Hydrilla Cultivation and Mechanical Harvesting Strategy (HCMHS)

Proposed Scope of Work

2-year in-situ Demonstration Program

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Table of Contents

1 INTRODUCTORY NARRATIVE

In 1868 the naturalist, explorer and archery enthusiast Maurice Thompson explored the Kissimmee River and Lake Okeechobee in hopes of gaining a better understanding of what he called the "Mysterious Lake". He summarized his trip in chapter 8 of his book "The Witchery of Archery". This summary should be required reading for anyone who is in any way involved with the management of the Kissimmee River; the other tributaries to Lake Okeechobee; Lake Okeechobee itself; and of course, the Everglades.

What Thompson observed was a winding Kissimmee River abundant in life, which expanded in width as it entered Lake Okeechobee. At the mouth of the river aquatic plants such as "stiff reed" (most likely maidencane), Flag (*Thalia sp*.), lily-pads such as *Nuphar sp.,* and water lettuce (*Pistia sp.),* accumulated in extensive almost impenetrable blockades, rafts and tussocks, making it difficult to maneuver their boat into the lake itself. When they finally entered the lake, they found it fringed by abundant cypress, and entangled growths of wetland plants. He observed however much open water, with intermittent grass patches and islands. He found the water quality to be quite good around the shoreline, but less so in the open water because of suspended plant fibers, although the water was apparently clear. His observations about the fishing are particularly germane to the present-day concerns regarding aquatic plant management.

"*We tried fishing in many places (upon the open body of the lake) but found that no game fish seemed to inhabit the open waters. The little creek mouths and estuaries, where the lettuce and lily pads are not so thick, are however surprisingly full of large black bass and beautiful bream."*

In his closing assessment Thompson revealed the most relevant dynamic of Lake Okeechobee:

"The chief trouble encountered in setting its (Lake Okeechobee) limits and the exit and even the entrance places of its waters is the existence of immense floating or easily detached masses of aquatic weeds and grasses that with every great storm are drifted from one part of the lake to another. Today the mouth of a stream may be open, and tomorrow it is choked with one of these great floats. A storm on Okeechobee is simply a rearrangement of the lake whose whole confine oscillates with every wind."

What Thompson describes is the Kissimmee River and Lake Okeechobee as it was historically perhaps over as much as the past 5,000 years, before intervention by modern society, which began in earnest about 1884 with Disston's efforts to drain parts of the Kissimmee prairie. Based upon Thompson's observations let me offer my thoughts, before I get into the details of a proposed mechanical removal program.

1. Extensive aquatic plant growth has been an integral part of Lake Okeechobee's natural history.
2. Sports fish production was best at the fringe of these aquatic plant masses.

3. While expansive almost impenetrable masses of aquatic plant growth were observed within the lake and at the mouth of the Kissimmee River, these were vulnerable to redistribution through storms and fluctuating water levels.
4. Considering there was no herbicide spraying or other societal efforts to manage aquatic plants at the time of Thompson's visit, I find it somewhat surprising that the entire lake was not totally covered with floating mats and tussocks. I attribute this to several factors
    a. At this time the lake level would seasonally fluctuate from somewhere around 20 ft. above MSL to perhaps as low as 10-12 ft. MSL.
    b. This fluctuation allowed many of the large plant masses to be blown into the floodplain during the wet season and become stranded as water levels dropped during the dry season, with their subsequent decomposition into the organic marsh sediments.
    c. As the lake itself drew down, its near shore sediments also became exposed, allowing the oxidation of organic accumulations, resulting in a more inorganic lake bottom favorable to fish production and sustainable dissolved oxygen levels, while slowing the lake successional processes.
    d. The phosphorus levels were much lower in 1868 than what we see today. Based upon H.T. Odum's work in 1953, the total phosphorus concentration within Lake Okeechobee was around 7-31 $\mu g\ L^{-1}$, as compared to over 100 $\mu g\ L^{-1}$ today. The low phosphorus levels meant the specific growth rates of the various aquatic plants were comparatively low. Considering growth rate impacts are exponential, this factor must be considered most relevant.
    e. Grazing pressure was probably much greater when Thompson visited the lake, considering his reporting the abundance of gallinules, ducks, herbivorous turtles and other herbivorous animals. Abandoned and near shore plants could also be grazed by more terrestrial species, including deer, marsh rabbits, land tortoises, turkeys, and a variety of birds etc.
    f. Naturally occurring fires, and to a lesser degree, periodic frosts, likely served to manage aquatic plants abandoned within the floodplain and along the lake littoral zones.
5. Neither water hyacinth nor Hydrilla had yet been introduced to Florida. There is some thought that water lettuce was an exotic even at that time, having been unintentionally released from European ships. Water lettuce however has never been as problematic as either hyacinth or Hydrilla. The introduction of water hyacinth near the end of the nineteenth century was followed soon thereafter by the expansion of agriculture in South Florida, creating a "perfect storm" which supported an explosion of water hyacinth. This explosion was also aided by more elaborate water management efforts which typically reduced the amplitude of lake level fluctuations which had proven to be so important to aquatic plant and lake water quality management.

2 PREFACE

While the issues listed in the Introductory Narrative may be obvious to those involved with management of Florida's lakes, they are worth restating as a reminder of the stresses that have been placed upon many of these resources over the past 100 years. The most obvious of these are reduction of floodplains through diking and canalization; the excessive influx of phosphorus associated with agricultural and urban development; and the introduction of unchallenged nuisance exotic species, such as Hydrilla and water hyacinth.

From an ecological perspective, these stresses have accelerated the rate of successional processes, driving the lacustrine ecology more quickly towards marsh and eventually to hydric and mesic forests. This successional process was effectively disclosed by Lindeman in 1942 in his classic paper The Trophic-Dynamic Aspect of Ecology[1], in which lakes are presented as a temporally limited stage in succession towards a mature, or climax terrestrial or quasi-terrestrial ecosystem. The temporal limits of lakes then are determined by the rate of accumulation of net production, and hence by the difference between the rate at which atmospheric carbon is converted to organic carbon (primary production) and the rate of conversion of this organic carbon through consumption and respiration back to atmospheric carbon. The greater this difference, the shorter the temporal limits. Seen from this perspective then, the life of what we would consider a functional lake is a matter of how fast atmospheric carbon is pumped into net stores of organic carbon which inevitably accumulates in the sediments as what is commonly known as "muck". The disruptions society has imposed upon these lakes have accelerated this rate of accumulation and have made it necessary to try to attenuate the impact of this acceleration by reducing the standing crop of aquatic plants.

There are of four primary ways by which these standing crops and these accumulations can be reduced:

1. Decrease growth rates by reducing the availability of the controlling nutrient, e.g. phosphorus. This will allow the system to return to a closer balance between primary production and consumption/respiration.
2. Facilitate a wider range of lake stage fluctuations to allow oxidation of organic accumulations either through exposure to the atmosphere or through fire. It has been argued that this may also assist in the sequestration of available phosphorus.
3. Intermittently destroy the standing crops through applications of toxins, e.g. synthesized organic herbicides and certain copper compounds.
4. The periodic removal of significant percentages of either the standing crop through increased grazing, disease, mechanical harvesting, or physical dredging of accumulated organic sediments.

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[1] Ecology, Vol. 23, No. 4. (Oct., 1942), pp. 399-417.

Presently there are programs such as the Total Maximum Daily Load (TMDL) program which target the reduction of nutrients such as phosphorus. These programs have typically been considered the responsibility of the EPA and the Florida Department of Environmental Protection (FDEP) in partnership with the Water Management Districts and local entities. Consequently, nutrient management apparently has not been a priority of the Florida Fish and Wildlife Commission (FWC). Instead their emphasis has been in the control of excessive aquatic plant growth, and this has been accomplished largely through the application of herbicides, and to a somewhat lesser extent through biological controls, drawdown, controlled burning, and physical removal (mechanical harvesting).

Drawdown and controlled burning is helpful in that it reduces organic carbon accumulations, and may sequester phosphorus, or even facilitate conversion of nitrogenous compounds to atmospheric nitrogen. These are tools FWC uses effectively on occasion, although both can be disruptive to local populations, and can meet public resistance.

In terms of efficiency of capital, labor and other operational costs over a relatively short term, herbicides have proven to be most effective in managing invasive growths of aquatic plants within Florida’s lakes, rivers, streams and canals. Herbicide use however fails to address the concerns related to excessive nutrients or organic carbon accumulation from vegetation killed by the herbicides, and consequently does little to reduce the rate of succession. Therefore, herbicide use does not contribute significantly to recovery of the ecological balance between primary production and respiration. This means a shorter period in which the lake provides the benefits we often associate with lacustrine systems in what Lindeman called “eutrophic stage equilibrium”.

In addition to these concerns, herbicides are designed toxins whose impacts upon the complex biological networks, including influence on human health, may not be totally understood and may have long-term deleterious impact. This may also apply to the various surfactants and adjuvants attendant with herbicide application. It also needs to be recognized that the dying of large expanses of vascular aquatic plants may encourage blooms of problematic phytoplankton, such as the Cyanobacteria associated with Harmful Algal Blooms (HAB), by eliminating shading; by rendering nutrients associated with the aquatic plant tissue readily available to phytoplankton; and by eliminating any allelopathic interferences which might be associated with the aquatic plants.

Herbicides then are an effective tool for controlling growths of invasive aquatic plants, and thereby providing improved access to the water resources, while controlling the negative water quality and habitat impacts associated with situations of extensive overgrowth of plants such as water hyacinth and Hydrilla. Herbicide use however provides no nutrient removal benefits and may accelerate the accumulation of organic carbon within the sediments. Conversely, physical removal of aquatic plants has the potential to reduce nutrients and to slow down the rate of organic carbon accumulation, while preserving the habitat benefits associated with managed growth, and avoiding the issues of toxicity. However, logistically, physical removal programs have been challenging, both in terms of costs and in time requirements. In addition, physical removal has the potential to be ecologically disruptive, at least temporarily, through creation of turbidity related to physical disturbance, and perhaps by the incidental removal of certain native plants and beneficial animals.

Logistical issues, such as the time and costs of transport of harvested materials, have resulted in some understandable skepticism regarding the usefulness of this technology to effectively manage invasive aquatic plant growth. It has often been suggested that mechanical removal cannot work fast enough to keep up with plant production, at least not without substantial escalation of costs required for additional equipment and crews.

However, there have been improvements in the technology, and now there is also an opportunity to gain additional economic advantage through compensation for environmental services associated with actual removal of nutrients and fixed organic carbon. This removal also contributes to temporally extending the ecological viability of lake systems.

These factors considered it seems prudent to reevaluate the potential of a sustained, long term physical harvesting, processing and removal program as a more involved component of FWS's comprehensive program for aquatic plant management and habitat protection—including water quality enhancement through nutrient reduction and attenuation of organic sediment accretion. This widened perspective of the benefits of mechanical harvesting is also congruent with the objectives of the recently created Blue-Green Algae Task Force, as well as offering a mechanism for reduction of Legacy Phosphorus, a specific concern expressed by the Blue-Green Algae Task Force in their recent Consensus Report

"Legacy nutrients, as indicated previously, are a concern in the South Florida landscape and the task force recommends that their contribution to loading figure prominently in the Lake Okeechobee, Caloosahatchee and St. Lucie River and Estuary BMAPs. The task force further recommends that projects with the demonstrated potential to expedite legacy nutrient removal merit special attention and be designated as priority projects."

Contemplated within the following proposed Scope of Work is an initial demonstration project for physical harvesting, processing and removal of Hydrilla from a selected water body, attendant with a parallel investigation into methods for incorporating environmental service value into any overall economic evaluation and environmental review. Physical harvesting, processing and removal of invasive plants such as Hydrilla may be considered a form of Managed Aquatic Plant Systems (MAPS) which is conducted within the actual water resource. This approach to *in-situ* plant and nutrient management as proposed herein involves both cultivation and harvesting of Hydrilla, or a Hydrilla Cultivation and Mechanical Harvesting Strategy (**HCMHS**). This acronym will be used throughout the remainder of this text.

3 PROPOSED HCMHS DEMONSTRATION AND DEVELOPMENT SCOPE OF WORK

3.1 INTENT

3.1.1 Goals

It is proposed that a two-year demonstration program be developed and implemented as two sequential, one-year stages (Stage 1 and Stage 2) that will provide critical information needed to objectively determine the feasibility and effectiveness of a Hydrilla Cultivation and Mechanical Harvesting Strategy (**HCMHS**) within the Kissimmee-Okeechobee-Everglades (KOE) Basin. The goal would be to eventually establish **HCHMS** as an effective tool for providing both management of Hydrilla and removal and eventual recovery of the harvest and its associated nutrients. To this end, it will be necessary that the managers and administrators of the Florida Fish and Wildlife Conservation Commission (FWC); the South Florida Water Management District (SFWMD); the Florida Department of Environmental Protection (FDEP); the Florida Department of Agriculture and Consumer Services (FDACS); and the Blue-Green Algae Task Force (BGATF) recognize and embrace the synergy resultant of combining their varied interests—invasive plant management; nutrient removal; control of Cyanobacteria; and development of new agricultural crop with potential creation of an innovative agri-industry. The harvesting would be done such that Hydrilla would be sustained within a log phase of production at a targeted standing crop range which prevents the Hydrilla from reaching the water surface—or “topping-out”. This would not be dissimilar to how turf grass is maintained. Ultimately efficient handling and processing of the harvest could provide opportunities for extensive removal of legacy phosphorus and introduction of new approaches to agriculture. Regarding legacy phosphorus removal, it has been estimated that as much as 500 tons per year of phosphorus could be removed through a 12,000 acre **HCMHS** program[2]. This represents a significant removal of the legacy load within the KOE.

3.1.2 Project Management

The SFWMD would serve as the overall project manager for the **HCMHS** demonstration project, with close coordination with FDEP, FWS, FDACS, and BGATF though the establishment of a Technical Review and Advisory Group (TRAG). The project effort requires two separate contracts—one for the actual mechanical harvesting and one for monitoring, documentation and evaluation. The latter, i.e. the monitoring, would be through

[2] Stewart E.A, October 2019, Conceptual Plant Twenty-year Hydrilla Management on West Lake Tohopekaliga Hydrilla Cultivation and Mechanical Harvesting Strategy (HCMHS) October 2019, unpublished report PASOP.org. E

agreement with the University of Florida Institute of Food and Agricultural Sciences, Center of Aquatic and Invasive Plants (CAIP) with either SFWMD or FWC. For the harvesting work, a harvesting contractor (Contractor) would be selected through the bidding process for groups pre-qualified as having the necessary experience and financial strength to conduct the required work.

3.1.3 Technical Review and Advisory Group (TRAG)

The SFWMD Executive Director or an approved representative shall assume the project management role and shall assign a Technical Project Manager (TPM), who in turn shall select members of a Technical Review and Advisory Group (TRAG). As a minimum, there will be at least 9 members on the TRAG, including the TPM, selected as follows:

1. One person from the FWC Invasive Plant Management Section.
2. One person from the technical staff of the FDEP
3. One person from the technical staff of FDACS
4. One person representing the Blue-Green Algae Task Force.
5. One person from the technical staff of the U.S. Army Corps of Engineers, Jacksonville District
6. One at-large citizen to represent boating, fishing, hunting and other recreational interests
7. The Project Manager for CAIP
8. The field manager for the harvesting contractor, once the firm has been selected and contracts executed.

To ensure there is no conflict of interest, no person on the TRAG, with the exception of the CAIP Project Manager and the Contractor, will be allowed to bid on any project resulting from this Scope of Work, or be employed either directly or through subcontract to any Contractor so bidding, including any awarded Contractor, or suppliers or subcontractors to this Contractor. Members of the TRAG, except for the CAIP and the Contractor, will receive no specific compensation for involvement with the TRAG other than travel and incidental expenses as approved by the TPM. Meetings will be held once monthly until bid documents for the mechanical harvesting have been prepared and approved by the TPM, the Executive Director and the involved agencies. During contract execution periodic Project Progress meetings shall be held with the CAIP, TPM and the Contractor at a frequency as determined by the TPM, but not less than once monthly.

3.1.4 Monitoring and Documentation

The CAIP shall prepare and present a Reporting and Monitoring Proposal for the TPM, which shall be reviewed by the TRAG. Included shall be assessment and quantification of critical parameters to include, but not necessarily limited to:

1. Time management and rate of harvesting and crop transport and processing including labor, material and fuel demands.
2. Harvest Quantity and Quality (specifically moisture content and nutrient levels)
3. *In-situ* Water Quality to include diurnal variations in air and water Temperature, pH, turbidity, conductivity, and dissolved oxygen
4. Water quality sampling and documentation for nutrients and other parameters such as cations, organic toxins, chlorophyll-a, qualitative phytoplankton analyses etc.
5. Documentation of weather conditions including temperature, rainfall, wind speed and direction, and cloud cover.
6. During Stage 1, the time management of harvest unloading and transport.
7. Ecological monitoring, particularly regarding the recovery and specific growth rate of the Hydrilla crop, as well as changes in the aquatic ecology, such as species distribution and diversity.
8. During Stage 2, testing efforts to determine the efficacy of harvest processing approaches such as composting, chopping, pressing, and pumping will be developed and the results evaluated to the extent necessary.

The CAIP shall also prepare a Quality Assurance Plan to include identification of methodologies, sample collection protocols, calibrations, split and duplicate samples and other quality control procedures. The CAIP will submit an Interim Assessment Report after six months of Stage 1, and a Stage 1 Final Assessment Report after the first year. During Stage 2, a six-month Interim Report will be completed, with an overall Project Final Report at the end of the second year, to include an economic assessment and recommendation to the TRAG regarding full scale implementation.

3.1.5 Bidding and Contract Documents

Unless decided otherwise, SFWMD or FWC will contract directly through existing protocols or agreements with CAIP for the monitoring, reporting and documentation of the project.

Selection of a Contractor will be through the SFWMD normal bidding protocols. Pre-qualification of interested contractors shall be conducted prior to releasing the bid documents. The SFWMD shall request submittal of qualifications through public notification. Bids will be received only for

Stage 1, with Stage 2 fees to be negotiated through change order during the final two months of Stage 1.

The bidding period would typically be thirty days with a mandatory pre-bid conference to be held at 15 days into the bidding period. Contract documents will include general and special conditions, as well as technical specifications to include Mobilization and Demobilization; Schedule of work; measurement and payment; processing of partial payment requests; change orders and change in contract time; permit procurement responsibilities; insurance requirements and certificates of insurance; conflict resolution; communications protocols; photographic recording; intellectual property provisions; Force Majeure; safety and environmental protection needs; retainage; equipment and material storage and receiving; liquidated damages; progress reporting requirements; key personnel; rejection of work; interim and final inspections and acceptance of work; and the assigned responsibilities of the Contractor, the SFWMD and the CAIP. Bonding requirements will be as typically required by the SFWMD. The SFWMD shall receive bids, and reserves the right to reject all bids, with or without cause. It is anticipated that the contract will be based upon a Unit Price/Not-To-Exceed, with the unit pricing being for 1) Harvesting Operation and 2) for transport and unloading operation. A lump sum component will be included for coordination with the TPM, CAIP and TRAG. Contracts will be negotiated by the TPM through the TRAG. Final approval shall be by the SFWMD Board of Directors.

3.2 STAGE 1

3.2.1 Scope and Initiation

Stage 1 will be initiated upon receipt of a written Notice to Proceed by the Contractor and CAIP, as issued by the TPM. Work by CAIP during Stage 1 will include in-field designation of the fifty acre test site; observation of the harvesting efforts; acceptance of equipment, including controls sufficient to ensure harvesting is done within the designated transects; and daily monitoring, sample collection, photographic record, data recording and compilation and preparing the Interim and Final reports. CAIP will monitoring the in-situ pre and post-harvest of the Hydrilla standing crop using Hydrographic techniques or other methods as deemed appropriate, and will coordinate with the Contractor and the TPM to determine harvesting frequency based upon crop recovery time. Weighing the harvest will be through procedures established by CAIP, along with sampling protocols for determining moisture content and nutrient content of the harvest in conformance with the Quality Assurance Plan. CAIP shall also provide the expertise in Limnology and Aquatic Biology to monitor and assess ecological changes and standing crop during the Stage 1 period, and for estimating the Hydrilla specific growth rate. In addition CAIP shall coordinate with the Contractor and TRAG in establishing the strategy for Stage 2 and for negotiating fees for Stage 2.

The Contractor shall be responsible for providing personnel needed for harvesting, equipment maintenance and refueling, harvest transport and unloading, and maintaining safety, health and environmental protection. The Contractor will maintain records of labor hours, materials and fuels, and downtimes related to weather, equipment failure etc. The Contractor shall work with the CAIP and TRAG to set operational strategies for Stage 2, and in the selection of infrastructure and equipment needed to conduct Stage 2 work, and for negotiating fees for Stage 2. During Stage 1, the Contractor shall load the wet harvest onto transport barges and provide equipment for unloading the harvest at a designated site, such as one of the nearby islands as with previous work. The Contractor shall maintain a daily activity log which shall be shared at the Monthly TRAG meetings.

3.2.1 Preparation for Stage 2

Work associated with Stage 1 should result in sufficient data to allow an objective assessment of the effectiveness of harvesting for managing Hydrilla and removing legacy nutrients, as well as determining the ecological/water quality impact of the harvesting activity. It will not involve assessment of logistics associated with transport; pre-processing or final processing of the harvest; or comparison of potential end products. However, during the final six months of Stage 1, CAIP and the Contractor shall begin investigations into equipment, infrastructure and strategies which might serve in efficient crop transport; initial processing; and final processing through composting. By the tenth month of Stage 1, the Contractor and CAIP shall develop and present to the TRAG a conceptual process train which shall include efforts to intercept the harvest from the harvester and 1) reduce the volume 2) reduce moisture content 3) reduce transport time and costs, and 4) generate a viable compost product. Upon approval of the conceptual process train by the TRAG the Contractor and CAIP shall prepare a cost proposal for the Stage 2 effort, which could be negotiated as a change order to Stage 1. Components associated with Stage 2 may include, but are not limited to on-water chopping; pressing with collection and analysis of the fiber mat and the resultant pressate; transport to a shore-based composting facility, or alternatively composting on a platform barge on the water. Other products beside compost, such as fiber products and livestock feed will be investigated through literature review and visits to existing related production facilities in terms of their value and the efforts required for their production, but will not be field implemented during Stage 2.

3.2.3 Monthly Status and Interim Reporting

The Contractor and CAIP shall report monthly to the TRAG and provide an objective assessment of project progress and status and suggest adjustments as deemed necessary.

An Interim Report at month 6 and a Stage 1 Final Assessment Report at month 12 shall include a summary of findings based upon collected data and field observations. Information included in the reports shall relate to harvesting efficiency, Hydrilla standing crop and Aquatic Ecology response to harvesting, and the rate of nutrients harvested. The 12 month report shall also include recommendation for continuing to Stage 2, and if such is recommended, the proposed Stage 2 process train and suggested additional monitoring requirements for Stage 2, and the Stage 2 cost proposals for both the Contractor and the CAIP.

3.3 STAGE 2

3.3.1 Project Scope and Initiation

For a period of no more than five months after completion of the first year, Stage 1 efforts shall continue, with some reduction in monitoring requirements as recommended by CAIP and approved by the TRAG. Also by the end of this first year the Stage 2 contract shall be executed, and written Notice to Proceed from the TPM shall be received by the Contractor and CAIP. During the first three months of Stage 2, the Contractor shall continue testing and fabricating the selected train for processing the harvest, which shall be field installed by the end of month four. Also the selection of a shore based processing and unloading facility shall be completed by month five. Active operation of Stage 2 shall begin no later than month 6 of Stage 2.

The Stage 2 operation shall be monitored for logistical efficiency, equipment effectiveness, energy and labor demands, and assessment of volume and weight reductions, as well as assessment of nutrient removal. CAIP shall work with the Contractor to improve system efficiency and make adjustments as needed to improve overall effectiveness. For composting, a design mix will be developed, which may or may not include addition of bulking agents. Composting may either be by simple windrows, or may involve forced air.

3.3.2 Project Close-out

At the end of Stage 2, CAIP and the TPM shall conduct a final inspection of the operation, and provide notification to commence with project close-out, unless it is determined to continue the work through changes in project time and cost. Upon receipt of this notice, the Contractor shall break-down the facilities, to include removal of all equipment and infrastructure, and restoration of any environmental disruptions or navigational impediments. Upon inspection of the demobilization, the CAIP shall so notify the TPM and deliver a final request for payment, including release of any retainage.

3.4 FINAL REPORT

The CAIP in coordination with the Contractor shall prepare a Draft Final Report for the TRAG, to include assessment of the viability of **HCMHS;** recommendations regarding future implementation of the **HCHMS;** assessment of nutrient removal rates and suggested ranges for **Pay-For-Performance** fees on a cost per pound of phosphorus removed; assessment of influence on habitat viability and the health of the fishery; identification of societal impact; a value assessment of compost produced during Stage 2, to include a cursory review of available markets; a general review of other products which might be generated from the harvest, and recommendation for future investigation into their production from the Hydrilla harvest.

The TAG will review and provide comment on the Draft Final Report, and shall modify the report accordingly. Once the Final Report is accepted by the TRAG and the SFWMD Executive Director, it shall be presented to the SFWMD Governing Board for final approval and for distribution to the other involved agencies.