Lake Mead and Las Vegas Wash Water Quality Monitoring

CITY OF NORTH LAS VEGAS

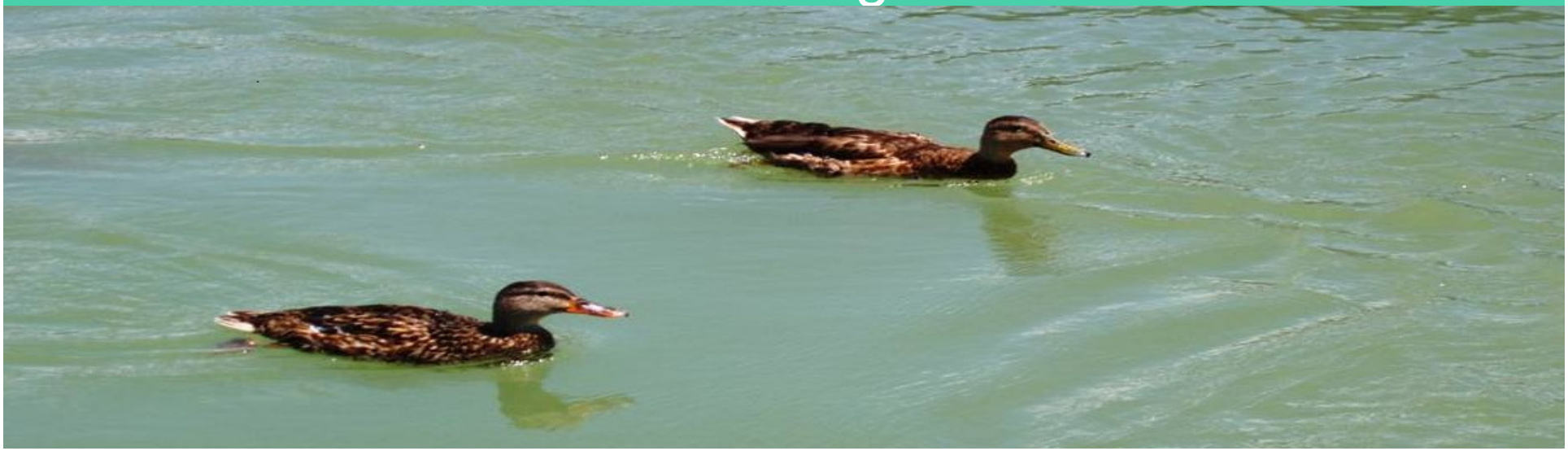
Clark County Water Reclamation District

THE CITY OF HENDERSON

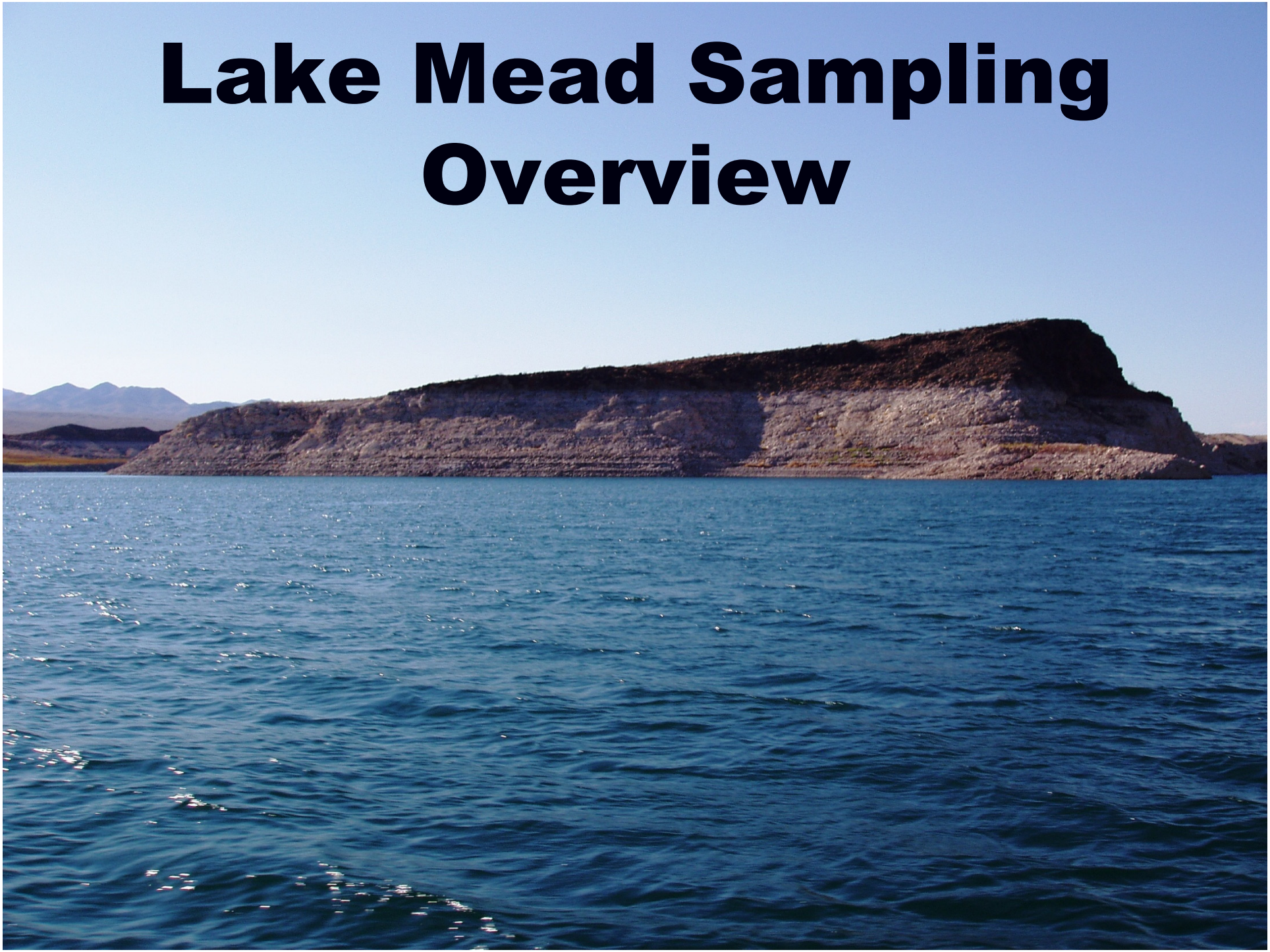
CITY OF LAS VEGAS NEVADA

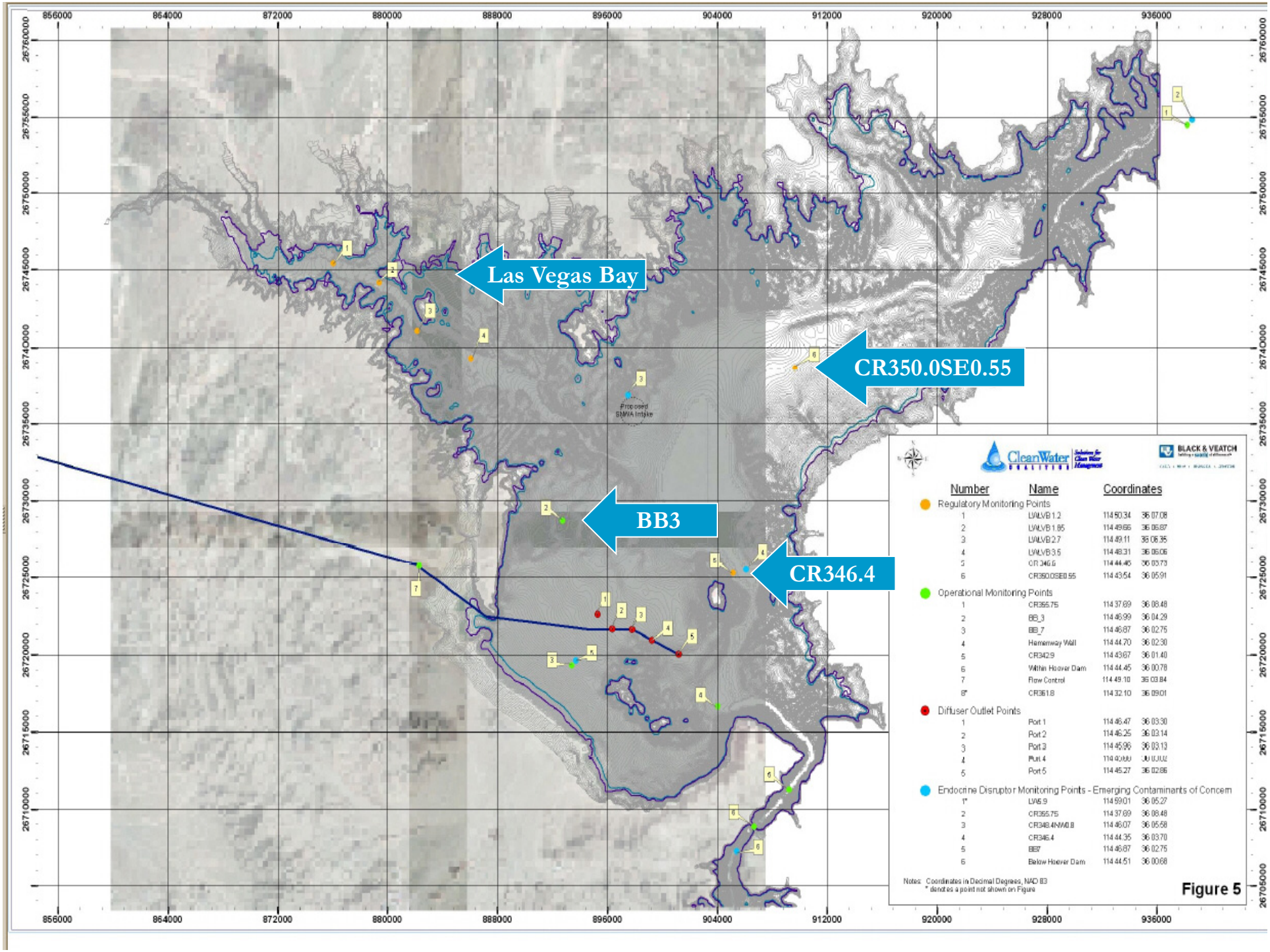
Purpose of Plan

- To satisfy Permit Condition I.A.21 of the Nevada Division of Environmental Protection (NDEP) National Pollution Discharge Elimination System (NPDES) permits for the Las Vegas Valley dischargers to monitor the ambient water quality of Lake Mead and the Las Vegas Wash.



Lake Mead Sampling Overview

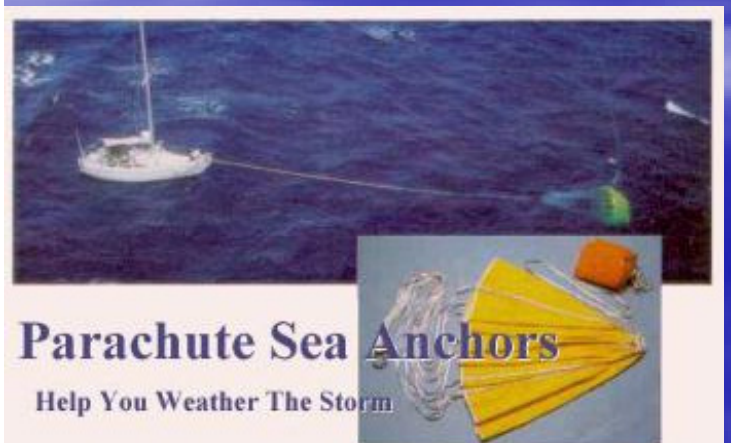



Las Vegas Bay
CR350.0SE0.55
BB3
CR346.4
Proposed SNWA Intake
CleanWater
BLACK & VEATCH
Number Name Coordinates
Regulatory Monitoring Points
1 LVMVB 1.2 114.50.34 36.07.08
2 LVMVB 1.85 114.49.66 36.06.87
3 LVMVB 2.7 114.49.11 36.06.35
4 LVMVB 3.5 114.48.31 36.06.06
5 CR 346.6 114.44.46 36.03.73
6 CR350.0SE0.55 114.43.54 36.05.91
Operational Monitoring Points
1 CR355.75 114.37.69 36.08.48
2 BB_3 114.46.99 36.04.29
3 BB_7 114.46.87 36.02.75
4 Hemenway Wall 114.44.70 36.02.30
5 CR342.9 114.43.67 36.01.40
6 Within Hoover Dam 114.44.45 36.00.78
7 Flow Control 114.49.10 36.03.84
8* CR361.8 114.32.10 36.09.01
Diffuser Outlet Points
1 Port 1 114.46.47 36.03.30
2 Port 2 114.46.25 36.03.14
3 Port 3 114.45.96 36.03.13
4 Port 4 114.40.00 36.00.00
5 Port 5 114.45.27 36.02.86
Endocrine Disruptor Monitoring Points - Emerging Contaminants of Concern
1* LVM5.9 114.59.01 36.05.27
2 CR355.75 114.37.69 36.08.48
3 CR348.4NW0.8 114.46.07 36.05.58
4 CR346.4 114.44.35 36.03.70
5 BB7 114.46.87 36.02.75
6 Below Hoover Dam 114.44.51 36.00.68
Notes: Coordinates in Decimal Degrees, NAD 83
* denotes a point not shown on Figure
Figure 5

Physical Parameters

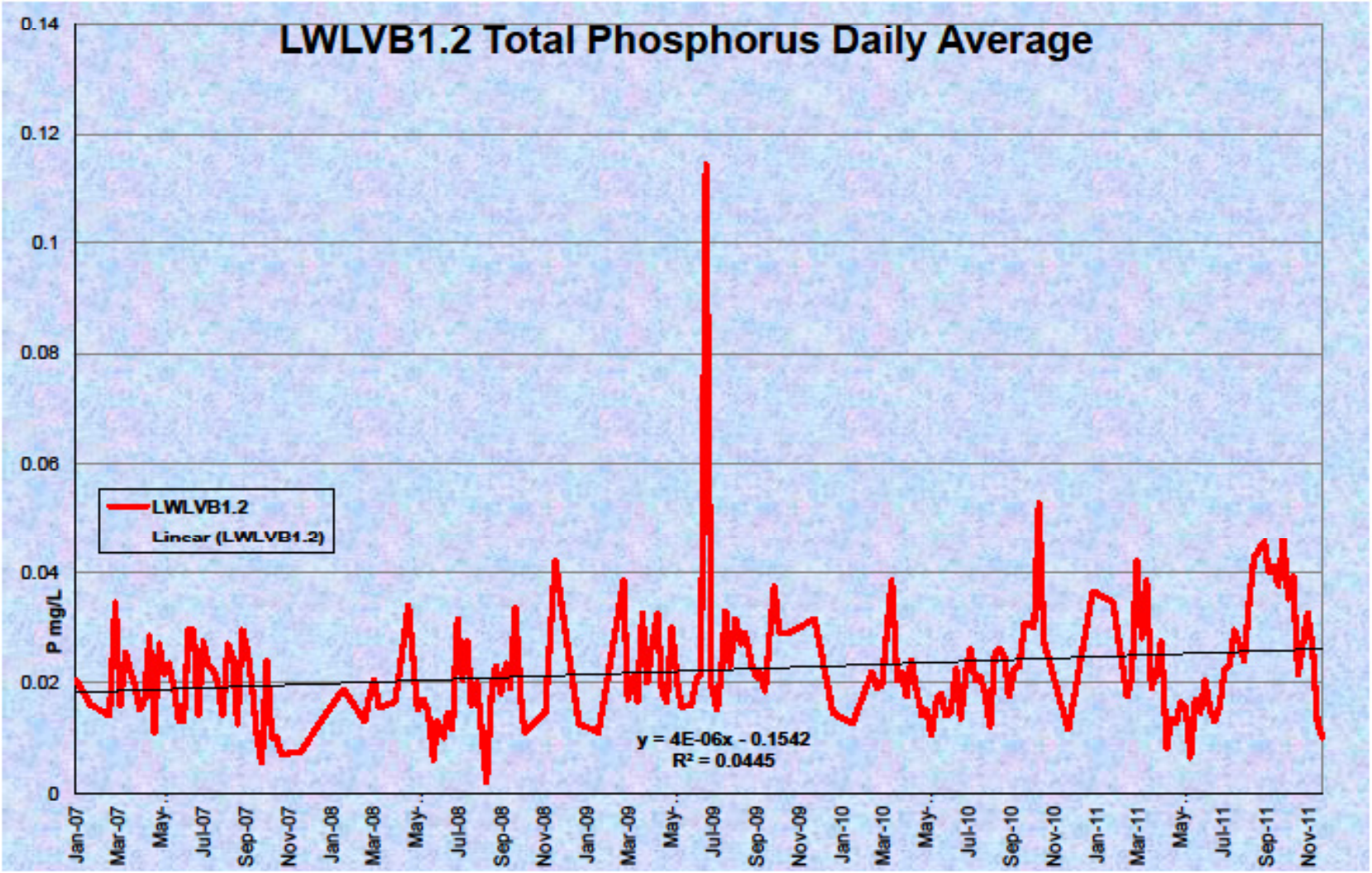
Sampling Depths

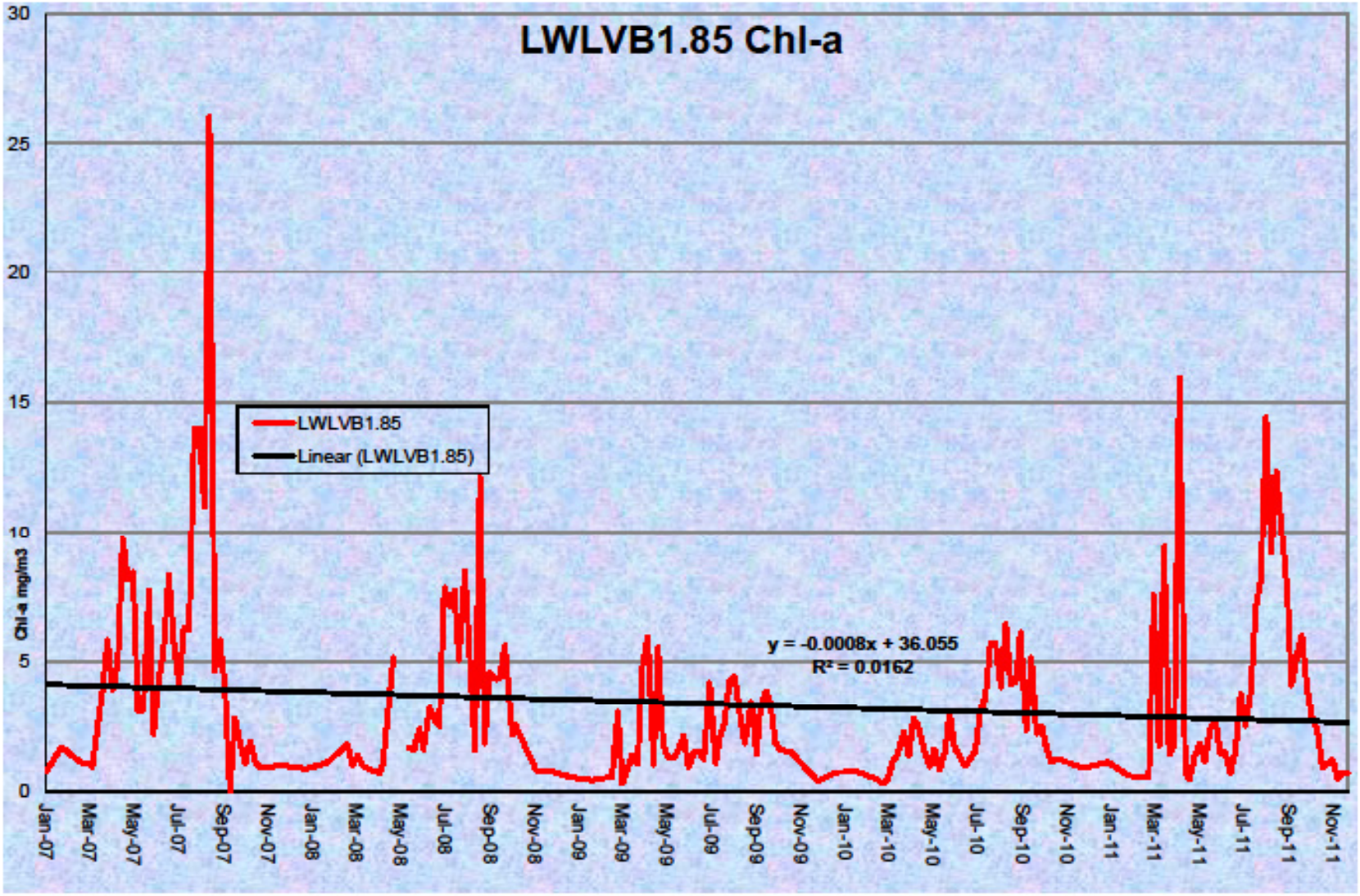
- Epilimnion - integrated 0-5 m sample
- Metalimnion - taken at the thermocline when present and halfway between the surface and hypolimnion when no thermocline is present
- Hypolimnion - taken at one meter from the bottom or at a maximum of 70 m

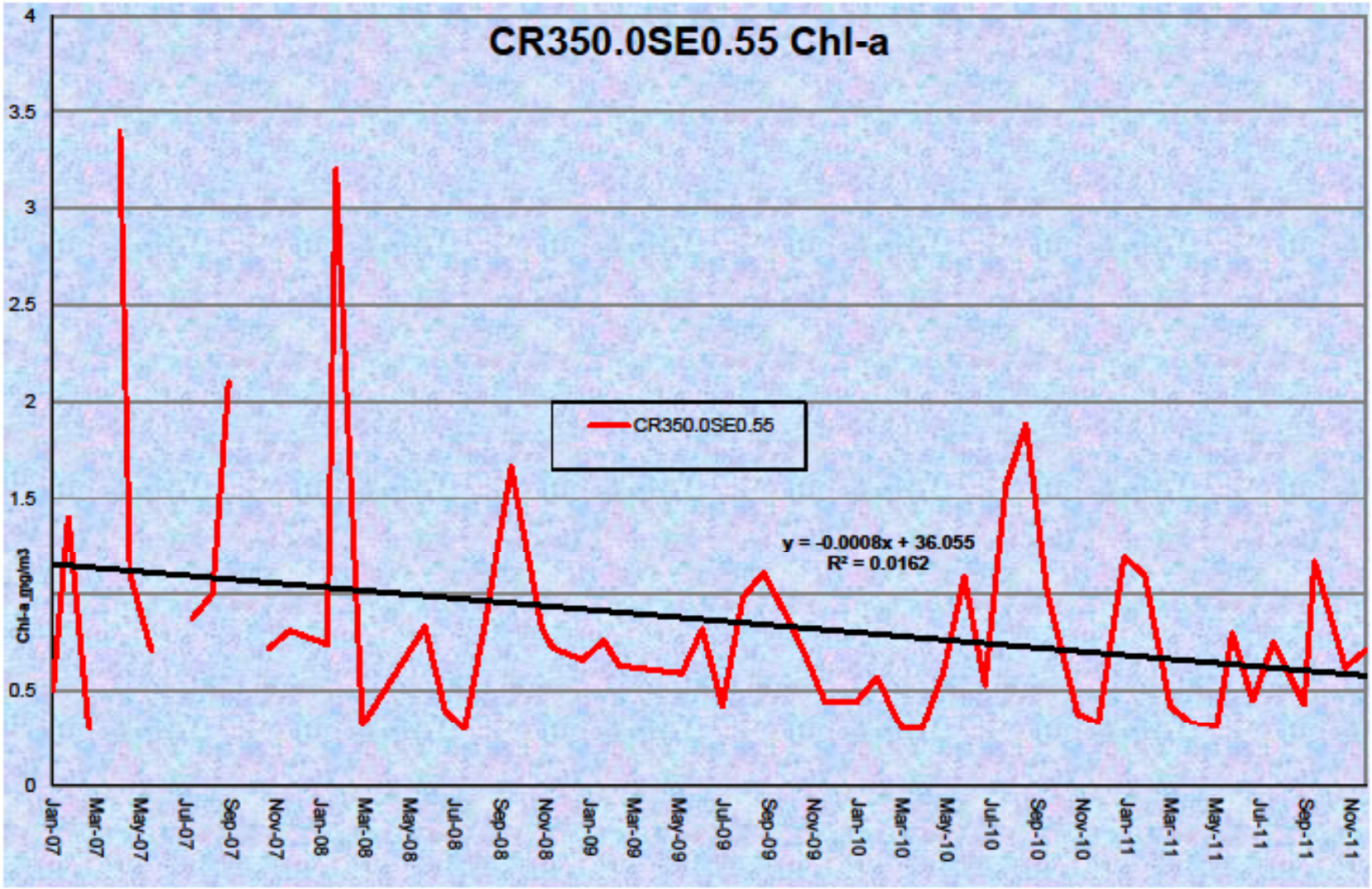


Chemical Parameters
Nutrients
Bacteria

sschiefer@lasvegasnevada.gov


LWLVB1.2 Total Phosphorus Daily Average
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
P mg/L
LWLVB1.2
Linear (LWLVB1.2)
y = 4E-06x - 0.1542
R² = 0.0445
Jan-07
Mar-07
May-
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-
Jul-11
Sep-11
Nov-11

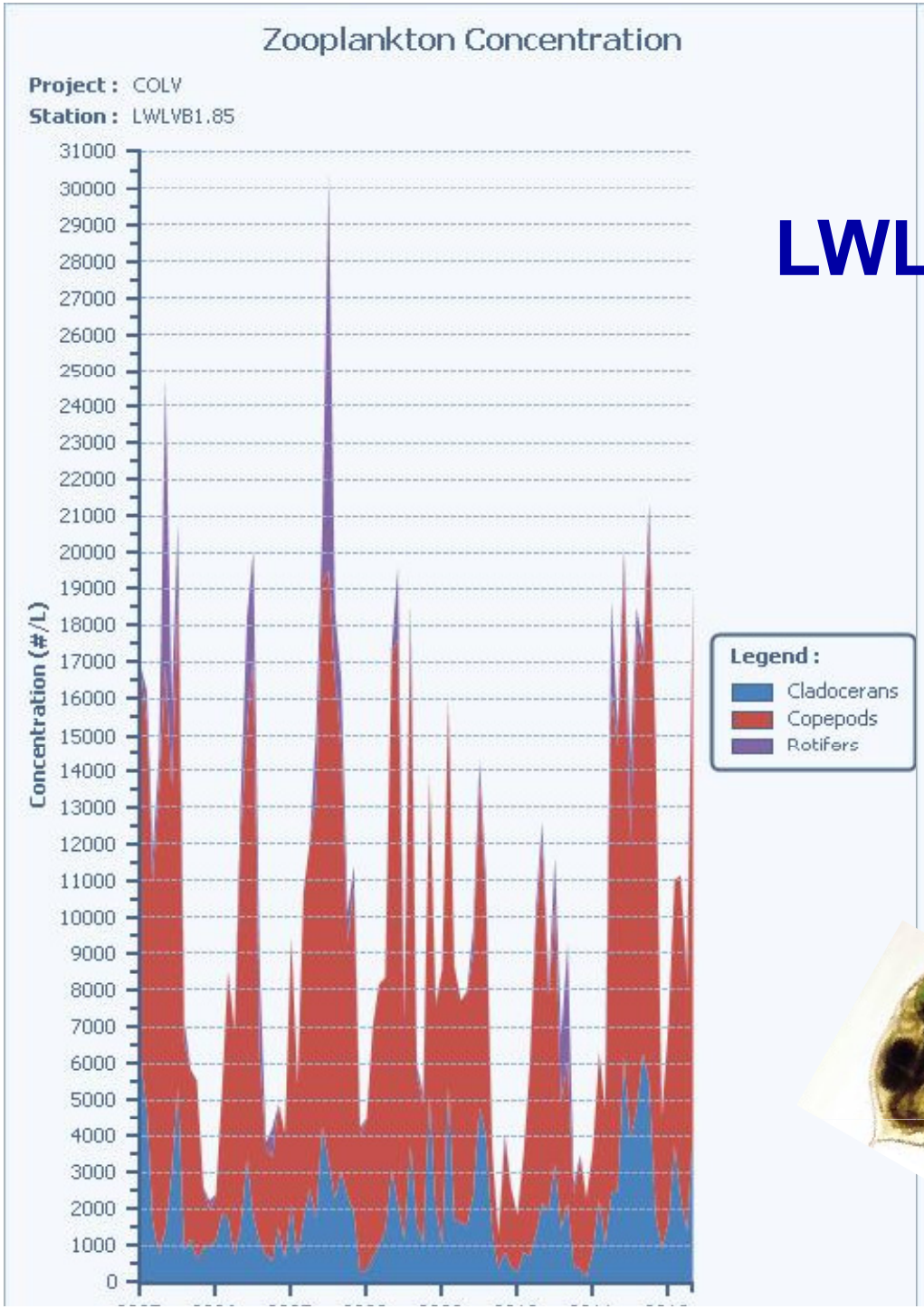

LWLVB1.85 Chl-a
Chl-a mg/m3
30
25
20
15
10
5
0
LWLVB1.85
Linear (LWLVB1.85)
y = -0.0008x + 36.055
R² = 0.0162
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-11
Jul-11
Sep-11
Nov-11

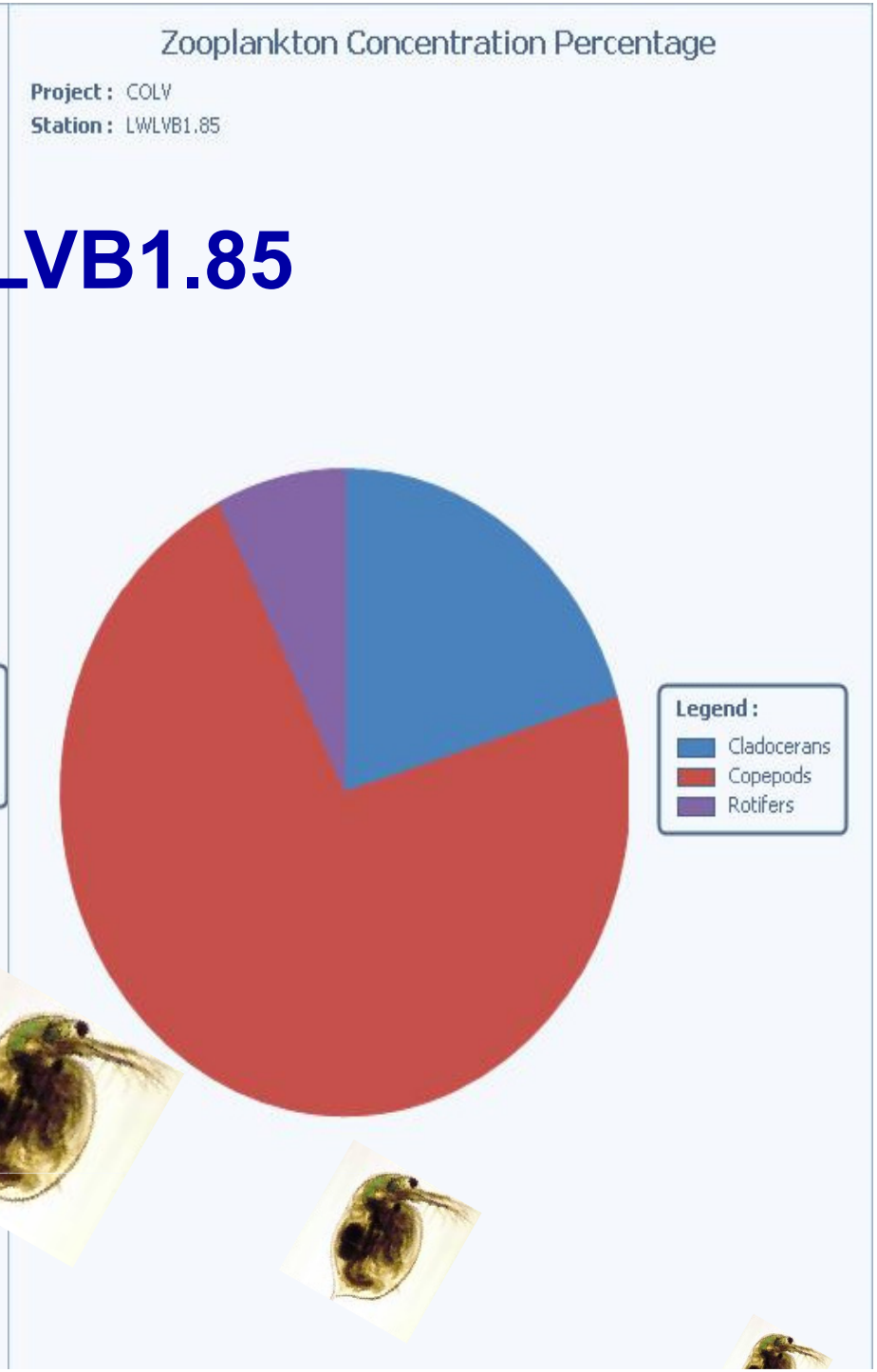

CR350.0SE0.55 Chl-a
CR350.0SE0.55
y = -0.0008x + 36.055
R² = 0.0162
Chl-a µg/m3
4
3.5
3
2.5
2
1.5
0.5
0
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
May-09
Jul-09
Sep-09
Nov-09
Jan-10
Mar-10
May-10
Jul-10
Sep-10
Nov-10
Jan-11
Mar-11
May-11
Jul-11
Sep-11
Nov-11

Zooplankton

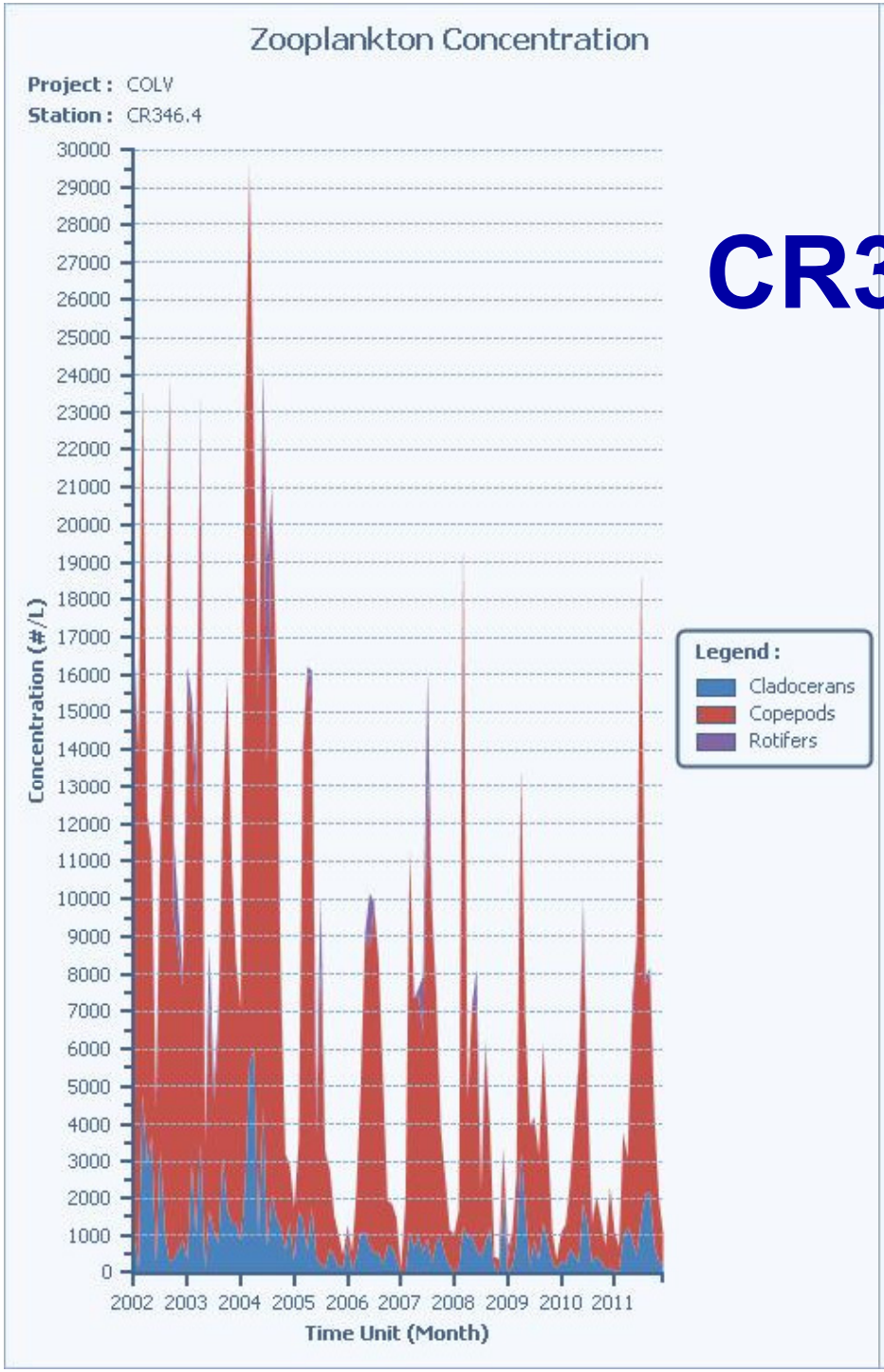
A vertical zooplankton tow will be collected and microscopically analyzed in regulatory samples collected as specified in the current sampling plan.

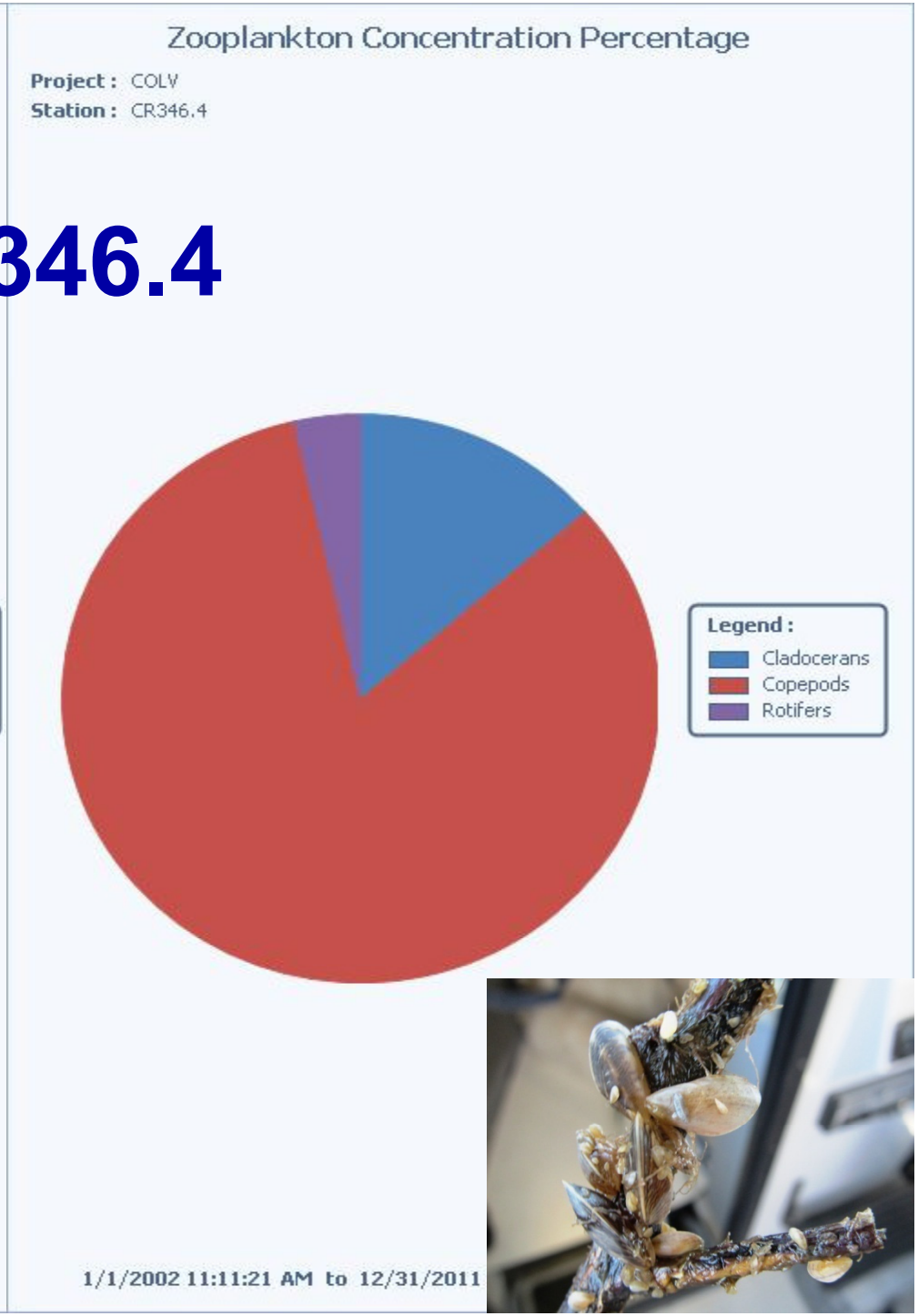
LWLVB1.85


Zooplankton Concentration
Project : COLV
Station : LWLVB1.85
Concentration (#/L)
31000
30000
29000
28000
27000
26000
25000
24000
23000
22000
21000
20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Legend :
Cladocerans
Copepods
Rotifers


Zooplankton Concentration Percentage
Project : COLV
Station : LWLVB1.85
Legend :
Cladocerans
Copepods
Rotifers

CR346.4


Zooplankton Concentration
Project : COLV
Station : CR346.4
Concentration (#/L)
30000
29000
28000
27000
26000
25000
24000
23000
22000
21000
20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
Time Unit (Month)
Legend :
Cladocerans
Copepods
Rotifers


Zooplankton Concentration Percentage
Project : COLV
Station : CR346.4
Legend :
Cladocerans
Copepods
Rotifers
1/1/2002 11:11:21 AM to 12/31/2011

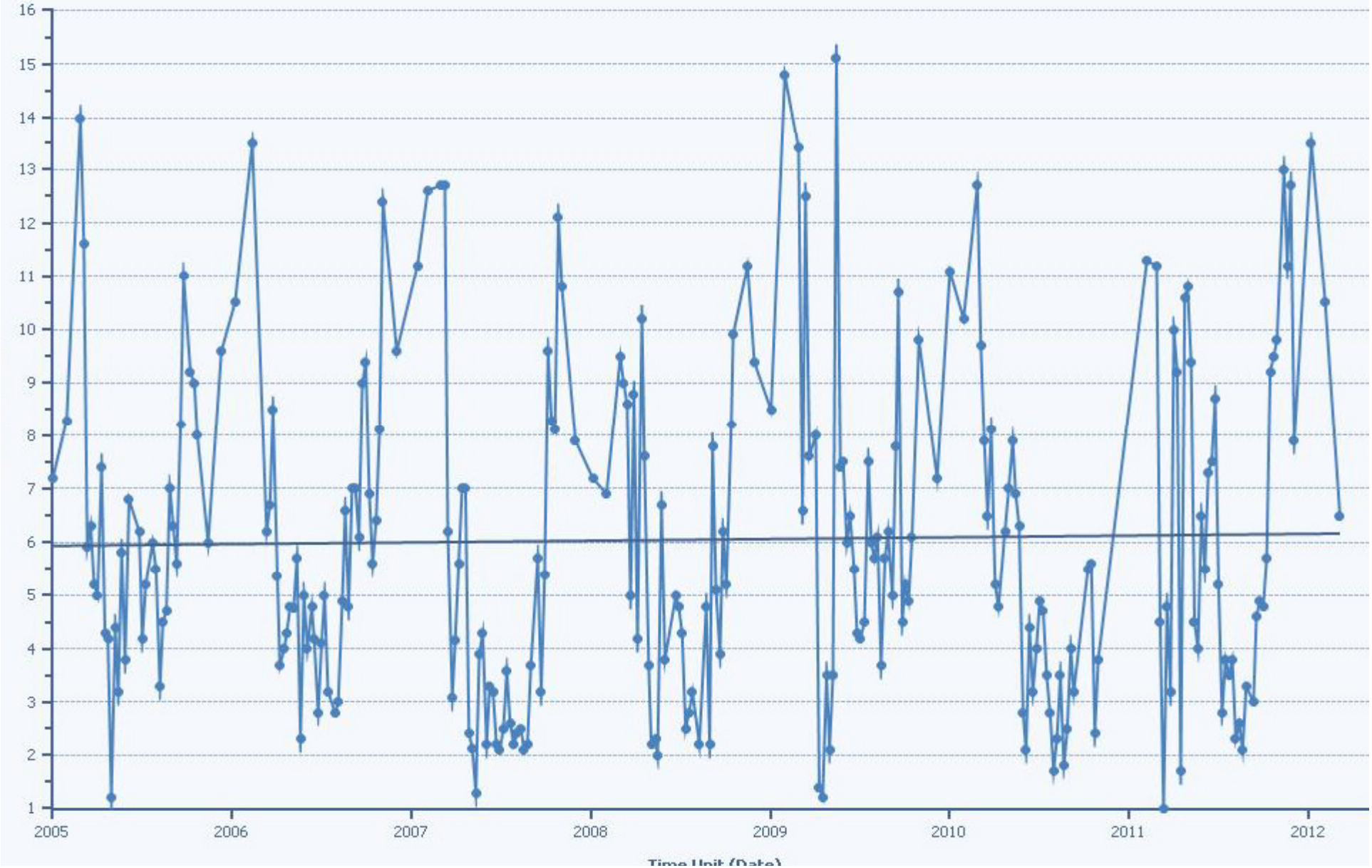
Water Quality Overview

Standard Methods for Examination of Water and WasteWater

PLATE I

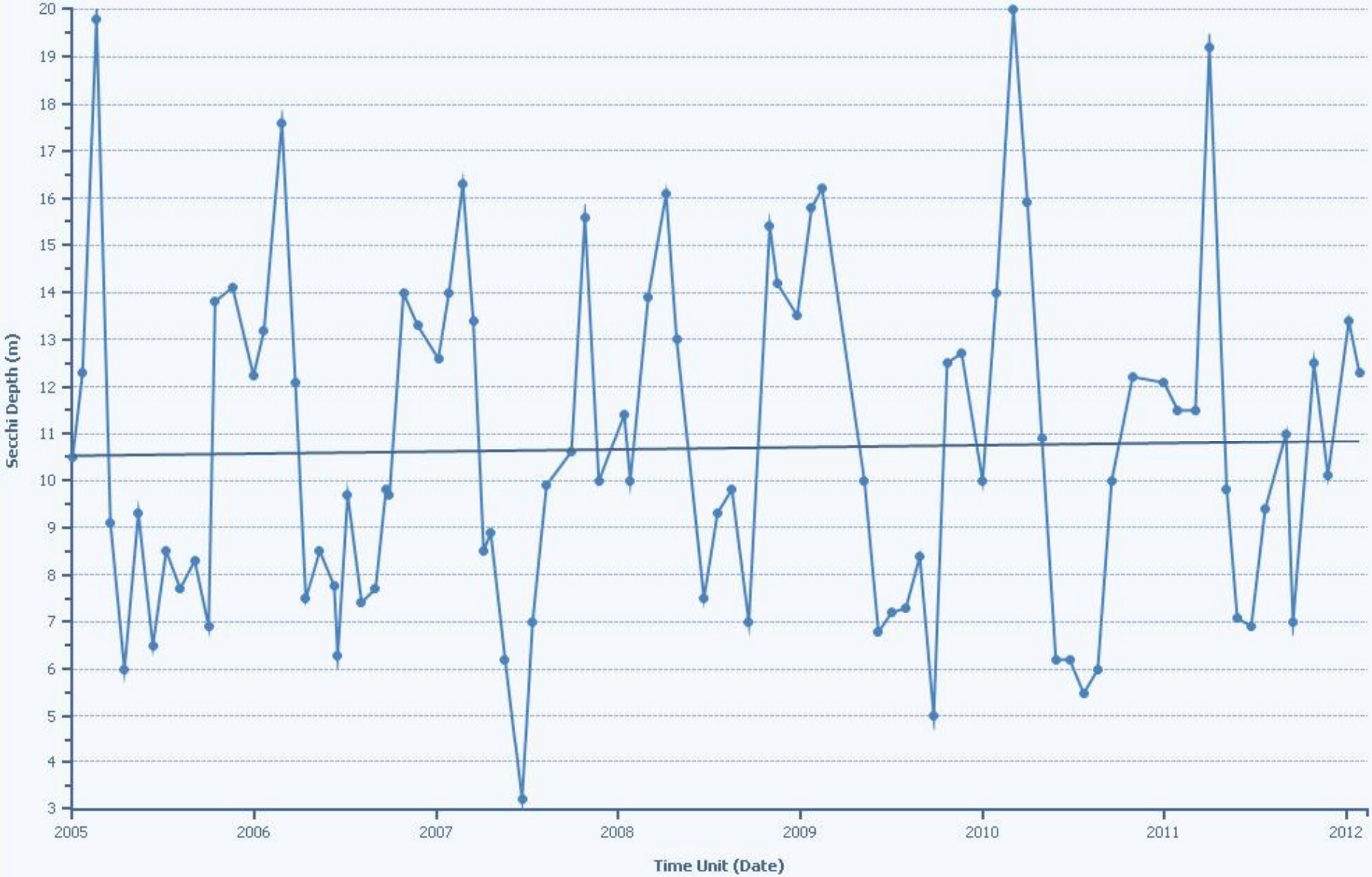
LWLVB1.85 Secchi

oject : COLV
ation : LWLVB1.85
egression Formula : y = 0.0001x + 5.9369
egression Coefficient (R^2) : 0.0005



CR350.0SE0.55 Secchi Disk

Project : COLV
Station : CR350.0SE0.55
Regression Formula : y = 0.0001x + 10.5257
Regression Coefficient (R^2) : 0.0007



The 2011 Lake Mead and Las Vegas Wash Annual Report is Currently Available by Request!!!

Questions?

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