

CLEAN LAKES INC.

Aquatic Ecosystem Restoration & Maintenance

April 17, 2014

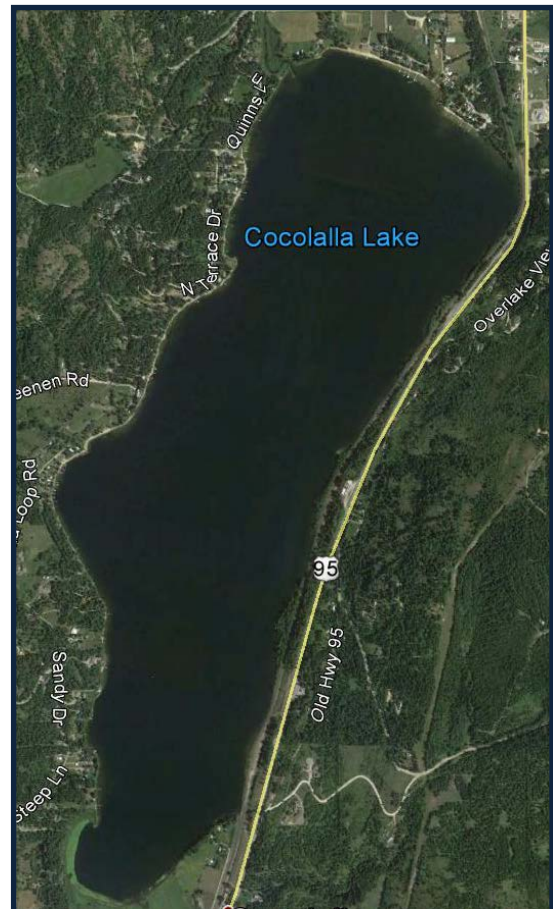
Fred Vincent
President
Cocolalla Lake Association
PO Box 133
Cocolalla, ID 83813

Subject: Cocolalla Lake Bathymetry Information and Proposal

With respect to our recent communication regarding the benefits of hydroacoustic surveys, provided below is information related to the benefits along with proposed costs for carrying out such a survey on Cocolalla Lake.

BACKGROUND INFORMATION: Cocolalla Lake is approximately 800 acres in size and serves as a focal point for the community. The lake serves as source for irrigation water, and is used recreationally for fishing and boating. The lake experiences planktonic algae blooms (cyanobacteria) during times of the year and also has an aquatic invasive plant project being implemented in cooperation with the Idaho State Department of Agriculture for the management of Eurasian watermilfoil and Curlyleaf pondweed. The Cocolalla Lake Association (CLA) is a proactive organization that has considered ways and means of addressing cyanobacteria blooms, including the use of phosphorus inactivation products, among the other management activities it carries out for the protection and enhancement of the resource.

Hydroacoustic surveys can provide information important to support lake management decisions. Maps that show depth contours, bottom composition (hardness), and aquatic vegetation distribution and abundance are more easily generated than in the past and at lower costs, thus



allowing for better decision making that may not been possible in the past due the cost associated with this technology. A list of the benefits provided by hydroacoustic surveys is provided below:

Bathymetry

- Bottom contour intervals (deep spots, creek channels, submerged objects)
- Development of accurate water volume
- Useful for fish habitat analysis
- Useful to determine best placement for improving dissolved oxygen through placement of aeration/circulation systems
- Communication/Information tool
- Baseline Inventory of conditions

Bottom composition

- Bottom hardness maps (soft to hard bottoms)
- Support development of sedimentation maps
- Calculation of sediment volumes in combination with sediment cores or sediment depth collected separately.
- Useful to determine sedimentation rates over time when doing multiple surveys over time. Partial or whole lake surveys.
- Useful in pre and post dredging activities to understand quantities of sediment removed.

Vegetation

- Vegetation growth – distribution and abundance
- Can develop treatment plans for aquatic vegetation management based on plant growth and based on area and water depth
- Water depth and volume can support treatment plans for nutrient inactivation projects

Recreation

- Support recreation management in lake areas
- Useful to sport fisherman for trip planning
- Fish stock assessments

Water Management

- Water intake pipe position planning
- Discharge pipe position planning

Additional benefits are likely to exist based on management goals or research that may exist or may be needed in the future.

SCOPE OF WORK –

Hydroacoustic survey: Should the CLA be interested in carrying out a hydroacoustic survey, three (3) products could be generated during a single hydroacoustic survey. Through the use of Lowrance depth finder and transducer technology and an automated cloud based computing technology (CI Biobase), it is possible to generate bathymetry, sediment composition, and submersed aquatic vegetation maps in both hardcopy and digital formats for lake managers.



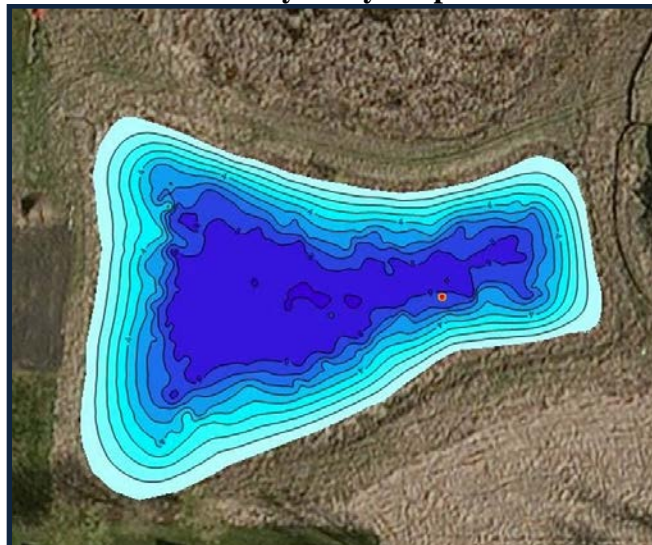
Clean Lakes, Inc. (CLI) would utilize a survey vessel fitted with a Digital Echosounder and transducer to record data to be used in developing the bathymetry, sediment composition, and submersed aquatic vegetation maps.



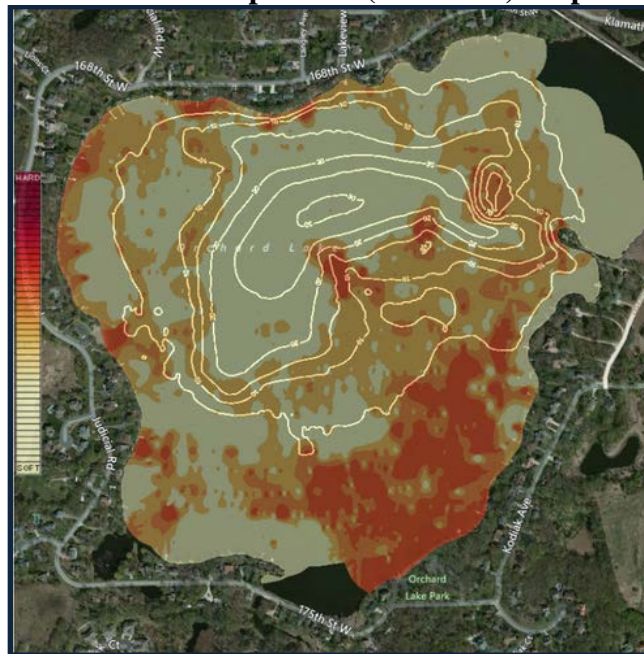
The survey vessel would record data along predetermined transects at spacing intervals of approximately 25 meters (82 feet). Predetermined tracks would be uploaded to an onboard GPS to allow the operator to maintain distances between tracks.

Examples of each of the map products capable of being produced is provided below.

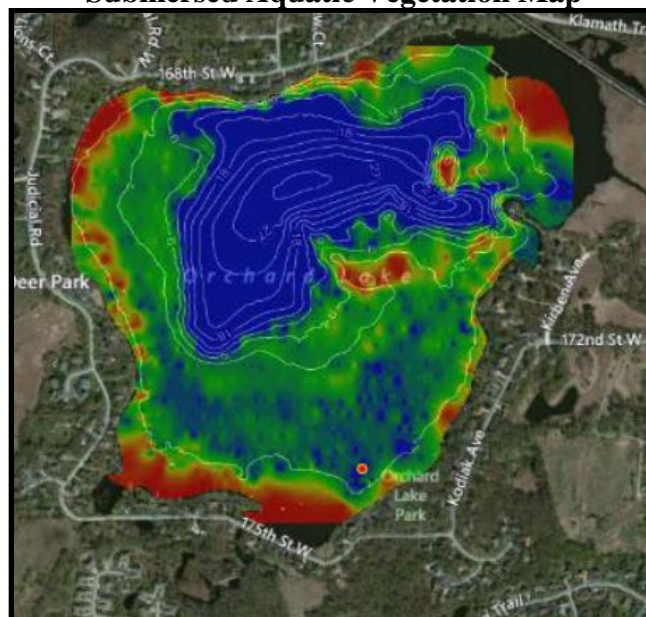
Bathymetry Map



Bottom Composition (Hardness) Map



Submersed Aquatic Vegetation Map



SERVICES TO BE PROVIDED: CLI would supply the equipment and materials, survey vessel, and labor to perform the services outlined above.

COMPENSATION FOR SERVICES:

Hydroacoustic Survey of Cocolalla Lake – The cost associated with carrying out the hydroacoustic survey would be \$8,200.00. The hydroacoustic survey is estimated to take two (2) days. Should the CLA desire paper maps of each of the types of maps available (bathymetric, bottom composition, submersed aquatic vegetation) the maps could be provided at the costs outlined below:

GIS Custom Services	Price*
Large Custom Map for Print	\$175.00
Historical Depth Comparison for Sedimentation layer Analysis	\$468.00
Additional GIS Services	\$156.00

Map Printing Costs	
	Price
12 x 18	\$35.00
16 x 20	\$50.40
24 x 24	\$80.50
24 x 36	\$124.60
36 x 36	\$193.20
24 x 60	\$209.30

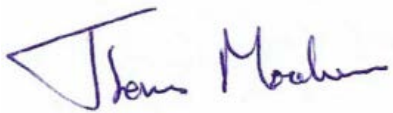
* Pricing may change without notice, delivered as an image file, not printed by CLI

Based on any further products or service the CLA may be interested in not outlined above, CLI can work with you to further develop this proposal to support your specific requirements.

Let me know if you have any questions following your review, and we can make any required modifications to this proposal. CLI looks forward to the opportunity to work with your group on this project.

Sincerely,

CLEAN LAKES, INC.



Thomas G. Moorhouse
Manager

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