

May 4, 2004

MEMORANDUM

TO: Biological Monitoring Section

THROUGH: **(Removed)**

FROM: **(Removed, Coastal Resources Scientist)**

SUBJECT: Product review of the Amphibian by Eureka Environmental

Background

In mid-March of 2004 I received the Amphibian, made by Eureka Environmental, for testing and evaluation in the field. The Amphibian would act as a replacement for our current YSI DM650 to retrieve continuous data, view discrete data, and perform maintenance on the YSI 6920s and YSI 600XLMs that we have in the field. The Amphibian consists of a hardened plastic/rubber casing with a clear screen in the front for viewing. It has a cable attachment on the top for connection with the sonde and a port on the bottom for recharging/USB connection to another computer. Inside is a standard PDA (personal digital assistant) with PocketPC (Microsoft Windows operating system) on it. The stylus is located on the outside in a snap-tight holder. The clear plastic screen is hinged to provide waterproof access to a soft clear sheet protecting the PDA screen (to allow use of the stylus). There is a series of four snap-locks to create a waterproof seal. Also located inside is a large backup battery pack. The Amphibian is in total about 8-9 inches long and 5-6 inches wide and weighs just under 3 pounds.

Initial Impressions (poor<fair<good)

Physical connection to the sonde. Good

Communication with the sonde. Good

Dirty Readings. Good

Data log stop and file transfer. Fair, slower transfer than a YSI650, but not by much.

Clean Readings. Good

Data file setup and deployment. Good

Connection to desktop. Good

Communication with WolfsensePC. Good

Datafile organization on the PDA. Good.

Pros

The Cost.

The overall cost is significantly lower compared to the YSI 650. A new YSI650 costs approximately \$2600 to purchase while a new Amphibian, complete with new PDA installed, costs approximately \$1000.

Versatility.

The only functions of the YSI650 that we use are to upload data from the datasonde,

upload it to the desktop computer, perform real-time data retrieval from the sonde, and data file setup on the sonde. All of these functions are available on the Amphibian, plus many more options due to its PocketPC operating system. Some of these other functions relate directly with field use, such as Excel and Word installed on the PDA. A GPS add-on can be purchased for the PDA and as well as a compressed version of ArcView called ArcPad. This would give field personnel almost all of the electronic resources we use in the office, out in the field. There are still other uses that the PocketPC adds, namely a version of Outlook. This would give field personnel access to their calendars, contact numbers, tasks, and e-mails. All of which could hold valuable information in the field.

Simplicity.

The Amphibian has fewer and better organized menus for the options and functions needed in the field. This reduces the time and frustration of digging through some of the YSI menu systems to get at what you want. You can also use the full functionality of the PDA while you are showing real time data from the sonde, a function that is not possible with the YSI650.

Fewer Steps.

Using the YSI 650, we must upload the data file from the 650 as a *.dat file to be read by Ecowatch. This file is exported as a *.cdf file to be imported into Excel. This is then translated into our *.xls file. Using the Amphibian, the file is uploaded as a *.csv file which is immediately read into Excel and saved as a *.xls file. Fewer steps, transfers, and conversions means fewer chances for error.

Cons

Complexity.

With any increased level of complexity comes some problems of usability. To some people, the Amphibian may appear complex and difficult to understand. Yet, there is a way to use the Amphibian so that the only program you see and use is the WolfSense data transfer program.

Battery Voltage Reading.

When reading the battery volts on the real-time data screen, the Amphibian only shows the battery volts of the Amphibian itself. You have to use submenus or look at the data file (easy to do) to get the current volts of the sonde itself.

Final Opinion

I believe that the benefits of the Amphibian outweigh any problems or even the additional cost. These would be an ideal purchase to replace the YSI 650s that we have. It would give us several advantages:

- Increased data file storage. The YSI650 can store approximately 10-15 files before it is full. If you are in the field and find that the YSI650 is full you have two options; do not collect your data or delete ALL data files stored on the 650. Neither of these are very promising. The Amphibian file storage is the same as a desktop system. It has countless megabytes of storage and you can delete individual files if needed.
- Multi-usability function. As expressed in previous sections, the ability to use most of the Microsoft programs can be invaluable in meetings and field trips. This will also increase our usage of the Outlook calendar function so that field

and meeting schedules are more readily available.

- Having one assigned to each field personnel (5 total) will not only be less expensive than replacing 2 YSI650s, but it will eliminate any problems of having access to your data (e.g. You use YSI650 #3 on your field day and save your data on it. Before you can upload that data to your computer, someone else takes it into the field).
- The customer service I experienced (via Ric Bertrand of Eureka) was remarkable. He was quick to return calls and e-mails and always worked out the problem. He even had the program re-written at one point, to solve an upload problem we were having, and had it back to me in less than a week! I believe this company is dedicated to their product and their customers and we would benefit from working with them.
- Presentation of data. With the simple USB connection to any computer, these devices can be used for data transfer to meeting sites, conferences, or other field offices. There is almost a limitless amount of expansion available in the way of Flash Memory cards (adding several hundred megabytes per card).

It is my opinion that acquiring these devices would save us time, money, and problems, while updating us in the technological field. This would open the doorway to real-time GPS based ArcView mapping in the field, immediate data analysis, and presentation of data.

Please feel free to contact me with and questions, comments, or concerns.

(Name and Address Removed)