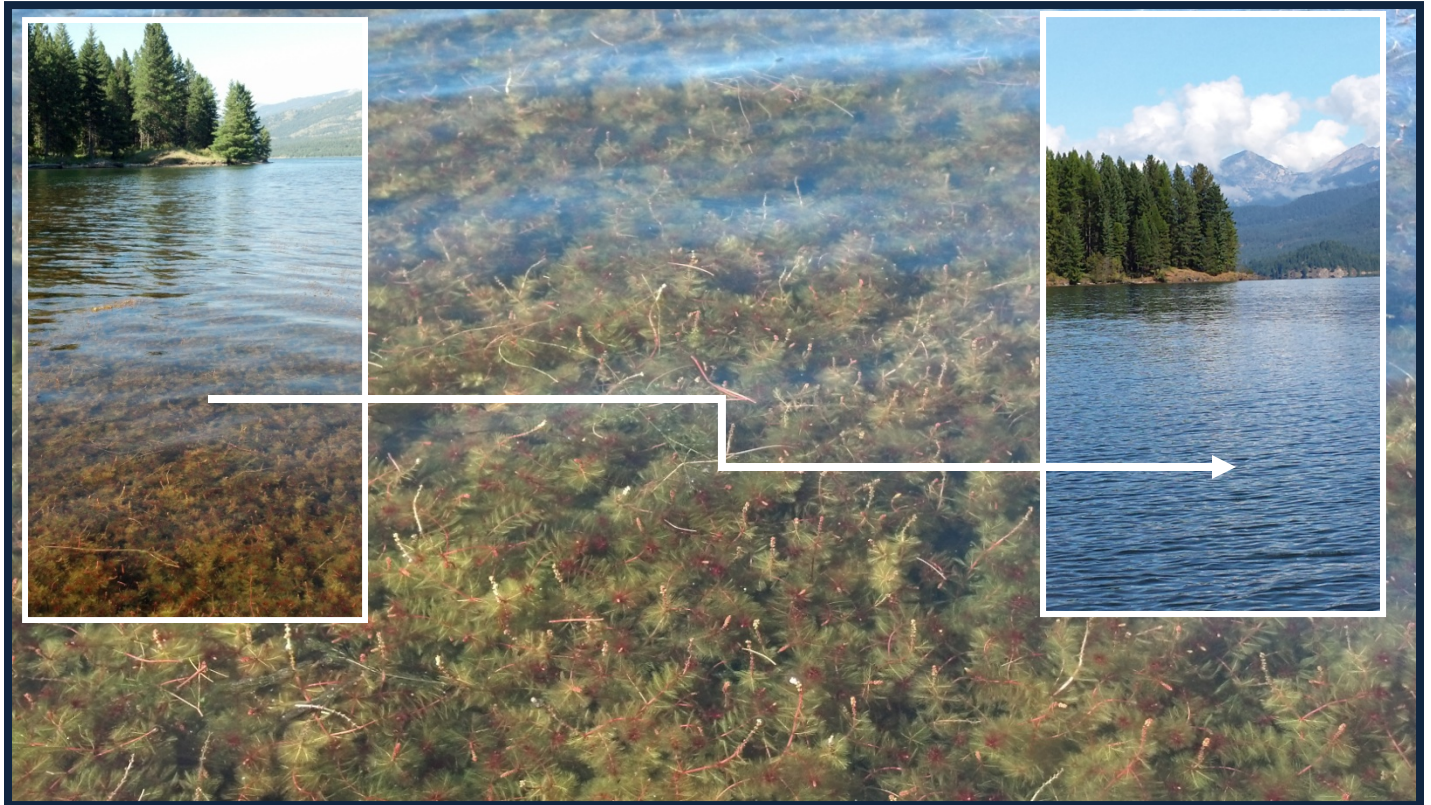


**NOXON RAPIDS RESERVOIR
SANDERS COUNTY, MONTANA**

2013 Aquatic Invasive Species Control Program

**At Time of and Eight (8) Week Post Treatment Submerged Aquatic
Vegetation (SAV) Data**



Prepared By:

CLEAN LAKES INC.

www.cleanlake.com

Prepared For:

**MSU Extension/Sanders County
2504 Tradewinds Way, Suite 1B
Thompson Falls, MT 59873**

September 2013

NOXON RAPIDS RESERVOIR, SANDERS COUNTY, MONTANA

2013 Aquatic Invasive Species Control Program

At Time of and Eight (8) Week Post Treatment Submerged Aquatic Vegetation (SAV) Data

BACKGROUND INFORMATION: Clean Lakes, Inc. (CLI) was contracted by Sanders County, Montana to provide aquatic herbicide applications for the control of Aquatic Invasive Species (AIS) within specific areas of Noxon Rapids Reservoir. The aquatic herbicide applications were performed on July 23rd, 24th, 25th and 31st, 2013¹.

SUBMERGED AQUATIC VEGETATION (SAV) SURVEYS: During the aquatic herbicide applications, CLI collected Submerged Aquatic Vegetation (SAV) data that included the vegetation percent area cover (PC) and vegetation bio-volume (BV) within the majority of the treatment areas. On August 19th and 20th, 2013, CLI staff (McNabb and Moorhouse) toured the Cabinet Gorge Reservoir and the Noxon Rapids Reservoir EWM plots with Dr. Bill Haller, University of Florida and Bo Burns, Valent Corporation. On September 19th 2013, CLI staff (McNabb & Moorhouse) collected Post Treatment SAV data from the 2013 treatment plots on Noxon Rapids Reservoir for comparison purposes. Kim Bergstrom, Pinnacle Research and Dr. Michael Anderson, University of California Riverside were present for the survey. Celestine Duncan planned on participating, but her trip was interrupted due to morning fog. The At Time of Treatment and the Post Treatment comparison data is outlined in this report.



This information contained in this report is for observation uses only. Sanders County hired a third party contractor to perform a Pre and Post Treatment Point Intercept survey, and develop the Pre and Post Treatment efficacy evaluations and reports to document the 2013 EWM Control Program.



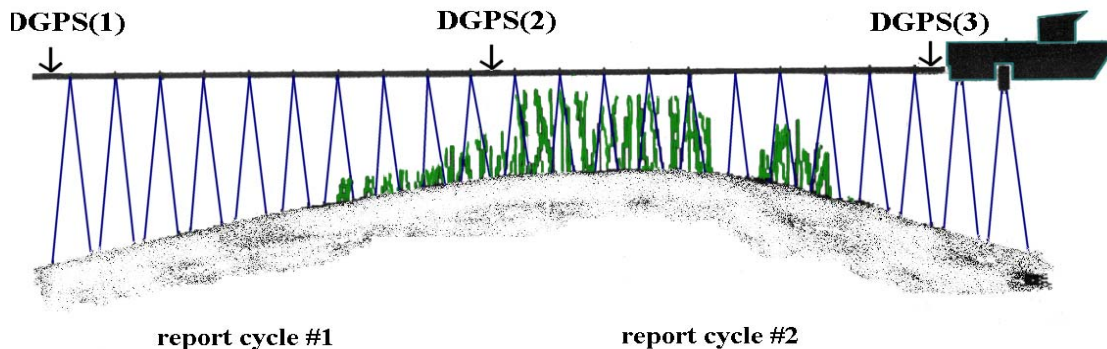
¹ 2013 AIS Aquatic Pesticide Application Report (APAR) prepared by Clean Lakes, Inc.
NOXON RAPIDS RESERVOIR, SANDERS COUNTY, MONTANA
2013 Aquatic Invasive Species Control Program
At Time of and Eight (8) Week Post Treatment Submerged Aquatic Vegetation (SAV) Data
2 of 35

EQUIPMENT USED: CLI's state-of-the-art Littoral Zone Treatment vessels (LittLines®) equipped with a Digital Echosounder System with a Structure Scan Module was used to record data of the submerged aquatic



vegetation (SAV) profile in the control plots during treatment, and at approximately eight (8) weeks Post Treatment (September 19th 2013).

Data was collected in both the .SLG (traditional sonar on HDS line) and the .SL2 (multi-channel structure scan) formats.



The data collected was processed for At Time of Treatment and Post Treatment SAV data in the treatment plots. Data was collected to evaluate At Time of Treatment SAV coverage, height in the water column, and bio-volume to support Post Treatment efficacy observations. The observations are outlined in Table 2 below. Table 1 outlines the areas treated for reference purposes.

It should be noted that a Post Treatment increase in Submerged Aquatic Vegetation (SAV) Percent Area Coverage, height in the water column, and bio-volume can result, and be attributed to an increase in native vegetation, as is the case in the majority of the plots treatment on Noxon Rapids Reservoir.

TREATMENT SITE DATA

Table 1: Plots Treated on Noxon Rapids Reservoir, Treatment Site Data, Aquatic Herbicides Used:

2013 Noxon Rapids Reservoir Treatment Plots			Diquat		Triclopyr		Endothall	
Plot Number	Acreage	Mean Depth	Rate ppm	Qty Site	Rate ppm	Qty Total Site	Rate ppm	Qty Total Site
T-13-10	1.2	6.70	0.37	4.0				
T-13-17	4.1	8.00	0.37	16.2				
T-13-21	1.6	6.00	0.37	4.7				
T-13-25	5.1	4.60			1.00	21	2.0	30
T-13-26	6.7	9.00	0.37	30.2				
T-13-27	5.1	6.00	0.37	15.2				
T-13-28 b	20.9	4.60			1.00	87	1.0	62
T-13-28 a	21.4	6.25			1.00	121	2.0	171
T-13-30	74.4	7.00			1.00	471	2.0	663
T-13-31 a	9.1	7.00			1.00	58	2.0	82
T-13-31 b	2.1	7.00			1.00	13	2.0	19
T-13-32	18.6	8.00			1.00	135	2.0	190
T-13-0903	14.9	5.00			1.00	67	2.0	95
Sub Total	185.1			70.2		974		1312
T-13-11	1.4	Spot Treatment						0.7
T-13-14	1.9	“ “		0.3				
Total	188.3			70.5		974		1313

Table 2: Plots Treated: Percent SAV Cover and SAV Bio-Volume at Time of Treatment and Eight (8) Weeks Post Treatment, Post Treatment EWM Injury Rank Data

2013 Noxon Rapids Reservoir AIS Treatment Plots: At Time of and Eight (8) Week Post Plot SAV % Cover and SAV BioVolume Data									
Plot Number	SAV Percent Cover	SAV Bio-Volume	Date Data Collected	SAV Percent Cover	SAV Bio-Volume	Date Data Collected- Post Treatment	% BV Change	Post Treatment EWM Injury Rank	Herbicides Used
T-13-10	N/A	N/A	7/23/2013	84.60	46.3	9/19/2013	N/A	40+-	Diquat
T-13-17	78.50	24.80	7/23/2013	70.40	45.9	9/19/2013	85%	90+	Diquat
T-13-21	90.50	62.00	7/23/2013	85.90	58.8	9/19/2013	-5%	90+	Diquat
T-13-25	84.00	53.80	7/24/2013	78.00	59.3	9/19/2013	10%	50+-	End/Tri
T-13-26	54.00	35.10	7/23/2013	48.30	22.8	9/19/2013	-35%	90+	Diquat
T-13-27	95.00	51.90	7/23/2013	N/A	N/A	9/19/2013	N/A	90+	Diquat
T-13-28b	100.00	99.90	7/24/2013	N/A	N/A	9/19/2013	N/A	90+	End/Tri
T-13-28a	89.80	61.20	7/31/2013	57.00	41.6	9/19/2013	-32%	90+	End/Tri
T-13-30	92.10	71.40	7/25/2013	37.30	9.1	9/19/2013	-87%	90+	End/Tri
T-13-31a	72.30	58.20	7/25/2013	63.90	33.3	9/19/2013	-43%	90+	End/Tri
T-13-31b	75.10	50.10	7/25/2013	86.70	55.7	9/19/2013	11%	90+	End/Tri
T-13-32	69.10	45.90	7/24/2013	44.00	31.6	9/19/2013	-31%	90+	End/Tri
T-13-0903	92.20	65.10	7/31/2013	67.80	42.0	9/19/2013	-35%	90+	End/Tri
T-13-11	N/A	N/A	N/A					70+-	End
T-13-14	N/A	N/A	N/A					70+-	Diquat

Note: Herbicides Used: End/Tri = Combination of Endothall and Triclopyr

* Plot T-13-10 SAV Percent Cover and Bio-Volume Data Not Available At Time of Treatment: Plots T-13-27 and T-13-28 b Percent Cover and Bio-Volume Data Not Available Eight Week Post Treatment due to a data collection error.

**Post Treatment EWM Injury Rank is the observers (McNabb, Moorhouse) visual estimate of herbicide injury to the EWM on September 19th 2013, approximately eight (8) weeks Post Treatment.

EWM CONTROL OBSERVATIONS/NOTES:

- The EWM in Plot T-13-10 was injury ranked at +-40. This may be associated with shallow water and turbidity created by the application vessel, or water flow conditions at this site. As Diquat binds with sediment, the aquatic herbicide Clipper, which is a fast acting contact herbicide, maybe an appropriate option to evaluate for EWM control in some of these shallow water areas in 2014.
- The EWM in Plot T-13-25 was ranked at +-50. Control in this area should have been higher, and similar to control levels achieved in the majority of the plots. The conditions that limited control in this area are unknown.
- Of the 185.2 acres treated using the LittLine system, the level of control achieved in 6.3 acres (T-13-10 (1.2 acres) and T-13-25 (5.1 acres)), or 3.4% of the areas treated did not meet the desired results, while the level of control achieved in 178.9 acres treated, or 96.6% of the areas treated resulted in excellent control.

- Plots T-13-11 and T-13-14 were spot treated with Aquathol K and Diquat respectively. The herbicide application in these plots entailed the placement of the herbicide directly onto the EWM plants (spot treatments). Control in these plots was ranked at +-70, and thus this spot treatment method may not be an effective application option, when compared to an excellent control level in +-96.6 % of the areas treated. Diver dredging of small EWM patches may result in a higher level of control.

CURLYLEAF PONDWEED (CLP) OBSERVATIONS/NOTES:

- In the open water Plot 2 treated in 2012, the CLP was actively growing +- 2-3 foot below the surface. The turion's had leaves growing off of them (top picture to the right). Not sure if this CLP is late season 2013 re-growth, as we recall the CLP we saw in late July during the treatments was dying back (waiting for Madsen to comment following his survey of Noxon in late August, early September 2013).
- In Plot T-13-32 that was treated on July 24th 2013, the Turion's were sprouting (bottom picture to the right).
- To date, the EWM/CLP herbicide application timing has not been able to catch the CLP prior to turion production.
- Based on the above, an early spring or late season treatment to catch new growth after the turions have sprouted may be the way to attack this plant in the Noxon Rapids.



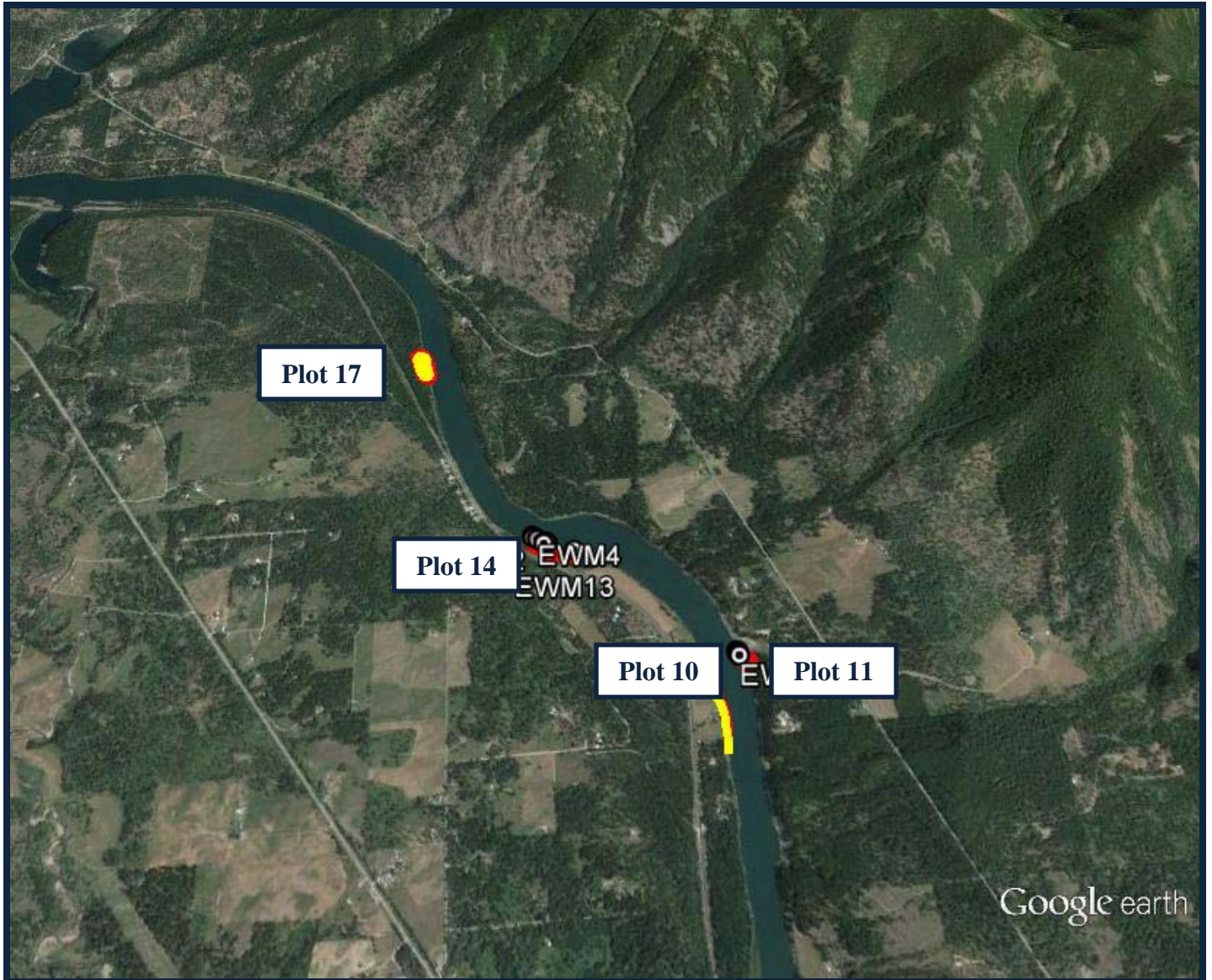
FLOWERING RUSH OBSERVATIONS:

- The flowering rush in the treatment plots appeared to have been impacted from the control efforts. 2014 Post Treatment Surveys will confirm any residual control.



PROJECT AREA AERIALS AND PRE AND POST TREATMENT SAV DATA
SAV PERCENT COVER AND BIO-VOLUME DATA SETS

Plots T-13-10, 11*, 14* & 17



***Plot T-13-11 and T-13-14 were spot treated, and the SAV data in the Plots was not recorded at the time of treatment**

Plots T-13-10 Eight Week Post Treatment



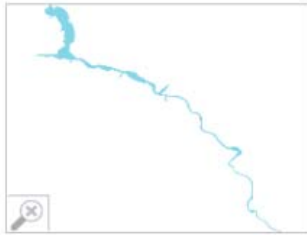
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:51:39 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 9:10:18 PM (UTC)

Average Water Temperature

21.54° C (70.76° F)

Location

Start: 47.77724075, -115.48442078

End: 47.77342224, -115.48387146

Survey Size

Area: 1.49 ha
(3.67 acres)

Percent: 0.05% of waterbody

Volume: 48,656.90 cu. m
(39.45 acre ft)

Settings

Track Buffer: 25 m

Grid Cell Size: 5 m

Min. BV Detect: 5%

Min. Veg Depth Detect: 0.73152 m

Quality Control

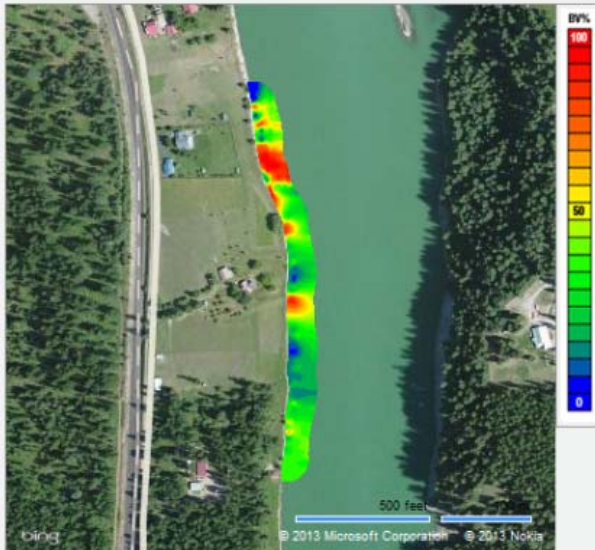
Reviewer: McCormack, Ian

Status: Passed

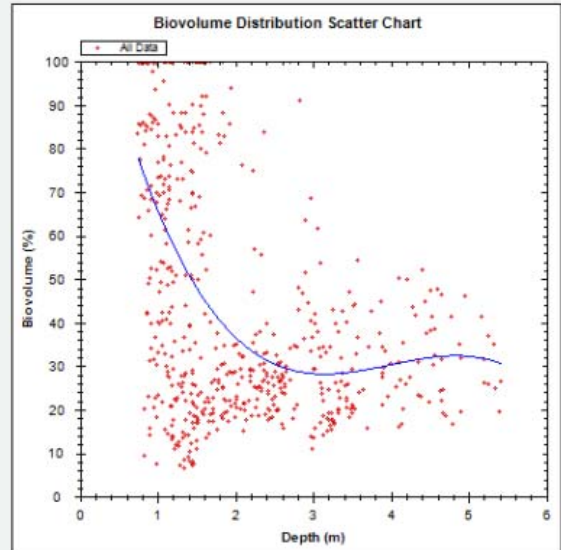
Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	84.5%	46.3%	±29.9%	39.1%	±32.2%	0.37-7.79 m	2.08 m	449.92 m	702
	Grid	97.8%	39.1%	±21.5%	38.3%	±22%	0.08-7.99 m	3.32 m	-	651

Vegetation Biovolume Heat Map



Biovolume Distribution Scatter Chart



NOXON RAPIDS RESERVOIR, SANDERS COUNTY, MONTANA

2013 Aquatic Invasive Species Control Program

At Time of and Eight (8) Week Post Treatment Submerged Aquatic Vegetation (SAV) Data

Plots T-13-17 At Time of Treatment



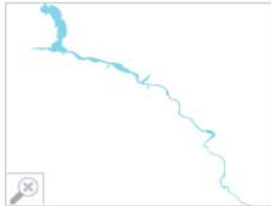
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 1:52:31 PM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres)

[report link](#)



Data Collector
Thomas McNabb

Survey Size
Area: 2.98 ha (7.40 acres)

Average Water Temperature
25.31° C (77.57° F)

Data Collection Date
7/23/2013 10:18:22 PM (UTC)

Percent: 0.09% of waterbody
Volume: 274,739.00 cu. m (222.70 acre ft)

Location
Start: 47.79731369, -115.50480652
End: 47.79701233, -115.50534821

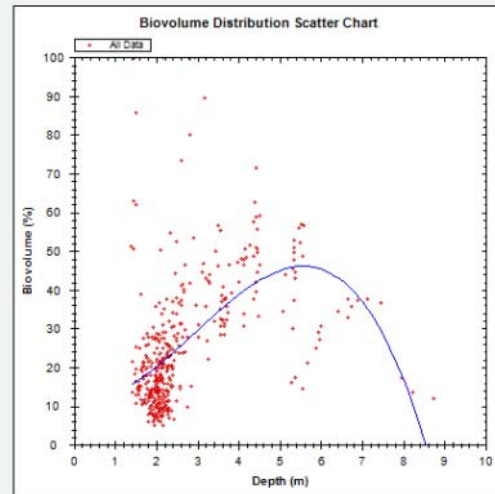
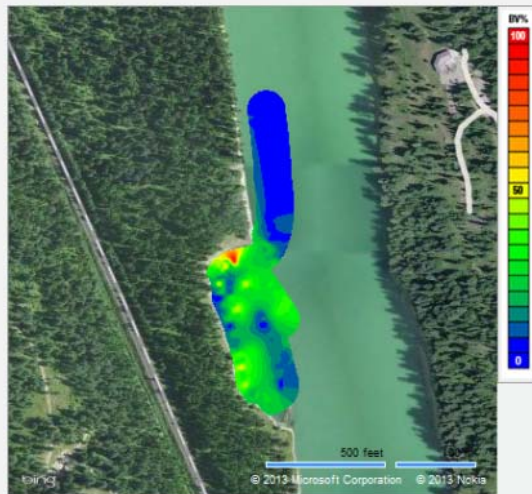
Survey Summary

	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
Full Survey	Point	78.5%	24.8%	±17.3%	19.5%	±18.4%	0.54-27.6 m	6.69 m	984.4 m	573
	Grid	74.3%	22.2%	±11.7%	16.5%	±14%	0.02-29.42 m	9.04 m	-	896

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	82.9%	25%	±17.6%	20.7%	±18.6%	0.54-10.16 m	2.72 m	642.01 m	515
	Grid	98.6%	24.1%	±11.4%	23.7%	±11.7%	0.02-9.96 m	3.12 m	-	571
2	Point	39.7%	20.7%	±9.4%	8.2%	±11.7%	5.19-27.6 m	20.98 m	205.23 m	58
	Grid	35.8%	14.1%	±8%	5.1%	±8.3%	0.75-29.42 m	18.49 m	-	346

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Plot T-13-17 Eight Week Post Treatment



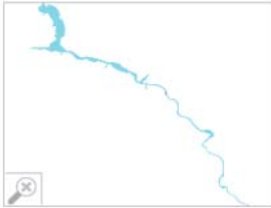
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:42:07 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector	Thomas McNabb
Data Collection Date	9/19/2013 8:53:51 PM (UTC)
Average Water Temperature	21.87° C (71.37° F)
Location	Start: 47.79813766, -115.50534058 End: 47.79790878, -115.50527191

Survey Size	Area: 1.76 ha (4.34 acres) Percent: 0.05% of waterbody Volume: 61,968.50 cu. m (50.24 acre ft)
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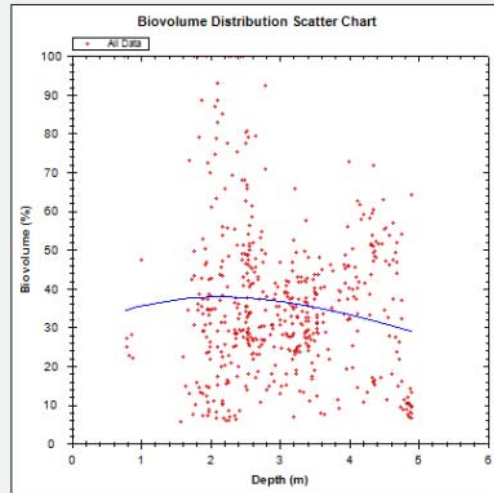
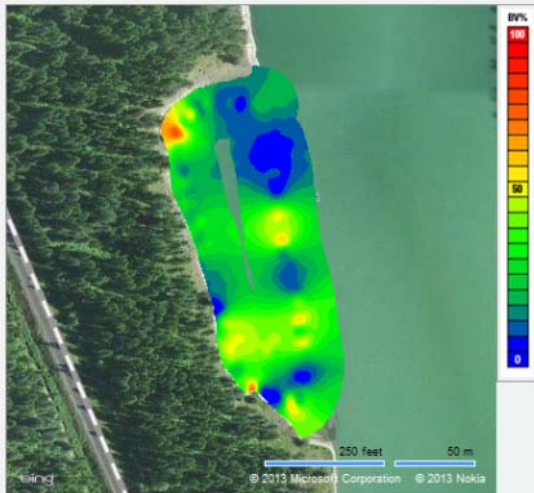
Settings	Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Quality Control	Reviewer: McCormack, Ian Status: Passed

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	70.4%	35.9%	±19.4%	25.2%	±23.1%	0.58-5.46 m	2.95 m	449.92 m	737
	Grid	93.4%	26.6%	±14.1%	24.8%	±15.1%	0.01-5.59 m	3.43 m	-	502

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Plot T-13-21



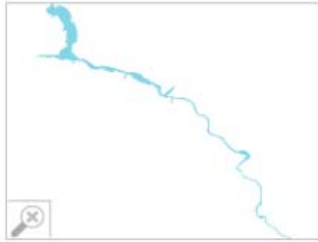
Plot T-13-21 At Time of Treatment

BIOBASE

VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana Generated: 8/1/2013 2:22:45 PM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres) [report](#)



Data Collector
Thomas McNabb

Data Collection Date
7/23/2013 10:39:41 PM (UTC)

Survey Size
Area: 1.54 ha (3.80 acres)
Percent: 0.05% of waterbody
Volume: 18,604.00 cu. m (15.10 acre ft)

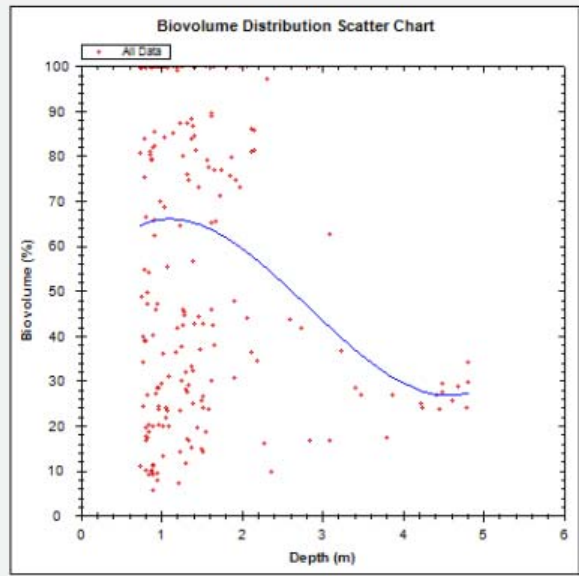
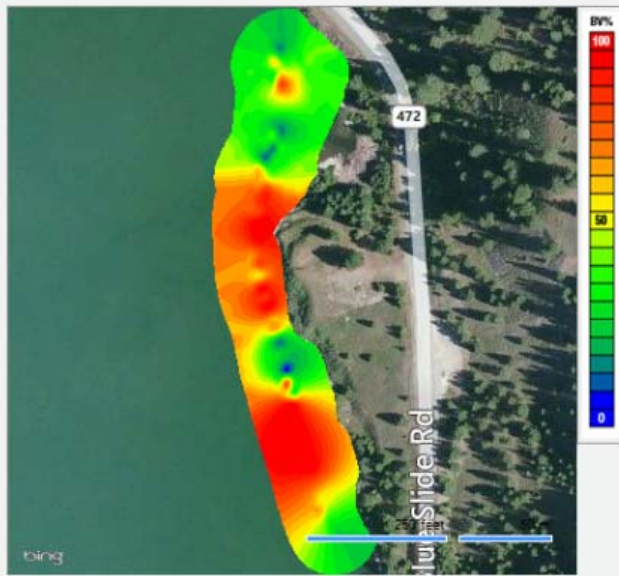
Average Water Temperature
25.79° C (78.42° F)

Location
Start: 47.82943726, -115.55797577
End: 47.83123016, -115.55854034

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	90.5%	62%	±34.1%	56.1%	±37.2%	0.36-5.07 m	1.18 m	378.55 m	274
	Grid	100%	57.2%	±24.7%	57.2%	±24.7%	0-4.82 m	1.09 m	-	594

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-21 Eight Week Post Treatment



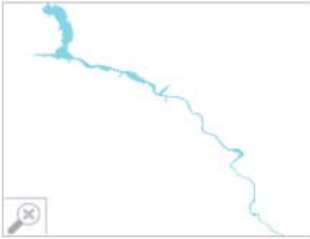
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:49:13 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 9:54:57 PM (UTC)

Average Water Temperature

22.1° C (71.78° F)

Location

Start: 47.82967377, -115.55809021

End: 47.83180237, -115.55822754

Survey Size

Area: 1.34 ha
(3.31 acres)

Percent: 0.04% of waterbody

Volume: 17,728.30 cu. m
(14.37 acre ft)

Settings

Track Buffer: 25 m

Grid Cell Size: 5 m

Min. BV Detect: 5%

Min. Veg Depth Detect: 0.73152 m

Quality Control

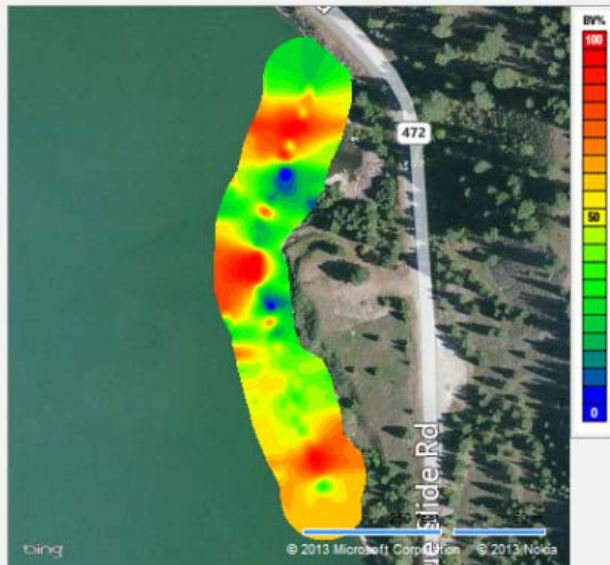
Reviewer: McCormack, Ian

Status: Passed

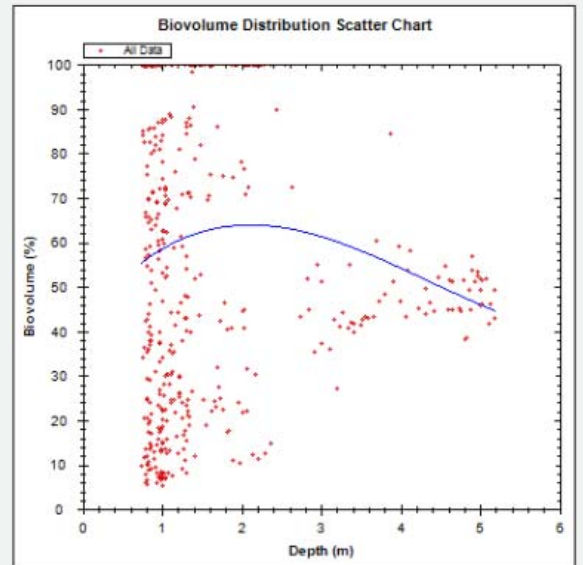
Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	85.9%	58.8%	±32.8%	50.5%	±36.7%	0.66-5.59 m	1.61 m	255.95 m	562
	Grid	99.6%	53.2%	±20.1%	53%	±20.3%	0.01-5.44 m	1.21 m	-	530

Vegetation Biovolume Heat Map



Biovolume Distribution Scatter Chart

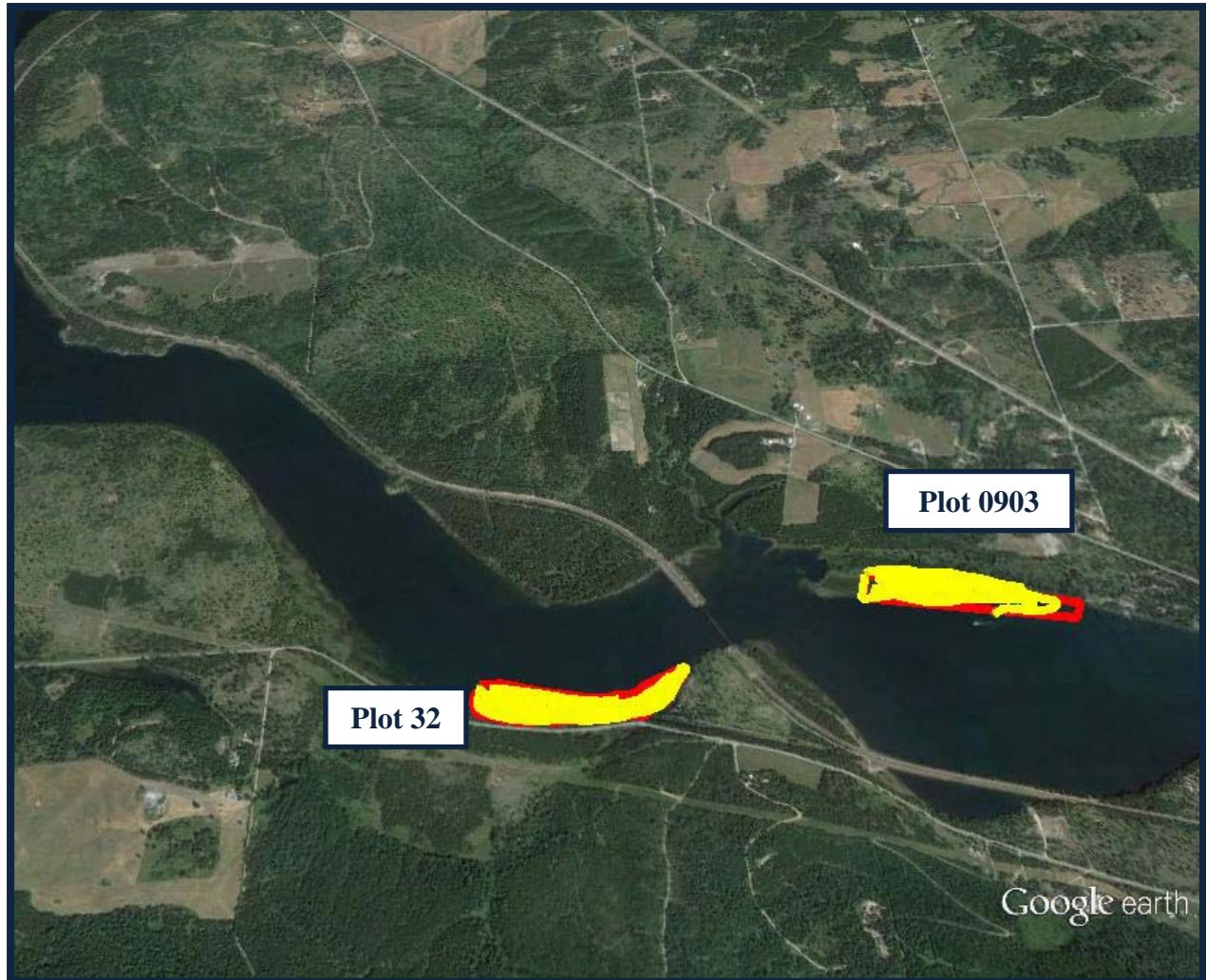


NOXON RAPIDS RESERVOIR, SANDERS COUNTY, MONTANA

2013 Aquatic Invasive Species Control Program

At Time of and Eight (8) Week Post Treatment Submerged Aquatic Vegetation (SAV) Data

Plot T-13-32 & T-13-0903



Plot T-13-32 At Time of Treatment



VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/23/2013 10:06:42 PM (1)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report](#)



Data Collector

Thomas McNabb

Data Collection Date

7/24/2013 4:00:33 PM (UTC)

Average Water Temperature

23.9° C (75.02° F)

Location

Start: 47.85894012, -115.65982619

End: 47.85909271, -115.66033936

Survey Size

Area: 9.24 ha
(22.83 acres)

Percent: 0.29% of waterbody

Volume: 525,668.50 cu. m
(426.17 acre ft)

Settings

Track Buffer: 25 m

Grid Cell Size: 5 m

Min. BV Detect: 5%

Min. Veg Depth Detect: 0.73152 m

Survey Summary

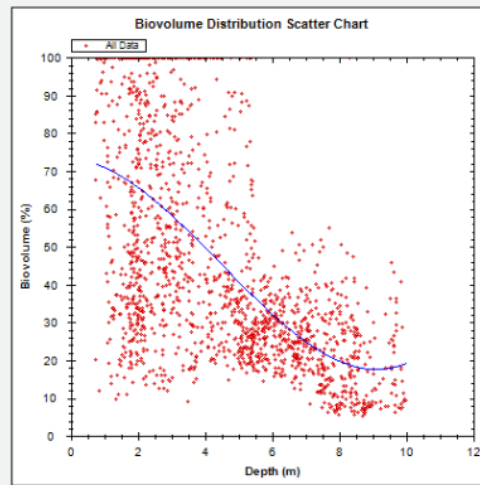
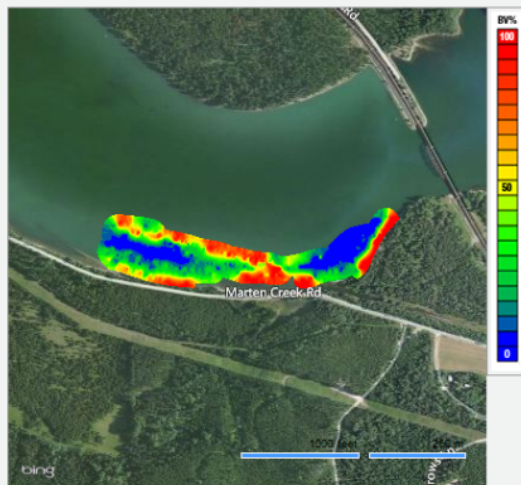
	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
Full Survey	Point	69.1%	45.9%	±29.6%	31.7%	±32.5%	0.4-17.44 m	5.73 m	5.08 km	2,508
	Grid	79.8%	44.1%	±28%	35.2%	±30.7%	0-17.85 m	5.69 m	-	2,702

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	80.2%	59.3%	±28.2%	47.5%	±34.6%	0.43-17.44 m	4.84 m	1.39 km	908
	Grid	75.2%	48.7%	±27.1%	36.6%	±31.5%	0-17.85 m	6.12 m	-	1,273
2	Point	80.4%	49.5%	±26.8%	39.8%	±31%	0.4-11.84 m	4.01 m	534.93 m	332
	Grid	91.7%	43.3%	±23.7%	39.7%	±25.6%	0-12.32 m	4.64 m	-	782
3	Point	58.3%	31.5%	±25%	18.3%	±24.6%	0.5-12.75 m	6.86 m	2.69 km	1,268
	Grid	75.4%	39.7%	±27.8%	29.9%	±29.6%	0-17.6 m	5.96 m	-	2,115

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-32 Eight Week Post Treatment



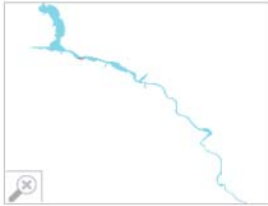
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:54:32 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 7:56:59 PM (UTC)

Average Water Temperature

21.77° C (71.18° F)

Location

Start: 47.85977936, -115.66572571

End: 47.86049652, -115.65409851

Survey Size

Area: 7.30 ha
(18.05 acres)
Percent: 0.23% of waterbody
Volume: 239,467.50 cu. m
(194.14 acre ft)

Settings

Track Buffer: 25 m
Grid Cell Size: 5 m
Min. BV Detect: 5%
Min. Veg Depth Detect: 0.73152 m

Quality Control

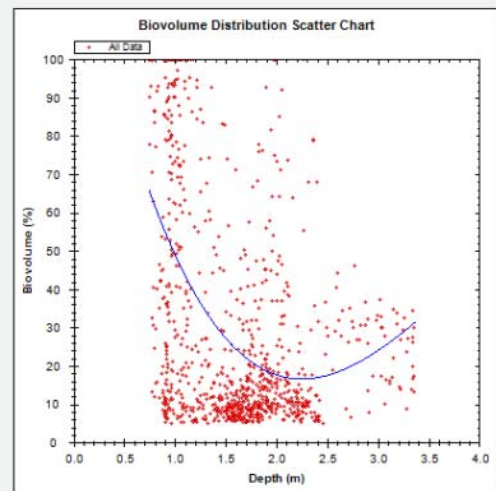
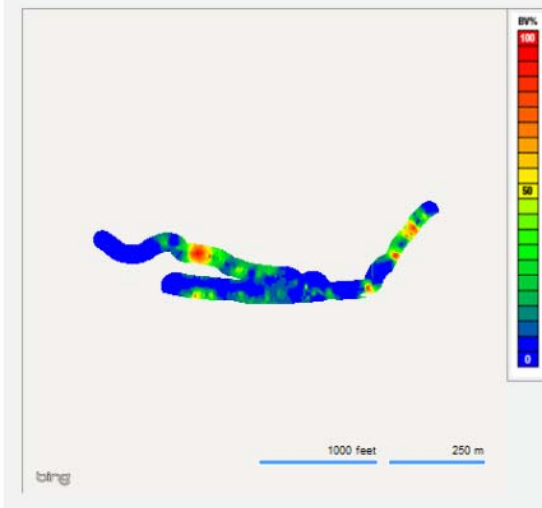
Reviewer: McCormack, Ian
Status: Passed

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	44%	31.6%	±30.6%	13.9%	±25.7%	0.7-8.57 m	2.46 m	1.92 km	2,194
	Grid	52%	24.3%	±20.6%	12.7%	±19.2%	0-8.73 m	3.15 m	-	2,227

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-0903 At Time of Treatment



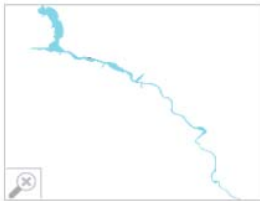
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/23/2013 10:11:34 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector	Thomas McNabb
Data Collection Date	7/31/2013 7:17:17 PM (UTC)
Average Water Temperature	26.27° C (79.29° F)
Location	Start: 47.86210251, -115.64325714 End: 47.86170578, -115.63846588

Survey Size	Area: 3.04 ha (7.50 acres)
	Percent: 0.09% of waterbody
	Volume: 29,209.10 cu. m (23.68 acre ft)

Settings	Track Buffer: 25 m
	Grid Cell Size: 5 m
	Min. BV Detect: 5%
	Min. Veg Depth Detect: 0.73152 m

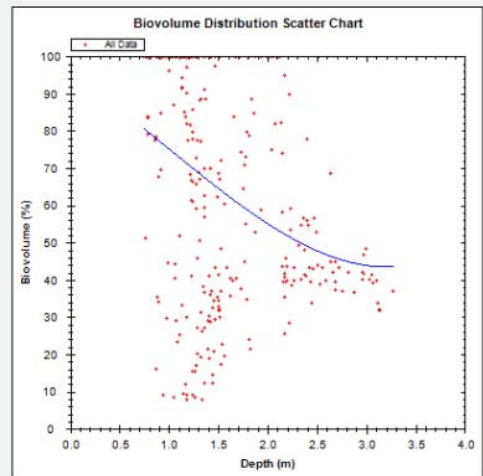
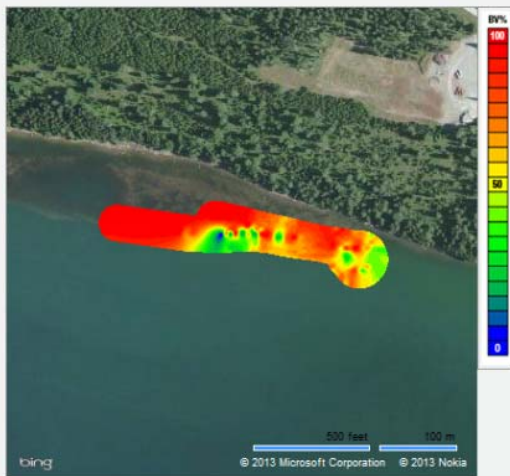
Survey Summary

	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
Full Survey	Point	92.2%	65.1%	±30.2%	60.1%	±33.9%	0.36-3.4 m	1.12 m	763.74 m	322
	Grid	100%	74.4%	±22.2%	74.4%	±22.2%	0.3-3.03 m	0.94 m	-	715

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	89.5%	60%	±32.4%	53.7%	±35.7%	0.36-1.64 m	0.79 m	365.79 m	105
	Grid	100%	76.1%	±24.4%	76.1%	±24.4%	0.34-1.48 m	0.8 m	-	450
2	Point	93.5%	67.5%	±28.9%	63.2%	±32.5%	0.41-3.4 m	1.48 m	370.12 m	217
	Grid	100%	70.3%	±19.1%	70.3%	±19.1%	0.3-3.03 m	1.03 m	-	449

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-0903 Eight Week Post Treatment



VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:39:16 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 8:22:56 PM (UTC)

Average Water Temperature

21.93° C (71.47° F)

Location

Start: 47.86210251, -115.64437866

End: 47.86200714, -115.64334106

Survey Size

Area: 4.46 ha

(11.03 acres)

Percent: 0.14% of waterbody

Volume: 73,650.50 cu. m

(59.71 acre ft)

Settings

Track Buffer: 25 m

Grid Cell Size: 5 m

Min. BV Detect: 5%

Min. Veg Depth Detect: 0.73152 m

Quality Control

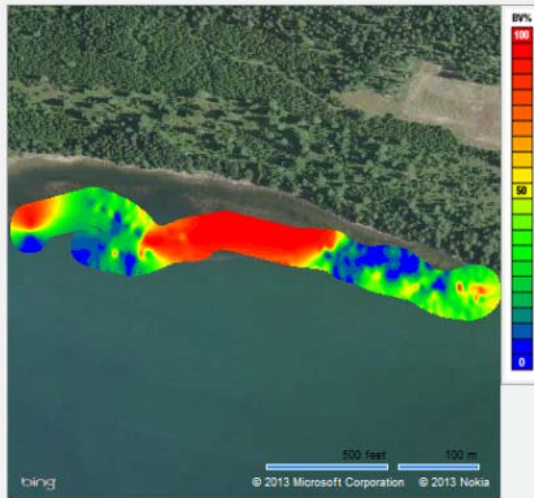
Reviewer: McCormack, Ian

Status: Passed

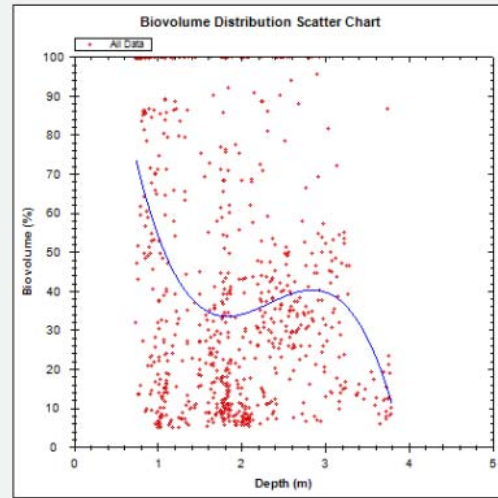
Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	67.8%	42%	±33.1%	28.4%	±33.6%	0.34-8.72 m	1.46 m	1.27 km	1,200
	Grid	92.1%	51.8%	±32.8%	47.7%	±34.5%	0.05-8.58 m	1.5 m	-	959

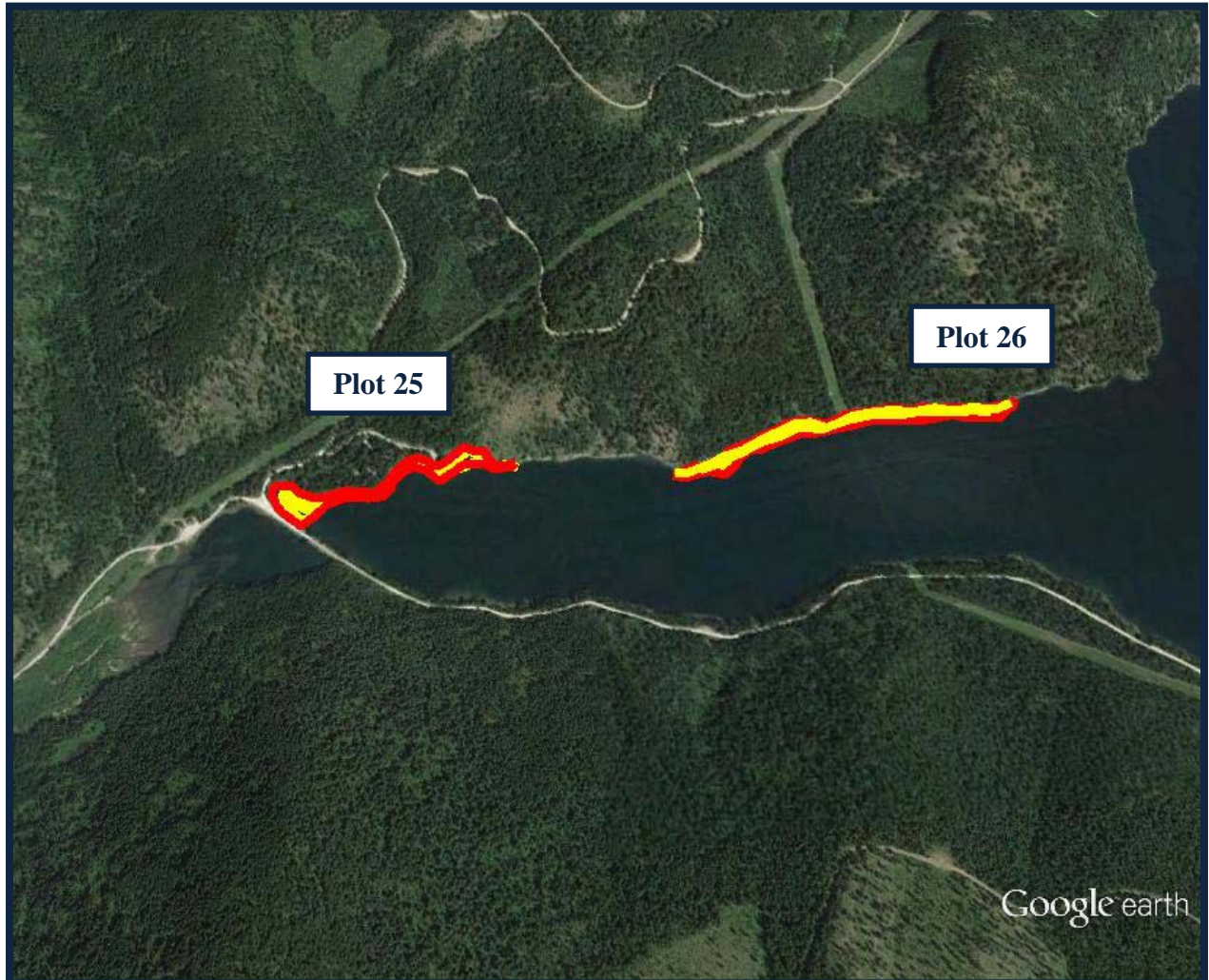
Vegetation Biovolume Heat Map



Biovolume Distribution Scatter Chart



Plot T-13-25 & 26



Plot T-13-25 At Time of Treatment



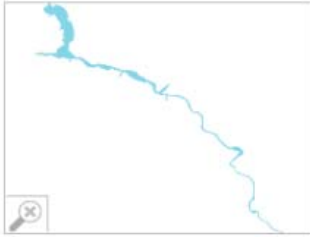
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 1:35:05 AM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

7/24/2013 5:52:39 PM (UTC)

Survey Size

Area: 3.46 ha
(8.60 acres)

Percent: 0.11% of waterbody

Volume: 52,193.00 cu. m
(42.30 acre ft)

Average Water Temperature

24.34° C (75.81° F)

Location

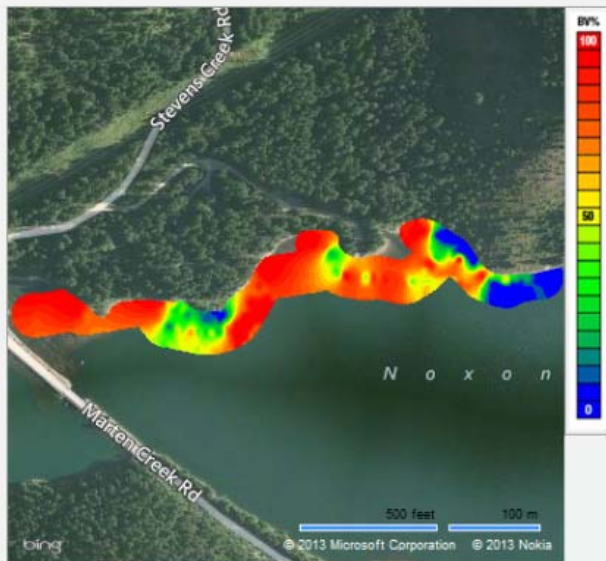
Start: 47.88171005, -115.74265289

End: 47.8816185, -115.74314117

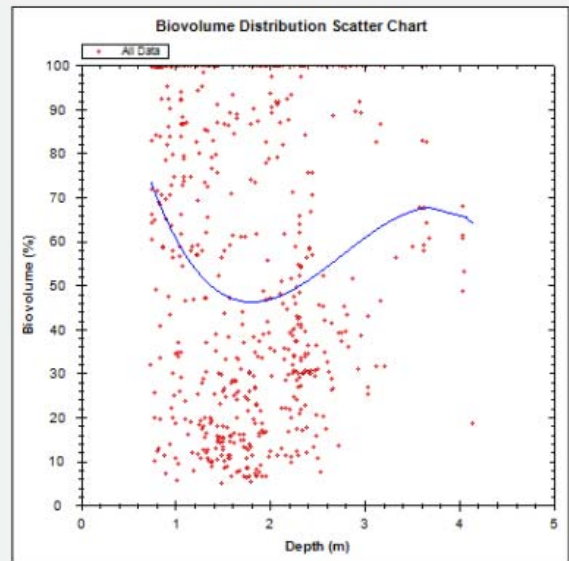
Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	84%	53.8%	±33.2%	45.2%	±36.3%	0.38-6.08 m	1.61 m	1.33 km	693
	Grid	92.2%	72.1%	±23.4%	66.5%	±29.7%	0-9.04 m	1.41 m	-	843

Vegetation Biovolume Heat Map



Biovolume Distribution Scatter Chart



Plot T-13-25 Eight Week Post Treatment



VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:14:39 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)

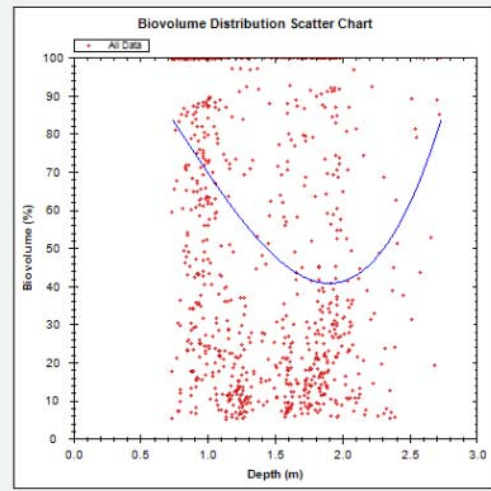
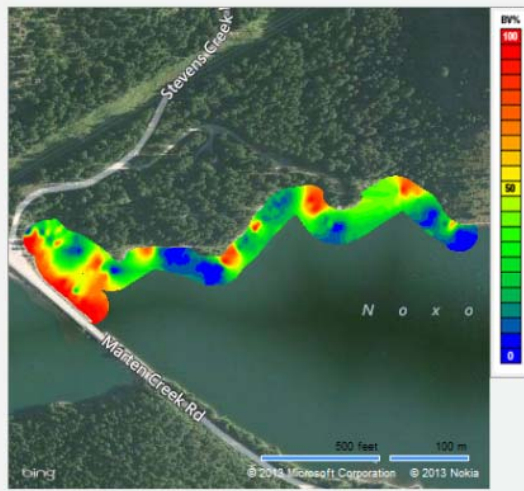


Data Collector Thomas McNabb	Survey Size Area: 3.20 ha (7.90 acres) Percent: 0.1% of waterbody Volume: 51,734.70 cu. m (41.94 acre ft)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 9/19/2013 7:02:17 PM (UTC)	Quality Control Reviewer: McCormack, Ian Status: Passed	
Average Water Temperature 20.96° C (69.73° F)		
Location Start: 47.88163757, -115.74336243 End: 47.88077545, -115.74993134		

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	78%	59.3%	±37.1%	46.2%	±40.9%	0.38-5.96 m	1.31 m	899.93 m	1,341
	Grid	92.4%	40.2%	±25.4%	37.2%	±26.6%	0.01-5.91 m	1.42 m	-	858

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-26 At Time of Treatment



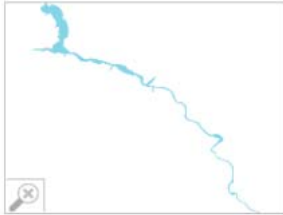
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 2:48:04 PM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres)

[report link](#)

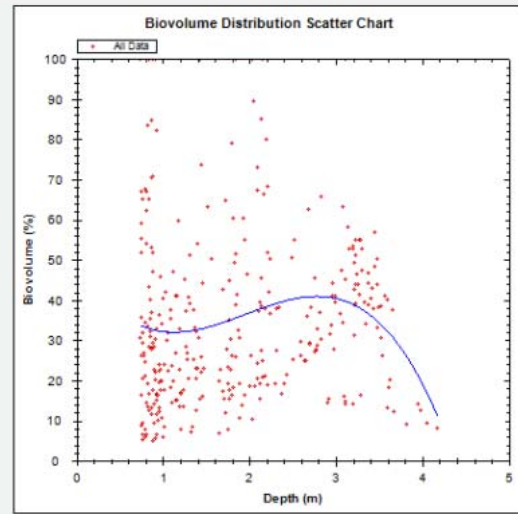
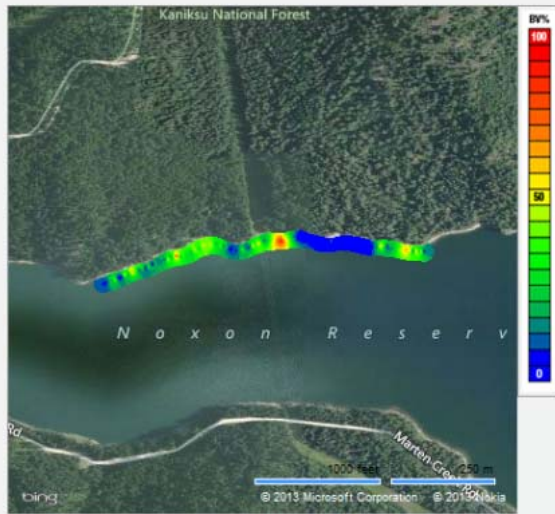


Data Collector Thomas McNabb	Survey Size Area: 3.61 ha (8.90 acres) Percent: 0.11% of waterbody Volume: 85,133.00 cu. m (69.00 acre ft)	Average Water Temperature 25.69° C (78.24° F)
Data Collection Date 7/23/2013 11:54:08 PM (UTC)		Location Start: 47.88191605, -115.72554016 End: 47.88121033, -115.73638153

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	54%	35.1%	±21.8%	19%	±23.7%	0.51-6.01 m	2.41 m	845.52 m	604
	Grid	81%	27.7%	±15.3%	22.4%	±17.5%	0.01-7.3 m	2.09 m	-	891

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Plot T-13-26 Eight Week Post Treatment

BIOBASE VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 10:50:07 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)

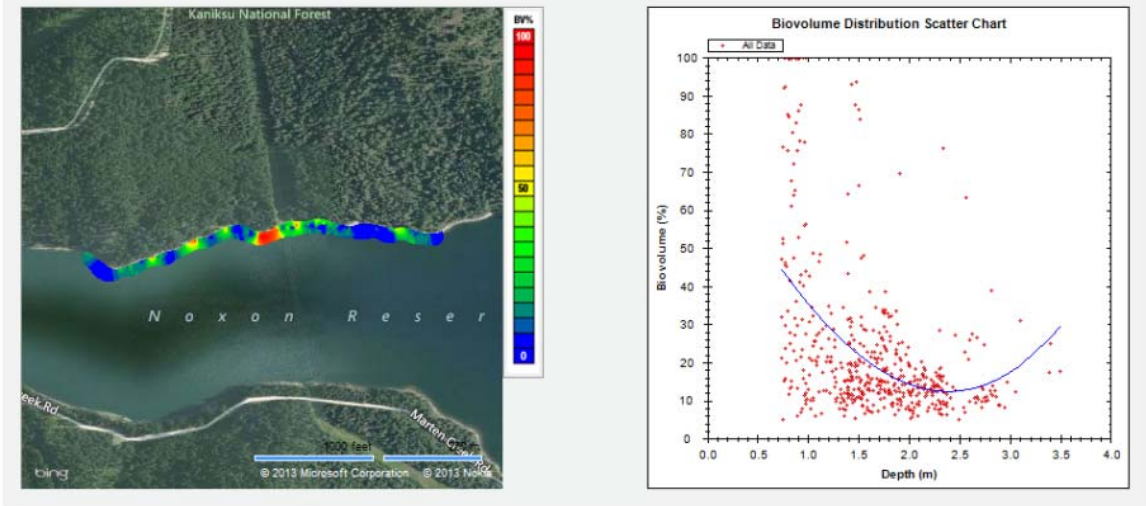


Data Collector Thomas McNabb	Survey Size Area: 3.40 ha (8.39 acres) Percent: 0.1% of waterbody Volume: 83,523.10 cu. m (67.71 acre ft)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 9/19/2013 6:29:07 PM (UTC)	Quality Control Reviewer: McCormack, Ian Status: Passed	
Average Water Temperature 21.29° C (70.31° F)	Location Start: 47.8819809, -115.72570038 End: 47.88146973, -115.73793793	

Area of Interest Summary

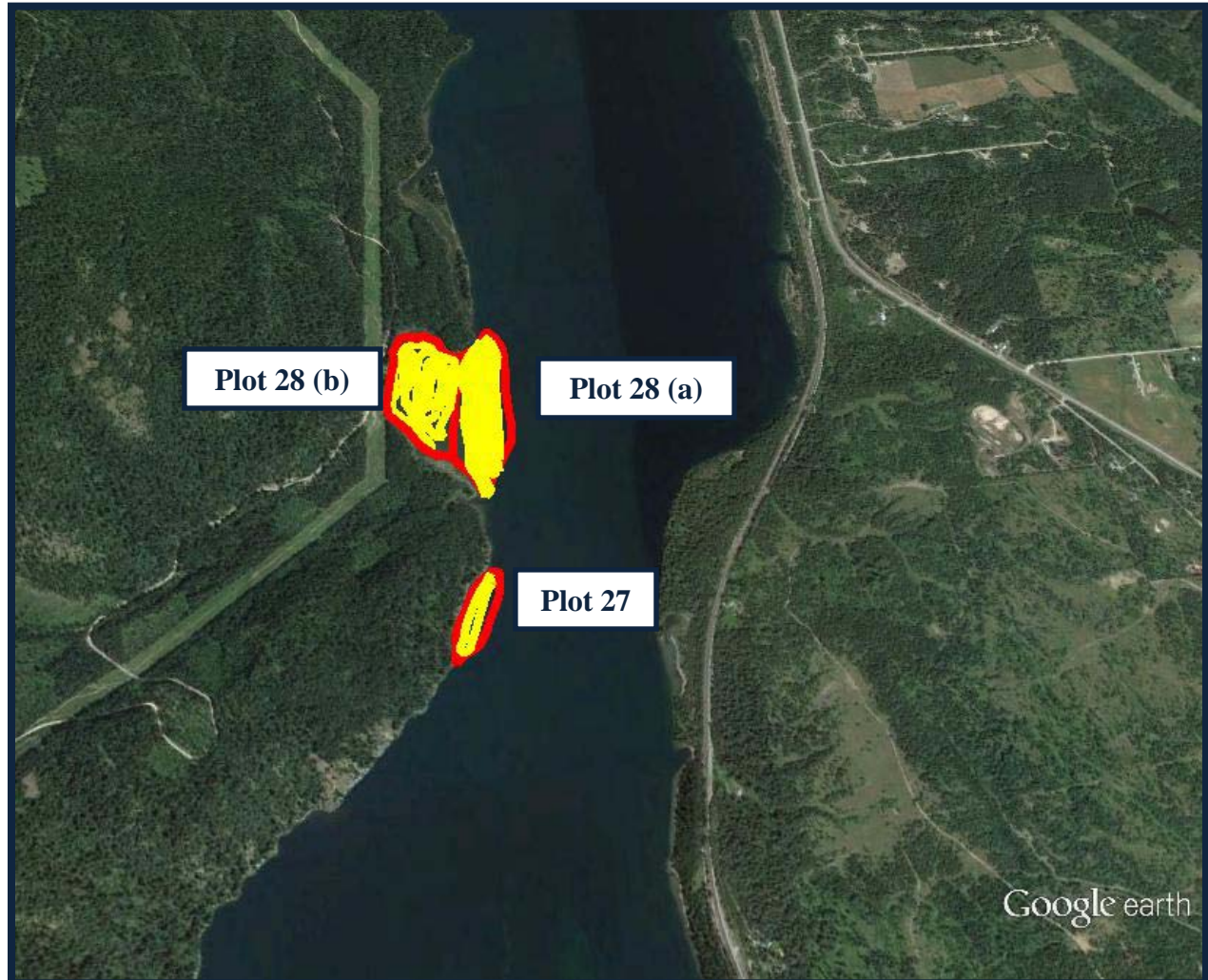
AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	48.3%	22.8%	±20.3%	11%	±18.1%	0.35-6.62 m	2.25 m	1.05 km	1,066
	Grid	69.1%	25.2%	±22.1%	17.4%	±21.7%	0.01-7.83 m	2.3 m	-	960

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plots T-13-27, 28 (a) & 28 (b)



Plot T-13-27 At Time of Treatment



VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 12:34:06 AM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres)

[report link](#)



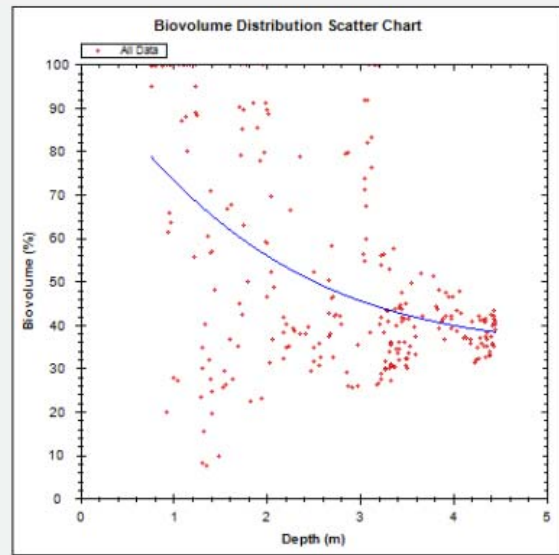
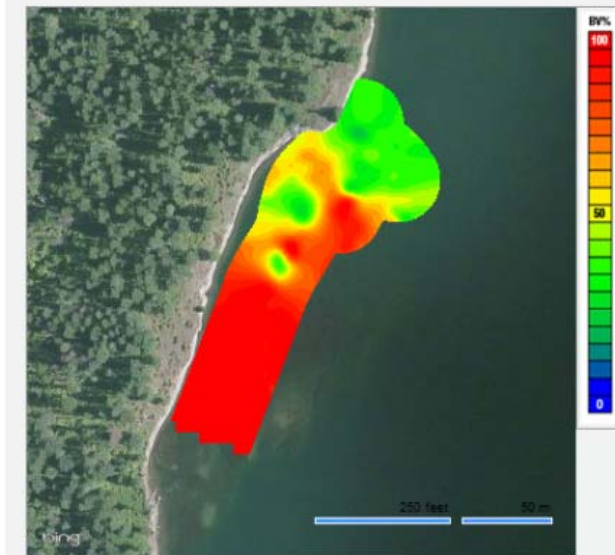
Data Collector Thomas McNabb	Survey Size Area: 1.79 ha (4.40 acres)	Average Water Temperature 26.63° C (79.94° F)
Data Collection Date 7/23/2013 11:19:14 PM (UTC)	Percent : 0.06% of waterbody Volume : 24,839.00 cu. m (20.10 acre ft)	Location Start: 47.89736557, -115.70691681 End: 47.89706421, -115.70662689

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	95%	51.9%	±25%	49.3%	±26.8%	0.39-4.54 m	2.39 m	448.08 m	280
	Grid	100%	72.6%	±25.3%	72.6%	±25.3%	0.1-4.45 m	1.44 m	-	292

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

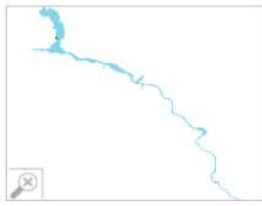
Plot T-13-28(a) At Time of Treatment

BIOBASE

VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana Generated: 9/23/2013 10:13:14 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres) [report link](#)



Data Collector Thomas McNabb	Survey Size Area: 7.75 ha (19.16 acres) Percent: 0.24% of waterbody Volume: 165,001.30 cu. m (133.77 acre ft)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 7/31/2013 4:38:34 PM (UTC)		
Average Water Temperature 24.26° C (75.67° F)		
Location Start: 47.90089798, -115.70613861 End: 47.90179443, -115.70614624		

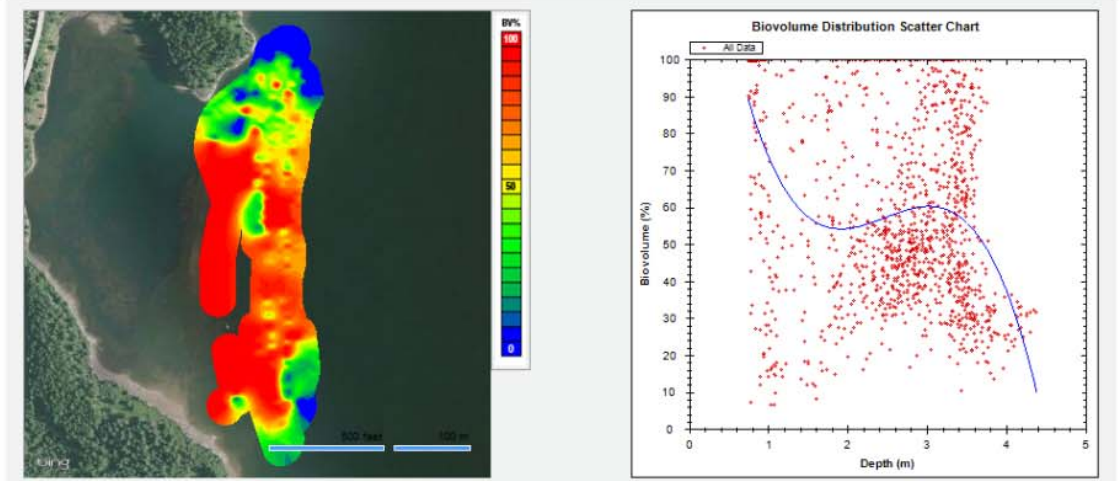
Survey Summary

	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
Full Survey	Point	89.8%	61.2%	±26.7%	55%	±31.4%	0.36-5.45 m	2.3 m	3.89 km	1,506
	Grid	94.3%	69.2%	±27.5%	65.3%	±31.2%	0.1-5.65 m	2.07 m	-	1,748

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	85.5%	38.8%	±19.4%	33.2%	±22.5%	2.16-5.45 m	3.73 m	101.42 m	145
	Grid	93.4%	47.8%	±28.1%	44.7%	±29.6%	0.82-5.65 m	3.37 m	-	152
2	Point	90.8%	56.3%	±27.5%	51.1%	±30.9%	0.39-3.85 m	1.73 m	783.86 m	206
	Grid	93.1%	68%	±27.7%	63.3%	±31.8%	0.1-4.35 m	1.67 m	-	568
3	Point	84.2%	71.1%	±31.5%	59.9%	±38.8%	0.45-4.54 m	1.85 m	551.55 m	203
	Grid	93.8%	75.7%	±30.2%	71%	±34.5%	0.1-4.22 m	1.46 m	-	640
4	Point	91.4%	63.5%	±24.5%	58%	±29.4%	0.36-4.41 m	2.4 m	1.78 km	952
	Grid	92.9%	64.1%	±26.4%	59.5%	±30.3%	0.1-5.65 m	2.38 m	-	1,291

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-28(a) Eight Week Post Treatment



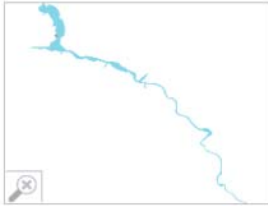
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 10:21:06 PM (UTC)

Waterbody Size: 3,241.64 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 5:58:06 PM (UTC)

Average Water Temperature

20.98° C (69.77° F)

Location

Start: 47.90477371, -115.70618439

End: 47.90281677, -115.70788574

Survey Size

Area: 3.67 ha
(9.08 acres)

Percent: 0.11% of waterbody
Volume: 73,105.00 cu. m
(59.27 acre ft)

Settings

Track Buffer: 25 m

Grid Cell Size: 5 m

Min. BV Detect: 5%

Min. Veg Depth Detect: 0.73152 m

Quality Control

Reviewer: McCormack, Ian

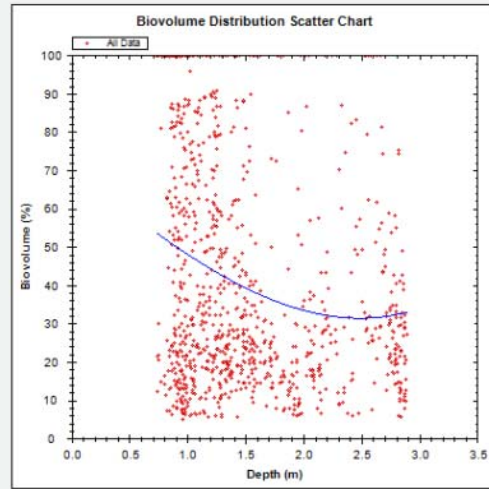
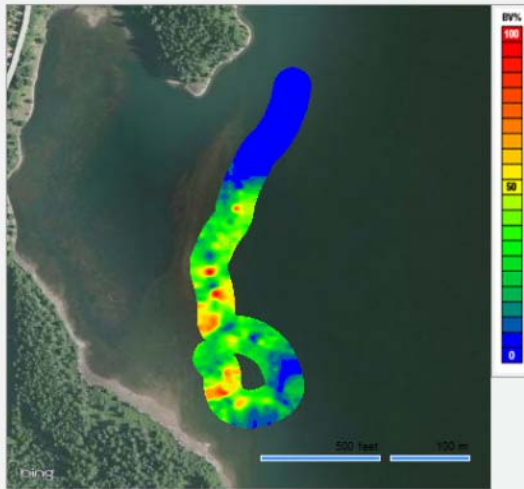
Status: Passed

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	57%	41.6%	±29.7%	23.7%	±30.5%	0.35-4.08 m	1.86 m	800 m	1,647
	Grid	74.5%	32.2%	±17.1%	24%	±20.4%	0.33-4.06 m	2.03 m	-	809

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-28(b) At Time of Treatment*

dBIOBASE VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana Generated: 9/23/2013 10:04:55 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres) [report](#)



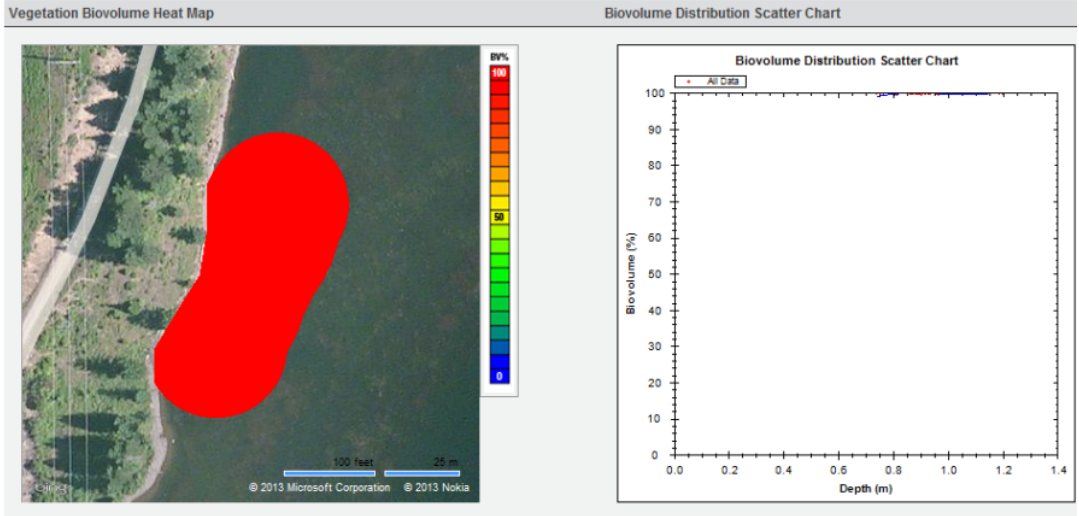
Data Collector Thomas McNabb	Survey Size Area: 4.68 ha (11.56 acres)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 7/24/2013 6:15:25 PM (UTC)	Percent: 0.14% of waterbody Volume: 59,293.80 cu. m (48.07 acre ft)	
Average Water Temperature 26.04° C (78.88° F)		
Location Start: 47.90517807, -115.70928686 End: 47.90398788, -115.71079254		

Survey Summary

	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
Full Survey	Point	100%	99.9%	±0%	99.9%	±0%	0.31-3.64 m	1.51 m	1.29 km	65
	Grid	100%	99.9%	±0%	99.9%	±0%	0.02-1.2 m	0.65 m	-	344

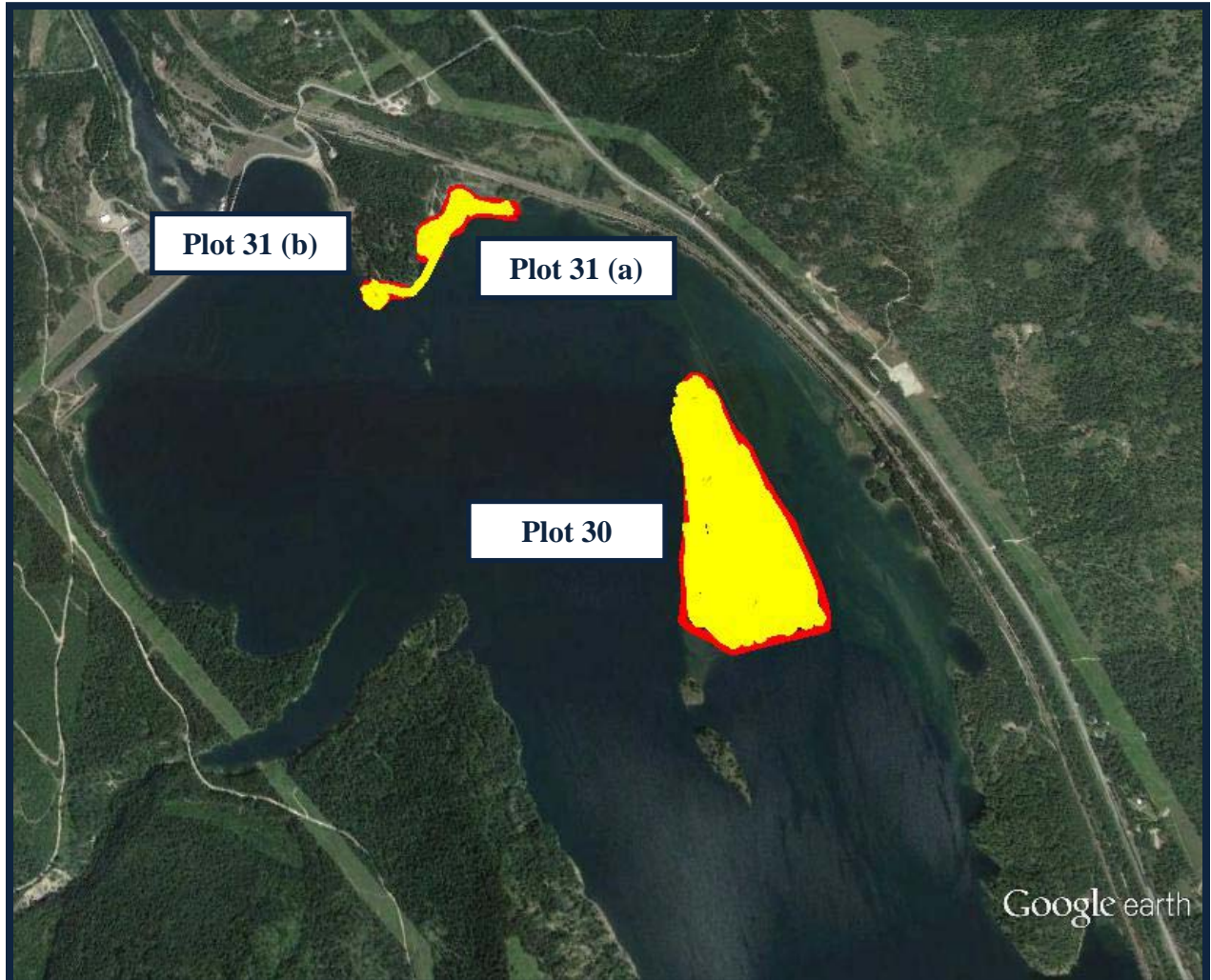
Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	100%	99.9%	±0%	99.9%	±0%	0.37-1.21 m	0.69 m	211.51 m	65
	Grid	100%	99.9%	±0%	99.9%	±0%	0.02-1.2 m	0.65 m	-	344



*Due to the dense growth of EWM in this site, the Echosounder System was unable to penetrate and collect all of the data.

Plots T-13-30, 31 (a) & 31 (b)



Plot T-13-30 At Time of Treatment

BIOBASE

VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana Generated: 9/23/2013 11:22:32 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres) [report link](#)



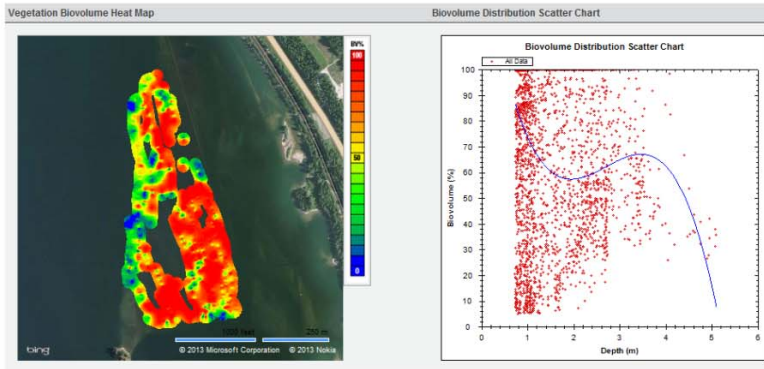
Data Collector Thomas McIabb	Survey Size Area: 28.81 ha (71.20 acres) Percent: 0.89% of waterbody Volume: 374,301.40 cu. m (303.45 acre ft)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 7/25/2013 7:40:14 AM (UTC)	Average Water Temperature 24.08° C (75.34° F)	Location Start: 47.94509506, -115.7088623 End: 47.94442368, -115.70883179

Survey Summary

Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points	
Full Survey	Point	92.1%	71.4%	±30.5%	65.7%	±35%	0.35-8.38 m	1.12 m	13.06 km	3,325
	Grid	98.5%	68.5%	±27%	67.5%	±28.1%	0.32-8.32 m	1.22 m	-	8,475

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	81.5%	71%	±38.1%	57.9%	±44.1%	0.39-0.89 m	0.74 m	188.99 m	27
	Grid	100%	78.7%	±22.7%	78.7%	±22.7%	0.39-1.09 m	0.7 m	-	296
2	Point	87.8%	69.9%	±35.6%	61.4%	±40.5%	0.39-1.24 m	0.73 m	1.12 km	197
	Grid	99.9%	76.8%	±22.1%	76.7%	±22.2%	0.42-5.87 m	0.81 m	-	1,328
3	Point	94.1%	81.8%	±29.6%	77%	±34.6%	0.39-3.61 m	0.8 m	2.16 km	493
	Grid	99.9%	77.4%	±23.1%	77.3%	±23.2%	0.4-6.04 m	0.86 m	-	2,429
4	Point	92.9%	76.3%	±29.2%	70.9%	±34.3%	0.37-6.22 m	1.08 m	2 km	932
	Grid	99.8%	75.2%	±22.2%	75.1%	±22.4%	0.32-7.23 m	1.04 m	-	2,971
5	Point	100%	79.7%	±35%	79.7%	±35%	0.47-0.78 m	0.64 m	11.83 m	4
	Grid	100%	60.4%	±20.8%	60.4%	±20.8%	0.42-2.02 m	0.86 m	-	84
6	Point	98.6%	82.6%	±22.7%	81.5%	±24.5%	0.46-1.19 m	0.73 m	632.81 m	74
	Grid	100%	74.2%	±24.3%	74.2%	±24.3%	0.44-1.64 m	0.79 m	-	661
7	Point	96.7%	79.8%	±22.9%	77.1%	±26.7%	0.55-8.38 m	1.81 m	503.21 m	211
	Grid	99.1%	80%	±20.8%	79.3%	±22.1%	0.49-8.32 m	1.61 m	-	847
8	Point	97.8%	72.2%	±26.5%	70.6%	±28.3%	0.4-3.64 m	1.53 m	1.17 km	544
	Grid	99.7%	75.6%	±23%	75.3%	±23.4%	0.46-6.98 m	1.42 m	-	1,253
9	Point	85.9%	55%	±29.7%	47.3%	±33.6%	0.35-6.88 m	1.32 m	3.77 km	843
	Grid	96.6%	55.6%	±27.8%	53.7%	±29.1%	0.32-7 m	1.4 m	-	3,365



Biovolume Analysis by Quantity

AOI ?	0-5%	5-20%	20-40%	40-60%	60-80%	>80%
1	18.52%	14.81%	11.11%	0%	3.7%	51.85%
2	12.18%	15.23%	9.14%	5.58%	6.09%	51.78%
3	5.88%	8.92%	4.67%	5.48%	7.91%	67.14%
4	7.08%	4.94%	11.05%	10.94%	10.19%	55.79%
5	1.35%	1.35%	0.76%	10.81%	8.11%	71.62%
6	3.32%	0%	8.06%	16.11%	14.69%	57.82%
7	2.21%	5.88%	7.9%	17.65%	20.59%	45.77%
8	14.12%	11.27%	20.4%	19.93%	11.63%	22.66%

Biovolume Analysis by Depth

Plot T-13-30 Eight Week Post Treatment



VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 11:26:04 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

9/19/2013 4:26:51 PM (UTC)

Average Water Temperature

20.63° C (69.13° F)

Location

Start: 47.94548798, -115.71112823

End: 47.95032501, -115.70921326

Survey Size

Area: 6.76 ha
(16.70 acres)
Percent: 0.21% of waterbody
Volume: 151,622.70 cu. m
(122.92 acre ft)

Settings

Track Buffer: 25 m
Grid Cell Size: 5 m
Min. BV Detect: 5%
Min. Veg Depth Detect: 0.73152 m

Quality Control

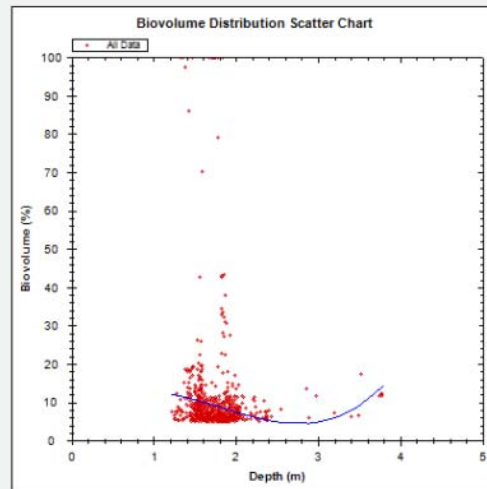
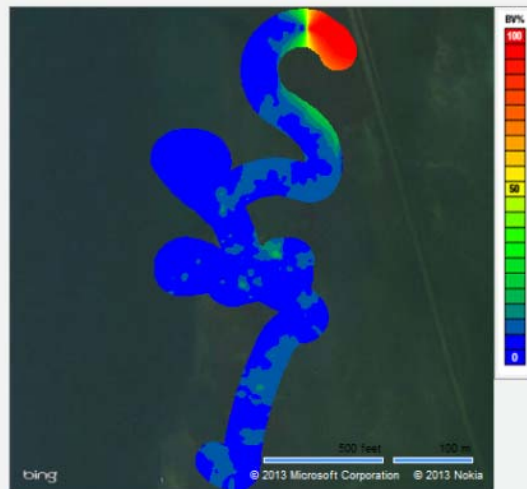
Reviewer: McCormack, Ian
Status: Passed

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	37.3%	9.1%	±11.6%	3.4%	±8.4%	1.02-6.93 m	2.02 m	1.83 km	3,361
	Grid	31.5%	20%	±29.3%	6.3%	±18.9%	1.06-6.82 m	2.12 m	-	1,754

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-31(a) At Time of Treatment



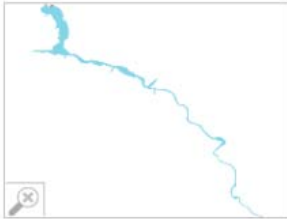
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 4:06:40 AM (UTC)

Waterbody Size: 3,229.58 ha (7,980.90 acres)

[report link](#)



Data Collector

Thomas McNabb

Data Collection Date

7/25/2013 1:25:31 PM (UTC)

Survey Size

Area: 4.78 ha
(11.80 acres)

Percent: 0.15% of waterbody
Volume: 94,918.00 cu. m
(77.00 acre ft)

Average Water Temperature

23.14° C (73.65° F)

Location

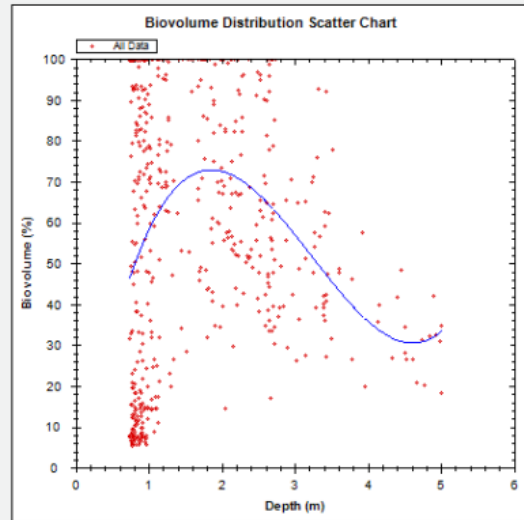
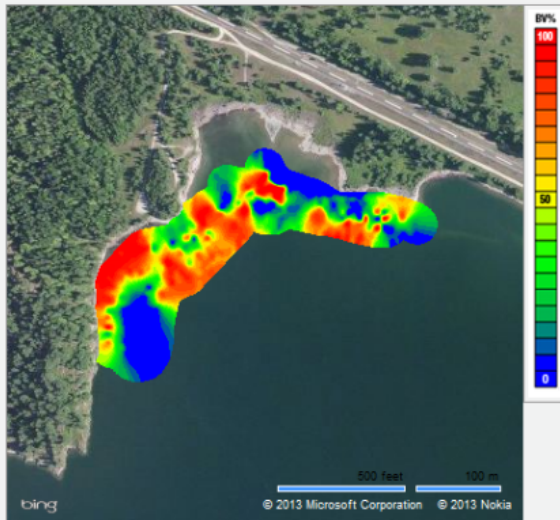
Start: 47.95952988, -115.71844482
End: 47.96015167, -115.72176361

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	72.3%	58.2%	±32.5%	42.1%	±38%	0.35-8.45 m	1.71 m	2.16 km	755
	Grid	81.1%	53.4%	±28.2%	43.3%	±32.9%	0.02-8.3 m	1.95 m	-	1,210

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

AOI ?	0-5%	5-20%	20-40%	40-60%	60-80%	>80%
1	27.68%	14.3%	9.8%	12.19%	12.19%	23.84%

Plot T-13-31(a) Eight Week Post Treatment



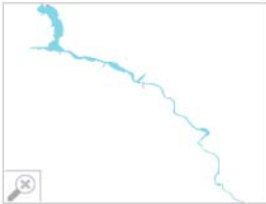
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 9/20/2013 10:38:15 PM (UTC)

Waterbody Size: 3,241.65 ha (8,010.30 acres)

[report link](#)

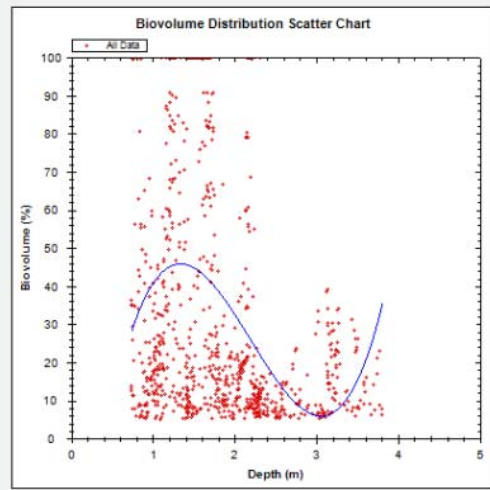
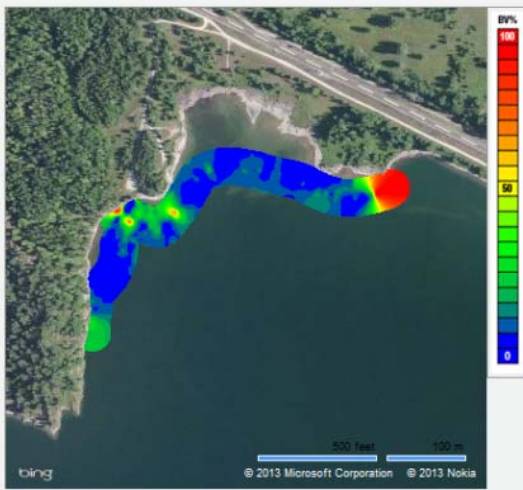


Data Collector Thomas McNabb	Survey Size Area: 2.85 ha (7.03 acres) Percent: 0.09% of waterbody Volume: 55,273.30 cu. m (44.81 acre ft)	Settings Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 9/19/2013 5:21:20 PM (UTC)	Average Water Temperature 20.81° C (69.45° F)	Quality Control Reviewer: McCormack, Ian Status: Passed
Location Start: 47.95968628, -115.71838379 End: 47.95795822, -115.72370148		

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	63.9%	33.3%	±31.9%	21.3%	±30.1%	0.55-4.85 m	1.87 m	617.43 m	1,416
	Grid	62.2%	22.3%	±25.6%	13.8%	±22.9%	0.04-6.72 m	1.81 m	-	764

Vegetation Biovolume Heat Map Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-31(b) At Time of Treatment



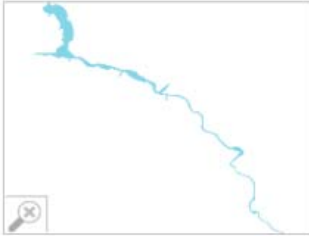
VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana

Generated: 8/2/2013 4:01:14 AM (UTC)

Waterbody Size: 3,229.58 ha (7,980.50 acres)

[report link](#)



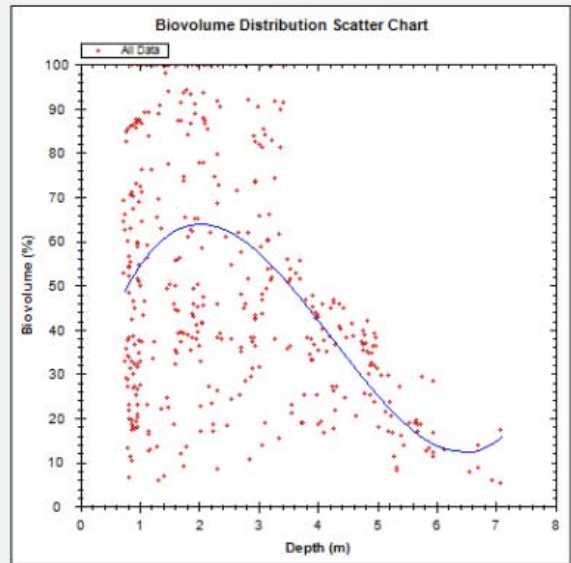
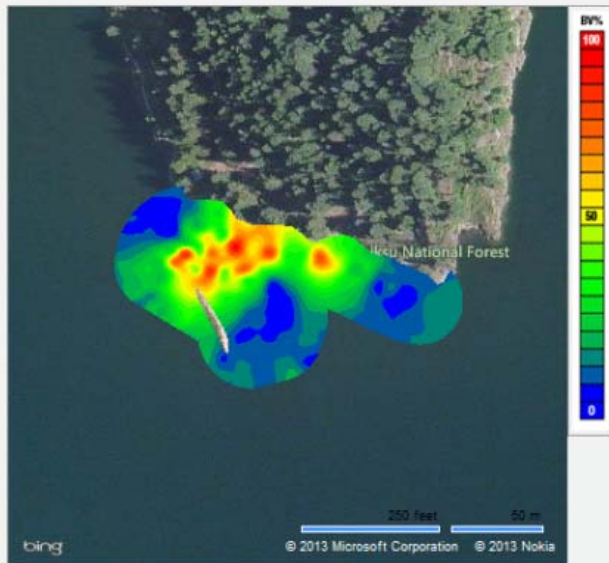
Data Collector Thomas McNabb	Survey Size Area: 1.35 ha (3.30 acres)	Average Water Temperature 23.39° C (74.11° F)
Data Collection Date 7/25/2013 1:48:21 PM (UTC)	Percent: 0.04% of waterbody Volume: 58,293.00 cu. m (47.30 acre ft)	Location Start: 47.95667267, -115.72455597 End: 47.95684814, -115.72650146

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	75.5%	50.1%	±28.8%	37.8%	±33%	0.41-12.36 m	3.68 m	537.41 m	576
	Grid	89.2%	26.9%	±20.8%	24%	±21.3%	0.02-11.78 m	4.13 m	-	332

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart



Biovolume Analysis by Quantity

Plot T-13-31(b) Eight Week Post Treatment

BIOBASE

VEGETATION ANALYSIS REPORT

Noxon Reservoir, Sanders County Montana Generated: 9/20/2013 10:00:36 PM (UTC)

Waterbody Size: 3,241.64 ha (8,010.30 acres) [report link](#)



Data Collector Thomas McNabb		Survey Size Area: 0.74 ha (1.83 acres)		Settings Track Buffer: 25 m	
Data Collection Date 9/19/2013 5:31:41 PM (UTC)		Percent: 0.02% of waterbody		Grid Cell Size: 5 m	
Average Water Temperature 20.99° C (69.78° F)		Volume: 16,588.10 cu. m (13.45 acre ft)		Min. BV Detect: 5%	
Location Start: 47.95667267, -115.72455597 End: 47.95703125, -115.72612				Min. Veg Depth Detect: 0.73152 m	
				Quality Control Reviewer: McCormack, Ian Status: Passed	

Area of Interest Summary

AOI ?	Type ?	PAC ?	Avg BVp ?	SD BVp ?	Avg BVw ?	SD BVw ?	Depth Range	Avg Depth	Distance	No. Points
1	Point	86.7%	55.7%	±36.6%	48.3%	±39%	0.57-6.36 m	1.97 m	188.4 m	1,108
	Grid	72%	34.1%	±23.3%	24.6%	±25%	0.01-6.54 m	2.09 m	-	236

Vegetation Biovolume Heat Map

Biovolume Distribution Scatter Chart

Biovolume Analysis by Quantity

END OF SURVEY REPORT