	1.6	32.07	10.310	117.2%
4/29/2006 8:07	36.4	5.82	32.24	12.08	119.6	46	1.6	32.06	10.310	117.2%
4/29/2006 8:07	36.4	5.82	32.25	12.08	119.6	46	1.6	32.07	10.310	117.2%
4/29/2006 8:07	36.4	5.82	32.25	12.08	119.6	46	1.6	32.07	10.310	117.2%
4/29/2006 8:07	36.4	5.82	32.25	12.08	119.6	46	1.6	32.07	10.310	117.2%
	Mean	**5.89**	**32.19**	**12.28**	**121.73**	**47**	**1.46**	**32.01**	**10.30**	**119.2%**
	Max	**5.94**	**32.25**	**12.36**	**122.60**	**47**	**1.84**	**32.07**	**10.31**	**120.1%**
	Min	**5.82**	**32.14**	**12.08**	**119.60**	**47**	**1.29**	**31.96**	**10.29**	**117.2%**

Cast 2

DateTime	Depth	Temp	Salinity	DO Conc	DO%	DO Chrg	NTU	Adj. sal	Adj. DO	Adj. %
M/D/Y	m	C	ppt	mg/L	%					
4/29/2006 8:09	0.5	5.95	32.14	12.28	121.9	47	1.48	31.96	10.286	119.4%
4/29/2006 8:09	0.6	5.95	32.14	12.28	121.9	47	1.48	31.96	10.286	119.4%
4/29/2006 8:09	0.6	5.95	32.14	12.28	121.9	47	1.42	31.96	10.286	119.4%
4/29/2006 8:09	0.7	5.95	32.14	12.28	121.9	47	1.42	31.96	10.286	119.4%
4/29/2006 8:09	0.7	5.95	32.14	12.28	121.9	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	0.8	5.95	32.14	12.28	121.9	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	0.9	5.95	32.14	12.28	121.9	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	0.9	5.95	32.14	12.28	121.8	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	1.0	5.95	32.14	12.28	121.8	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	1.1	5.95	32.14	12.28	121.8	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	1.2	5.95	32.14	12.28	121.8	47	1.42	31.96	10.286	119.4%
4/29/2006 8:10	1.3	5.94	32.14	12.28	121.8	47	1.42	31.96	10.288	119.4%
4/29/2006 8:10	1.4	5.94	32.14	12.28	121.9	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	1.5	5.94	32.14	12.28	121.9	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	1.6	5.94	32.14	12.28	121.9	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	1.6	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	1.7	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	1.9	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	2.0	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	2.1	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	2.2	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	2.3	5.94	32.14	12.28	121.8	47	1.35	31.96	10.288	119.4%
4/29/2006 8:10	2.4	5.93	32.15	12.28	121.8	47	1.35	31.97	10.290	119.3%
4/29/2006 8:10	2.5	5.93	32.15	12.28	121.8	47	1.35	31.97	10.290	119.3%
4/29/2006 8:10	2.6	5.93	32.15	12.28	121.8	47	1.35	31.97	10.290	119.3%
4/29/2006 8:10	2.7	5.93	32.15	12.28	121.8	47	1.35	31.97	10.290	119.3%
4/29/2006 8:10	2.8	5.93	32.15	12.28	121.8	47	1.35	31.97	10.290	119.3%
4/29/2006 8:10	2.9	5.93	32.15	12.28	121.8	47	1.29	31.97	10.290	119.3%
4/29/2006 8:10	3.0	5.93	32.15	12.28	121.9	47	1.29	31.97	10.290	119.3%
4/29/2006 8:10	3.1	5.93	32.15	12.28	121.9	47	1.29	31.97	10.290	119.3%
4/29/2006 8:10	3.2	5.93	32.15	12.28	121.9	47	1.66	31.97	10.290	119.3%

4/29/2006 8:10	3.3	5.93	32.15	12.28	121.9	47	1.66	**31.97**	**10.290**	**119.3%**
4/29/2006 8:10	3.4	5.93	32.16	12.28	121.9	47	1.66	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	3.6	5.93	32.16	12.28	121.9	47	1.66	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	3.7	5.93	32.16	12.28	121.9	47	1.6	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	3.8	5.93	32.16	12.28	121.9	47	1.6	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	3.9	5.93	32.16	12.28	121.9	47	1.6	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	4.1	5.93	32.16	12.28	121.9	47	1.54	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	4.2	5.93	32.16	12.28	121.9	47	1.66	**31.98**	**10.289**	**119.3%**
4/29/2006 8:10	4.3	5.94	32.16	12.28	121.8	47	1.6	**31.98**	**10.287**	**119.4%**
4/29/2006 8:10	4.5	5.94	32.16	12.28	121.8	47	1.6	**31.98**	**10.287**	**119.4%**
4/29/2006 8:10	4.6	5.94	32.16	12.28	121.8	47	1.6	**31.98**	**10.287**	**119.4%**
4/29/2006 8:10	4.7	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	4.9	5.94	32.16	12.28	121.8	47	1.6	**31.98**	**10.287**	**119.4%**
4/29/2006 8:10	5.0	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.1	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.2	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.3	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.5	5.94	32.17	12.28	121.8	47	1.54	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.6	5.94	32.17	12.28	121.8	47	1.48	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.7	5.94	32.17	12.28	121.8	47	1.48	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.8	5.94	32.17	12.28	121.8	47	1.48	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	5.9	5.94	32.17	12.28	121.8	47	1.48	**31.99**	**10.286**	**119.4%**
4/29/2006 8:10	6.0	5.95	32.17	12.28	121.8	47	1.42	**31.99**	**10.284**	**119.4%**
4/29/2006 8:10	6.1	5.95	32.17	12.28	121.8	47	1.54	**31.99**	**10.284**	**119.4%**
4/29/2006 8:10	6.3	5.95	32.17	12.27	121.8	47	1.54	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.4	5.95	32.17	12.27	121.8	47	1.54	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.5	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.6	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.7	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.8	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	6.9	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.0	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.1	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.2	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.4	5.95	32.17	12.27	121.8	47	1.48	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.5	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.6	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.7	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	7.9	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.0	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.1	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.2	5.95	32.17	12.27	121.8	47	1.42	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.3	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.4	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.5	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.7	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.8	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	8.9	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	9.0	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**
4/29/2006 8:10	9.1	5.95	32.17	12.27	121.8	47	1.35	**31.99**	**10.284**	**119.3%**

4/29/2006 8:10	9.3	5.95	32.17	12.27	121.8	47	1.35	31.99	10.284	119.3%
4/29/2006 8:10	9.4	5.94	32.17	12.27	121.8	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	9.5	5.94	32.17	12.27	121.8	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	9.6	5.94	32.17	12.27	121.8	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	9.7	5.94	32.17	12.27	121.8	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	9.8	5.94	32.17	12.27	121.8	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	10.0	5.94	32.17	12.26	121.7	47	1.35	31.99	10.286	119.2%
4/29/2006 8:10	10.1	5.94	32.17	12.27	121.7	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	10.2	5.94	32.17	12.27	121.7	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	10.3	5.94	32.17	12.27	121.7	47	1.35	31.99	10.286	119.3%
4/29/2006 8:10	10.4	5.93	32.17	12.27	121.7	47	1.35	31.99	10.289	119.3%
4/29/2006 8:10	10.5	5.93	32.17	12.27	121.7	47	1.35	31.99	10.289	119.3%
4/29/2006 8:10	10.6	5.93	32.17	12.27	121.7	47	1.29	31.99	10.289	119.3%
4/29/2006 8:10	10.7	5.93	32.17	12.27	121.7	47	1.29	31.99	10.289	119.3%
4/29/2006 8:10	10.9	5.93	32.17	12.27	121.7	47	1.29	31.99	10.289	119.3%
4/29/2006 8:10	11.0	5.93	32.17	12.27	121.7	47	1.29	31.99	10.289	119.3%
4/29/2006 8:10	11.1	5.93	32.17	12.27	121.7	47	1.29	31.99	10.289	119.3%
4/29/2006 8:10	11.2	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.3	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.4	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.5	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.7	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.8	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	11.9	5.92	32.17	12.27	121.7	47	1.29	31.99	10.291	119.2%
4/29/2006 8:10	12.0	5.91	32.17	12.27	121.7	46	1.29	31.99	10.294	119.2%
4/29/2006 8:10	12.1	5.91	32.17	12.27	121.7	46	1.29	31.99	10.294	119.2%
4/29/2006 8:10	12.3	5.91	32.17	12.27	121.7	46	2.15	31.99	10.294	119.2%
4/29/2006 8:10	12.4	5.91	32.17	12.27	121.7	46	2.09	31.99	10.294	119.2%
4/29/2006 8:10	12.5	5.91	32.18	12.27	121.7	46	2.09	32.00	10.293	119.2%
4/29/2006 8:10	12.6	5.91	32.18	12.27	121.7	46	2.03	32.00	10.293	119.2%
4/29/2006 8:10	12.7	5.91	32.18	12.27	121.7	46	2.03	32.00	10.293	119.2%
4/29/2006 8:10	12.9	5.9	32.18	12.27	121.7	46	2.03	32.00	10.295	119.2%
4/29/2006 8:10	13.0	5.9	32.18	12.27	121.7	47	1.97	32.00	10.295	119.2%
4/29/2006 8:10	13.1	5.9	32.18	12.27	121.7	47	1.97	32.00	10.295	119.2%
4/29/2006 8:10	13.2	5.9	32.18	12.27	121.7	47	1.9	32.00	10.295	119.2%
4/29/2006 8:10	13.4	5.9	32.18	12.27	121.7	47	1.9	32.00	10.295	119.2%
4/29/2006 8:10	13.5	5.9	32.18	12.27	121.7	47	1.84	32.00	10.295	119.2%
4/29/2006 8:10	13.6	5.9	32.18	12.27	121.7	47	1.84	32.00	10.295	119.2%
4/29/2006 8:10	13.7	5.9	32.18	12.26	121.6	47	1.78	32.00	10.295	119.1%
4/29/2006 8:10	13.8	5.9	32.18	12.26	121.6	47	1.78	32.00	10.295	119.1%
4/29/2006 8:10	14.0	5.9	32.18	12.26	121.6	47	1.72	32.00	10.295	119.1%
4/29/2006 8:10	14.1	5.89	32.18	12.26	121.6	47	1.72	32.00	10.298	119.1%
4/29/2006 8:10	14.2	5.89	32.18	12.26	121.6	47	1.72	32.00	10.298	119.1%
4/29/2006 8:10	14.3	5.89	32.18	12.26	121.6	47	1.66	32.00	10.298	119.1%
4/29/2006 8:11	14.4	5.89	32.18	12.26	121.6	47	1.66	32.00	10.298	119.1%
4/29/2006 8:11	14.6	5.89	32.18	12.26	121.6	47	1.66	32.00	10.298	119.1%
4/29/2006 8:11	14.7	5.89	32.18	12.25	121.5	47	1.66	32.00	10.298	119.0%
4/29/2006 8:11	14.8	5.89	32.18	12.25	121.5	47	1.6	32.00	10.298	119.0%
4/29/2006 8:11	14.9	5.89	32.18	12.25	121.5	47	1.6	32.00	10.298	119.0%
4/29/2006 8:11	15.0	5.89	32.18	12.25	121.5	47	1.6	32.00	10.298	119.0%

4/29/2006 8:11	15.1	5.89	32.18	12.25	121.5	47	1.54	**32.00**	**10.298**	**119.0%**
4/29/2006 8:11	15.3	5.89	32.18	12.25	121.5	47	1.54	**32.00**	**10.298**	**119.0%**
4/29/2006 8:11	15.4	5.89	32.18	12.25	121.5	47	1.54	**32.00**	**10.298**	**119.0%**
4/29/2006 8:11	15.5	5.89	32.18	12.25	121.5	47	1.54	**32.00**	**10.298**	**119.0%**
4/29/2006 8:11	15.6	5.89	32.18	12.24	121.3	47	1.54	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	15.7	5.89	32.18	12.24	121.3	47	1.48	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	15.8	5.89	32.18	12.24	121.3	46	1.48	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.0	5.89	32.18	12.24	121.3	46	1.54	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.1	5.89	32.18	12.24	121.3	46	1.48	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.2	5.89	32.18	12.24	121.3	46	1.48	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.3	5.89	32.18	12.24	121.3	46	1.48	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.4	5.89	32.18	12.24	121.3	46	1.42	**32.00**	**10.298**	**118.9%**
4/29/2006 8:11	16.5	5.89	32.18	12.22	121.2	46	1.42	**32.00**	**10.298**	**118.7%**
4/29/2006 8:11	16.7	5.89	32.19	12.23	121.2	46	1.42	**32.01**	**10.297**	**118.8%**
4/29/2006 8:11	16.8	5.89	32.18	12.23	121.2	47	1.42	**32.00**	**10.298**	**118.8%**
4/29/2006 8:11	16.9	5.89	32.18	12.23	121.2	47	1.42	**32.00**	**10.298**	**118.8%**
4/29/2006 8:11	17.0	5.89	32.18	12.23	121.2	47	1.42	**32.00**	**10.298**	**118.8%**
4/29/2006 8:11	17.2	5.89	32.19	12.23	121.2	47	1.35	**32.01**	**10.297**	**118.8%**
4/29/2006 8:11	17.3	5.89	32.19	12.23	121.2	47	1.35	**32.01**	**10.297**	**118.8%**
4/29/2006 8:11	17.4	5.89	32.19	12.23	121.2	47	1.35	**32.01**	**10.297**	**118.8%**
4/29/2006 8:11	17.5	5.89	32.19	12.21	121.1	47	1.35	**32.01**	**10.297**	**118.6%**
4/29/2006 8:11	17.6	5.89	32.19	12.21	121.1	47	1.35	**32.01**	**10.297**	**118.6%**
4/29/2006 8:11	17.8	5.89	32.18	12.21	121.1	47	1.35	**32.00**	**10.298**	**118.6%**
4/29/2006 8:11	17.9	5.89	32.18	12.21	121.1	47	1.35	**32.00**	**10.298**	**118.6%**
4/29/2006 8:11	18.0	5.89	32.18	12.21	121.1	47	1.35	**32.00**	**10.298**	**118.6%**
4/29/2006 8:11	18.1	5.89	32.19	12.21	121.1	47	1.35	**32.01**	**10.297**	**118.6%**
4/29/2006 8:11	18.3	5.89	32.19	12.21	121.1	47	1.35	**32.01**	**10.297**	**118.6%**
4/29/2006 8:11	18.4	5.89	32.19	12.21	121.1	47	1.35	**32.01**	**10.297**	**118.6%**
4/29/2006 8:11	18.5	5.89	32.19	12.2	121	47	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	18.6	5.89	32.19	12.2	121	47	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	18.8	5.89	32.18	12.2	121	46	1.29	**32.00**	**10.298**	**118.5%**
4/29/2006 8:11	18.9	5.89	32.19	12.2	121	46	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	19.0	5.89	32.19	12.2	121	46	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	19.2	5.89	32.19	12.2	121	46	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	19.3	5.89	32.19	12.2	121	46	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	19.4	5.89	32.19	12.2	121	46	1.29	**32.01**	**10.297**	**118.5%**
4/29/2006 8:11	19.5	5.89	32.19	12.19	120.9	46	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	19.6	5.89	32.19	12.19	120.9	46	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	19.8	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	19.9	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	20.0	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	20.1	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	20.3	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	20.4	5.89	32.19	12.19	120.9	47	1.29	**32.01**	**10.297**	**118.4%**
4/29/2006 8:11	20.5	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	20.7	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	20.8	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	20.9	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	21.1	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	21.2	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**

4/29/2006 8:11	21.3	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	21.4	5.89	32.19	12.18	120.8	47	1.29	**32.01**	**10.297**	**118.3%**
4/29/2006 8:11	21.6	5.89	32.19	12.17	120.7	47	1.29	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	21.7	5.89	32.19	12.17	120.7	47	1.29	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	21.8	5.89	32.19	12.17	120.7	47	1.29	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	21.9	5.89	32.19	12.17	120.7	47	1.29	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.0	5.89	32.19	12.17	120.7	47	1.35	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.1	5.89	32.19	12.17	120.7	47	1.35	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.3	5.89	32.19	12.17	120.7	47	1.35	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.4	5.89	32.19	12.17	120.7	47	1.35	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.5	5.88	32.19	12.16	120.6	47	1.35	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	22.6	5.88	32.19	12.16	120.6	47	1.35	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	22.8	5.89	32.19	12.17	120.6	46	1.35	**32.01**	**10.297**	**118.2%**
4/29/2006 8:11	22.9	5.88	32.19	12.17	120.6	46	1.35	**32.01**	**10.299**	**118.2%**
4/29/2006 8:11	23.0	5.88	32.19	12.17	120.6	46	1.35	**32.01**	**10.299**	**118.2%**
4/29/2006 8:11	23.1	5.88	32.19	12.17	120.6	46	1.35	**32.01**	**10.299**	**118.2%**
4/29/2006 8:11	23.3	5.88	32.19	12.17	120.6	46	1.35	**32.01**	**10.299**	**118.2%**
4/29/2006 8:11	23.4	5.88	32.19	12.17	120.6	46	1.35	**32.01**	**10.299**	**118.2%**
4/29/2006 8:11	23.5	5.88	32.19	12.16	120.5	46	1.29	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	23.6	5.88	32.19	12.16	120.5	46	1.29	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	23.8	5.88	32.19	12.16	120.5	47	1.29	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	23.9	5.88	32.19	12.16	120.5	47	1.29	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	24.0	5.88	32.19	12.16	120.5	47	1.29	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	24.1	5.88	32.19	12.16	120.5	47	1.35	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	24.3	5.88	32.19	12.16	120.5	47	1.35	**32.01**	**10.299**	**118.1%**
4/29/2006 8:11	24.4	5.88	32.2	12.16	120.5	47	1.35	**32.02**	**10.299**	**118.1%**
4/29/2006 8:11	24.5	5.88	32.19	12.15	120.4	47	1.35	**32.01**	**10.299**	**118.0%**
4/29/2006 8:11	24.6	5.88	32.2	12.15	120.4	47	1.48	**32.02**	**10.299**	**118.0%**
4/29/2006 8:11	24.8	5.88	32.19	12.15	120.4	46	1.48	**32.01**	**10.299**	**118.0%**
4/29/2006 8:11	24.9	5.88	32.19	12.15	120.4	46	1.72	**32.01**	**10.299**	**118.0%**
4/29/2006 8:11	25.0	5.88	32.19	12.15	120.4	46	1.72	**32.01**	**10.299**	**118.0%**
4/29/2006 8:11	25.2	5.87	32.2	12.15	120.4	46	1.72	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	25.3	5.87	32.2	12.15	120.4	46	1.66	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	25.4	5.87	32.2	12.15	120.4	46	1.66	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	25.5	5.87	32.2	12.14	120.3	46	1.66	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	25.7	5.87	32.2	12.14	120.3	46	1.6	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	25.8	5.87	32.19	12.14	120.3	47	1.6	**32.01**	**10.302**	**117.8%**
4/29/2006 8:11	25.9	5.87	32.2	12.14	120.3	47	1.6	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	26.0	5.87	32.2	12.14	120.3	47	1.54	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	26.2	5.87	32.2	12.14	120.3	47	1.54	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	26.3	5.87	32.2	12.14	120.3	47	1.54	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	26.4	5.87	32.2	12.14	120.3	47	1.48	**32.02**	**10.301**	**117.9%**
4/29/2006 8:11	26.5	5.87	32.2	12.13	120.2	47	1.54	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	26.6	5.87	32.2	12.13	120.2	47	1.54	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	26.7	5.87	32.19	12.13	120.2	46	1.48	**32.01**	**10.302**	**117.7%**
4/29/2006 8:11	26.9	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.0	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.1	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.2	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.3	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**

4/29/2006 8:11	27.4	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.6	5.87	32.2	12.13	120.2	46	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.7	5.87	32.2	12.13	120.2	47	1.48	**32.02**	**10.301**	**117.8%**
4/29/2006 8:11	27.8	5.86	32.2	12.13	120.2	47	1.48	**32.02**	**10.303**	**117.7%**
4/29/2006 8:11	27.9	5.86	32.2	12.13	120.2	47	1.48	**32.02**	**10.303**	**117.7%**
4/29/2006 8:11	28.1	5.86	32.2	12.13	120.2	47	1.42	**32.02**	**10.303**	**117.7%**
4/29/2006 8:11	28.2	5.86	32.2	12.13	120.2	47	1.42	**32.02**	**10.303**	**117.7%**
4/29/2006 8:11	28.3	5.86	32.21	12.13	120.2	47	1.42	**32.03**	**10.303**	**117.7%**
4/29/2006 8:11	28.5	5.86	32.21	12.12	120.1	47	1.42	**32.03**	**10.303**	**117.6%**
4/29/2006 8:11	28.6	5.85	32.21	12.12	120.1	47	1.42	**32.03**	**10.305**	**117.6%**
4/29/2006 8:11	28.7	5.85	32.21	12.12	120.1	46	1.42	**32.03**	**10.305**	**117.6%**
4/29/2006 8:11	28.9	5.85	32.21	12.12	120.1	46	1.42	**32.03**	**10.305**	**117.6%**
4/29/2006 8:11	29.0	5.85	32.21	12.12	120.1	46	1.35	**32.03**	**10.305**	**117.6%**
4/29/2006 8:11	29.1	5.85	32.21	12.12	120.1	46	1.35	**32.03**	**10.305**	**117.6%**
4/29/2006 8:12	29.2	5.85	32.21	12.12	120.1	46	1.35	**32.03**	**10.305**	**117.6%**
4/29/2006 8:12	29.4	5.85	32.21	12.12	120.1	46	1.35	**32.03**	**10.305**	**117.6%**
4/29/2006 8:12	29.5	5.85	32.22	12.11	120	46	1.35	**32.04**	**10.304**	**117.5%**
4/29/2006 8:12	29.6	5.85	32.22	12.11	120	46	1.42	**32.04**	**10.304**	**117.5%**
4/29/2006 8:12	29.7	5.84	32.22	12.11	120	47	1.42	**32.04**	**10.307**	**117.5%**
4/29/2006 8:12	29.9	5.84	32.22	12.11	120	47	1.35	**32.04**	**10.307**	**117.5%**
4/29/2006 8:12	30.0	5.84	32.22	12.11	120	47	1.42	**32.04**	**10.307**	**117.5%**
4/29/2006 8:12	30.1	5.84	32.22	12.11	120	47	1.42	**32.04**	**10.307**	**117.5%**
4/29/2006 8:12	30.2	5.84	32.23	12.11	120	47	1.42	**32.05**	**10.306**	**117.5%**
4/29/2006 8:12	30.4	5.84	32.23	12.11	120	47	1.42	**32.05**	**10.306**	**117.5%**
4/29/2006 8:12	30.5	5.83	32.23	12.1	119.9	47	1.35	**32.05**	**10.309**	**117.4%**
4/29/2006 8:12	30.6	5.83	32.23	12.1	119.9	47	1.42	**32.05**	**10.309**	**117.4%**
4/29/2006 8:12	30.8	5.83	32.23	12.1	119.9	47	1.72	**32.05**	**10.309**	**117.4%**
4/29/2006 8:12	30.9	5.83	32.23	12.1	119.9	47	1.72	**32.05**	**10.309**	**117.4%**
4/29/2006 8:12	31.0	5.83	32.24	12.1	119.9	47	1.72	**32.06**	**10.308**	**117.4%**
4/29/2006 8:12	31.2	5.83	32.24	12.1	119.9	47	1.72	**32.06**	**10.308**	**117.4%**
4/29/2006 8:12	31.3	5.83	32.24	12.1	119.9	47	1.66	**32.06**	**10.308**	**117.4%**
4/29/2006 8:12	31.4	5.83	32.24	12.11	119.9	47	1.66	**32.06**	**10.308**	**117.5%**
4/29/2006 8:12	31.6	5.83	32.24	12.09	119.7	47	1.66	**32.06**	**10.308**	**117.3%**
4/29/2006 8:12	31.7	5.83	32.24	12.09	119.7	47	1.66	**32.06**	**10.308**	**117.3%**
4/29/2006 8:12	31.9	5.82	32.24	12.09	119.7	46	1.66	**32.06**	**10.310**	**117.3%**
4/29/2006 8:12	32.0	5.82	32.24	12.09	119.7	46	1.6	**32.06**	**10.310**	**117.3%**
4/29/2006 8:12	32.1	5.82	32.24	12.09	119.7	46	1.6	**32.06**	**10.310**	**117.3%**
4/29/2006 8:12	32.3	5.82	32.25	12.09	119.7	46	1.6	**32.07**	**10.310**	**117.3%**
4/29/2006 8:12	32.4	5.82	32.25	12.09	119.7	46	1.6	**32.07**	**10.310**	**117.3%**
4/29/2006 8:12	32.6	5.82	32.25	12.09	119.7	46	1.6	**32.07**	**10.310**	**117.3%**
4/29/2006 8:12	32.7	5.82	32.25	12.07	119.6	46	1.6	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	32.9	5.82	32.25	12.07	119.6	46	1.6	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.0	5.82	32.25	12.07	119.6	47	1.6	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.2	5.82	32.25	12.07	119.6	47	1.6	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.3	5.82	32.25	12.07	119.6	47	1.6	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.5	5.82	32.25	12.07	119.6	47	1.66	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.6	5.82	32.25	12.07	119.6	47	1.66	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.8	5.82	32.25	12.07	119.6	47	1.66	**32.07**	**10.310**	**117.1%**
4/29/2006 8:12	33.9	5.82	32.25	12.05	119.4	47	1.66	**32.07**	**10.310**	**116.9%**
4/29/2006 8:12	34.1	5.82	32.25	12.06	119.4	47	1.66	**32.07**	**10.310**	**117.0%**

4/29/2006 8:12	34.2	5.82	32.25	12.05	119.4	46	1.72	32.07	10.310	116.9%
4/29/2006 8:12	34.4	5.82	32.25	12.06	119.4	46	1.66	32.07	10.310	117.0%
4/29/2006 8:12	34.5	5.82	32.25	12.06	119.4	46	1.66	32.07	10.310	117.0%
4/29/2006 8:12	34.7	5.82	32.25	12.06	119.4	46	1.66	32.07	10.310	117.0%
4/29/2006 8:12	34.8	5.82	32.25	12.06	119.4	46	1.66	32.07	10.310	117.0%
4/29/2006 8:12	35.0	5.82	32.25	12.06	119.4	46	1.6	32.07	10.310	117.0%
4/29/2006 8:12	35.1	5.82	32.25	12.03	119.2	46	1.6	32.07	10.310	116.7%
4/29/2006 8:12	35.3	5.82	32.25	12.03	119.2	46	1.6	32.07	10.310	116.7%
4/29/2006 8:12	35.4	5.82	32.25	12.03	119.2	46	1.72	32.07	10.310	116.7%
4/29/2006 8:12	35.7	5.82	32.25	12.03	119.2	46	1.72	32.07	10.310	116.7%
4/29/2006 8:12	35.8	5.82	32.25	12.03	119.2	46	1.72	32.07	10.310	116.7%
4/29/2006 8:12	35.8	5.82	32.25	12.03	119.2	46	1.72	32.07	10.310	116.7%
4/29/2006 8:12	35.8	5.82	32.25	12.03	119.2	46	1.72	32.07	10.310	116.7%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.9	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.9	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	12.01	118.9	46	1.72	32.07	10.310	116.5%
4/29/2006 8:12	35.8	5.82	32.25	11.99	118.8	46	1.72	32.07	10.310	116.3%
	Mean	**5.89**	**32.19**	**12.20**	**120.94**	**46.72**	**1.48**	**32.01**	**10.30**	**118.5%**
	Max	**5.95**	**32.25**	**12.28**	**121.90**	**47.00**	**2.15**	**32.07**	**10.31**	**119.4%**
	Min	**5.82**	**32.14**	**11.99**	**118.80**	**46.00**	**1.29**	**31.96**	**10.28**	**116.3%**