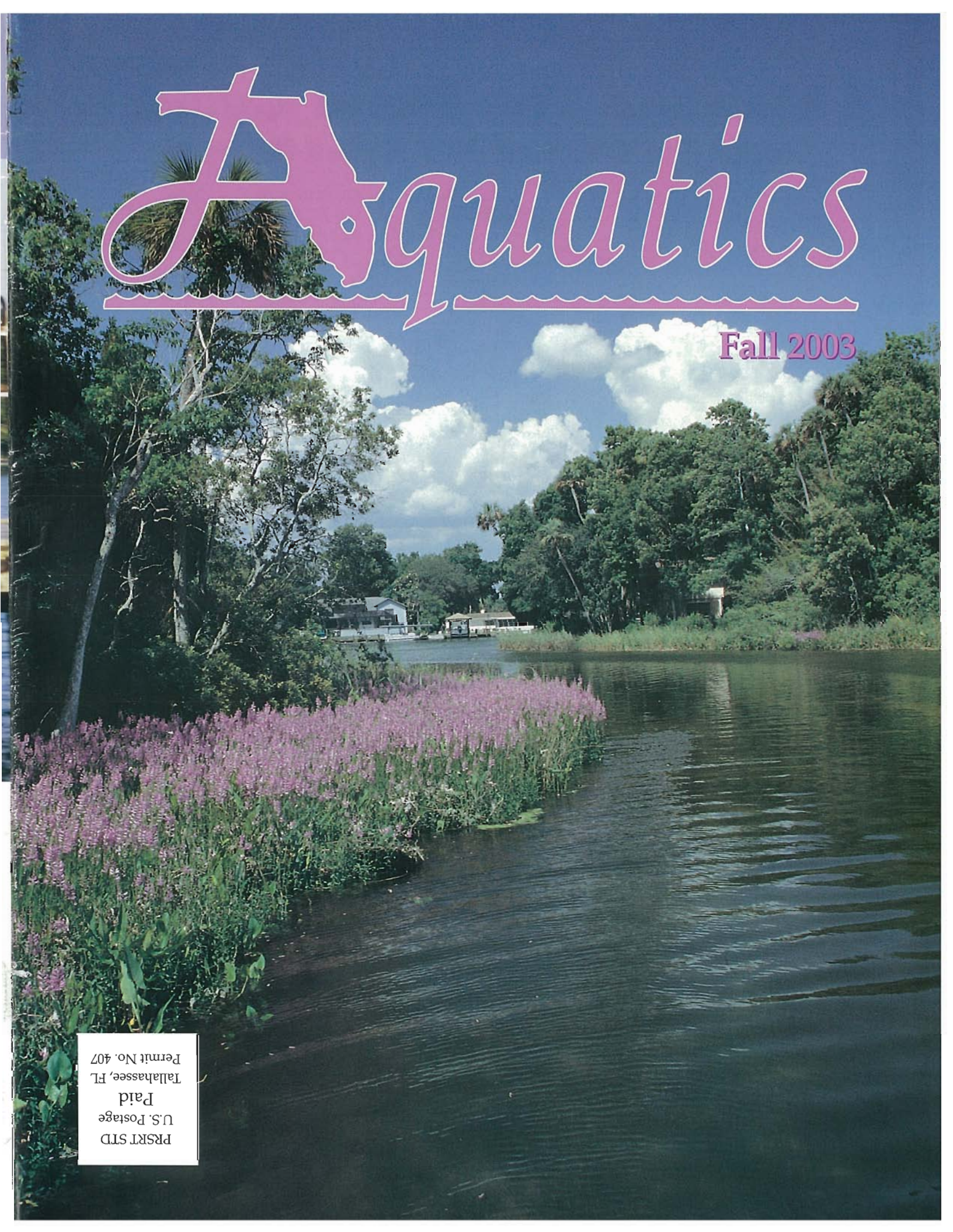


# Aquatics

Fall 2003

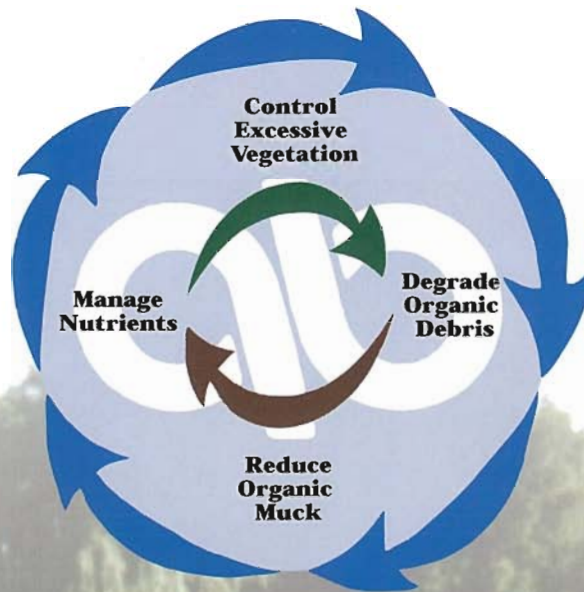


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# A Tribute To Clayton "Flip" Phillipy

By Lowell Trent

The names "Flip" and "Flipper" most certainly belie the genius of this gifted man: anyone who could survive, smile, and maintain a sense of humor while working for the Fisheries Division of GFC during the grass carp war years certainly had something very few people possess. This is even more amazing when one realizes that the friendship and respect of most if not all of the "combatants" were maintained throughout the fray!

I only know of one of his employees cussing him out (not to his face). When I mentioned this to a friend, he commented, "Why, that's worse than kicking Santa Clause." No matter the circumstance, Flip always maintained a positive outlook and a great sense of humor. From the first time we met at the Tallahassee airport in 1972 until the last visit about two weeks before my retirement party. His reply to my invitation was: "Trent, I am sorry I can't make it to your party. My (oxygen) cord just won't reach to Eustis." A day or two after the party I received the news of his passing. If being a good person gets one to heaven, certainly Flip would be one of the very few to make it.

Flip came to Florida after a short career as a fisheries biologist for Illinois Fish and Wildlife. He told me he initiated a lake draw down at the beginning of a 7-10 year drought.

*Continued on page 21*

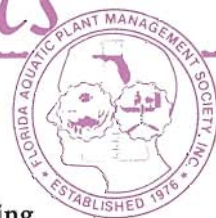
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*This beautiful native plant was found flowering in Crystal River. It is called False Dragon-Head, Physostegia leptophylla. Photo by Jim Kelley*

# Aquatics

Fall 2003/Vol. 25, No. 3



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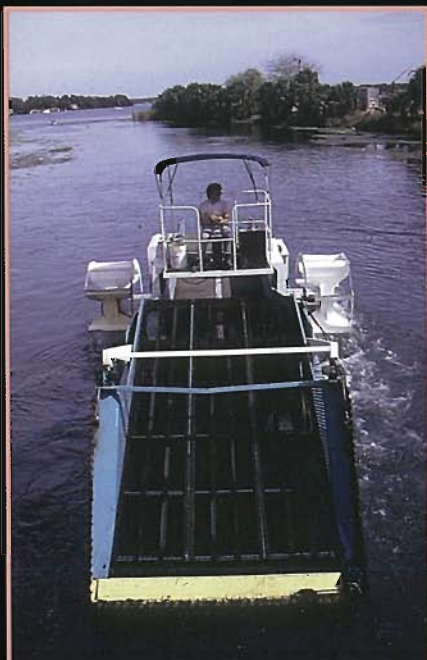
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# Water Quality and Mechanical Harvesting



*Figures 1 and 2. The Aquamarine H-650 Harvester operating on Orange Lake, Florida. Photos by Jeff Schardt*

by William T. Haller  
Center for Aquatic &  
Invasive Plants  
University of Florida

Recently, while observing a mechanical harvester removing hydrilla from a central Florida lake, a colleague asked about the effects of such equipment on water quality. Florida lakes are typically shallow, and harvesting equipment need to come into shallow water in order to unload, so it's no surprise that bottom sediments are disturbed and turbid conditions are created under normal operations.

In 1977, I had collected some water quality data during a mechanical harvesting project on Orange Lake. The U.S. Army Corps of Engineers had undertaken an operational program to remove hydrilla from trails and user areas in this shallow 10,000 acre lake,

which was low and 80-90% infested with hydrilla (McGehee, J.T. 1979, J. Aquat. Plant Manage. 17:58-60).

The equipment being used consisted of a harvester (Aquamarine H-650 Figures 1 and 2), transporter, shore conveyor and dump truck. The harvester and transporter were powered by side mounted paddle wheels and when loaded drafted possibly 20-24 inches. Duplicate water samples were collected of the leachate from a recently loaded truck, from the landing/unloading area about 5 minutes after the transporter left the site, immediately (30-50 ft) behind the harvester operating in about 7 feet of water, the same harvesting site 3 days later, the center of the lake, a mile from any harvesting activities and a backwater marsh area at the far southwest corner of the lake.



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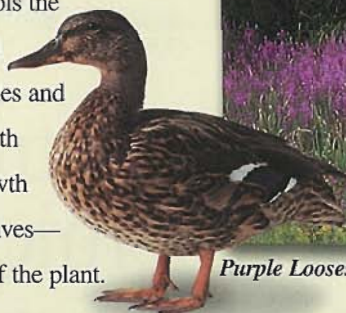
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*Renovate was developed to control submersed, emersed and floating aquatic plants such as:*



*Eurasian Watermilfoil*



*Alligator Weed*



*Purple Loosestrife*



*Water Hyacinth*



*Untreated*



*1 week after treatment*



*4 weeks after treatment*

*Eurasian Watermilfoil treated with Renovate (1 ppm), shows the eventual collapse of the plant structure below the surface of the water.*

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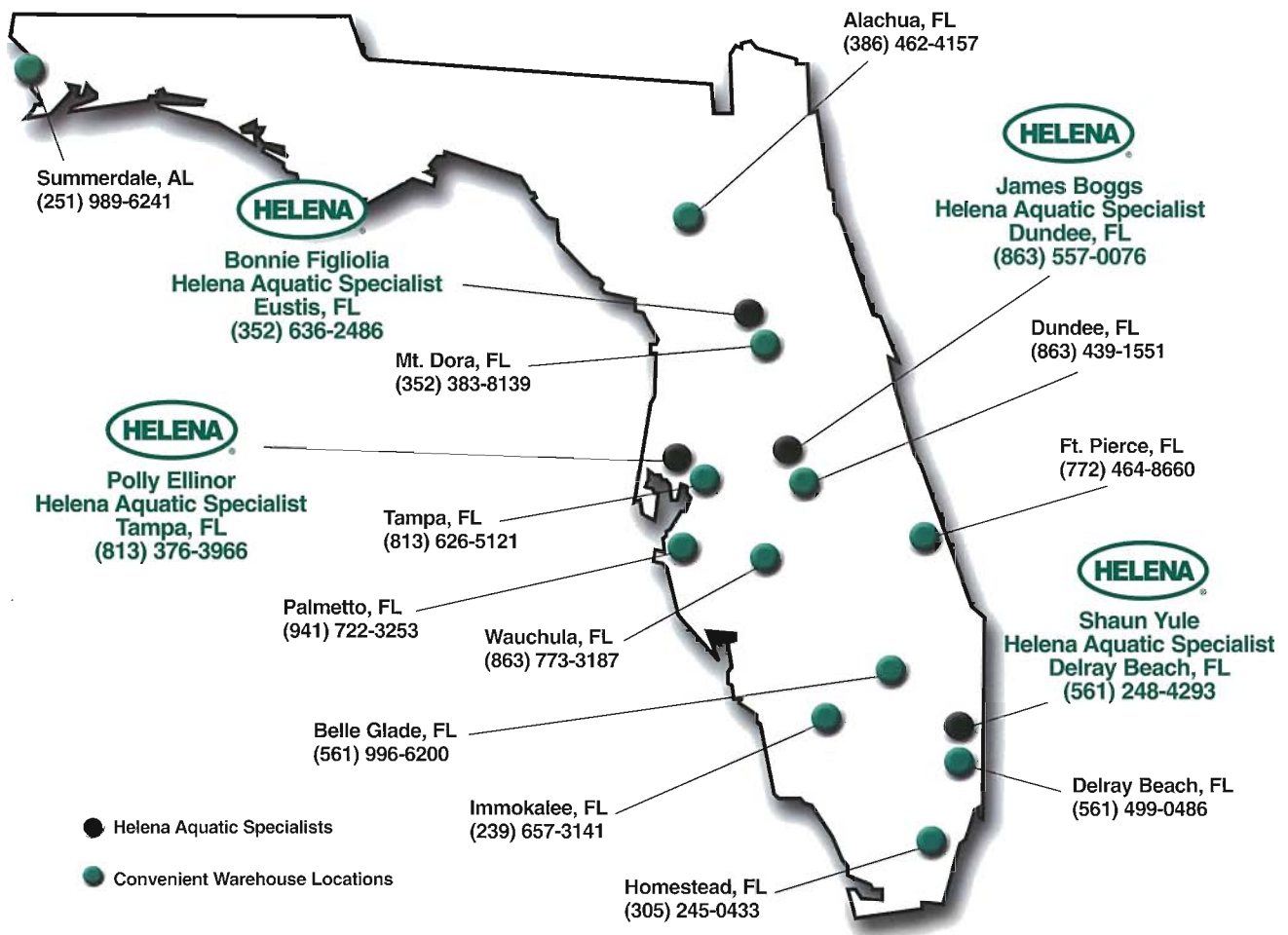
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**Table 1. Water quality parameters in an operations area of a mechanical harvesting (Aqua-Trio) project on Orange Lake, FL<sup>1</sup>.**

Site	pH	HCO <sub>3</sub>	CO <sub>2</sub>	Cl	NO <sub>3</sub>	K	PO <sub>4</sub>	TPO <sub>4</sub>	Turbidity	Cond.
Truck	5.5	33	79	69	0.16	13.7	0.96	1.31	24	363
Off-loading area	6.6	31	19	13	0.90	0.2	0.06	0.13	12	80
Behind harvester	6.8	24	8	12	0.29	0.0	0.01	0.08	23	73
3-day post harvest	7.3	28	4	12	0.14	0.0	0.01	0.07	3	81
Mid-Lake	8.4	25	0	12	0.12	0.0	0.01	0.06	2	83
Back-water area	6.8	25	8	11	0.07	0.0	0.01	0.07	1	80

<sup>1</sup> Each value is the mean of duplicate samples take from hydrilla drainage from the dump truck, an active offloading site, behind the mechanical harvester operating in a hydrilla mat, same area 3-days later, mid-lake and in a backwater wetland site.

Water quality parameters were determined by standard methods and the average values of the duplicate samples are presented in Table 1. All values are in mg/l, except for pH, turbidity (NTU) and conductivity (µmhos/cm<sup>2</sup>).

Due to the lack of additional replication, statistical analysis of these data is not possible. However, it is obvious that the drainage water from the hydrilla loaded truck contained plant cell contents (high nutrient and conductivity values) that were leaking from crushed and cut stems and cells of hydrilla. Nutrient values were higher in the off-loading site than were noted immediately behind the harvester. This near shore unloading site was only 24-36" deep and utilized throughout the day. Water quality parameters measured 3 days after harvesting were similar to the mid-lake values, so any elevated values occurring behind the harvester were only temporary. The water from the backwater area was essentially collected from an isolated marsh in the southwest corner of the lake and would be totally undisturbed. The pH was somewhat lower in the backwater area due to the presence of organic acids (tannins, lignins) in

this area. The leachate from the truck contained by far the highest nutrient levels, followed by the water in the loading and off loading area. The harvester caused increased turbidity values behind the harvester, but these returned to mid-lake values after 3 days suggesting that harvesting operations have only minor, and temporary impacts on water quality.

These results are similar to those reported by Carpenter and Gasith (1978. *Water Res.* 12:55-57) from Lake Wingra, Wisconsin. They measured water quality behind a mechanical harvester and also noted only minor, and temporary changes in water quality. Water depth and substrate type no doubt influence turbidity levels, and Orange Lake is shallow and has a very highly flocculent organic bottom. Alam et al. (1996. *Lake Reservoir Manage.* 12(4): 455-461) also reported localized and temporary degradation of water quality during a tussock removal project in Lake Istokpoga, FL.

It is obvious that operational mechanical harvesting programs do result in water quality changes in lakes, but they are relatively small, localized and temporary.

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Figure 1. Duck Lettuce in Thompson's Bayou, Florida. Photo by Jess Van Dyke

## Duck Lettuce, *Ottelia alismoides*, found in Florida!

by Rob Kipker and  
Jess Van Dyke

### Introduction

Florida Department of Environmental Protection (DEP) Biologist Jess Van Dyke found an infestation of "Duck Lettuce" *Ottelia alismoides* while surveying Thompson's Bayou near Pensacola, Florida (Figure 1). This plant is a Federal Noxious Weed listed by the USDA. It is not currently regulated by the Florida Department of Agriculture and Consumer Services or DEP, although pursuant to chapter 62C-52 F.A.C. it is illegal to plant non-native plants into waters of the state or waters connected to waters of the state. *Ottelia alismoides* has not been previously documented in Florida before.

### The Survey

Jess met with Gary Pettway of

the USDA and closely inspected Thompson's Bayou and the surrounding environs for Duck-lettuce. Thompson's Bayou, a small, slow flowing tributary of the Escambia River, enters from the west approximately 2 miles north of the mouth of the Escambia. Proceeding upriver as far as was practical, they conducted a systematic survey of the submersed flora using a weed rake. Their survey also included the Escambia River, upriver and downriver of Thompson's Bayou. *Ottelia* was only observed in the bayou. They found numerous floating rosettes, each approximately 5 feet in diameter, and numerous fruit capsules (Figure 2) especially at the mouth of Thompson's Bayou. The total aerial coverage was estimated at approximately 1.0 acre, but it is patchy and widely distributed. The majority of the *Ottelia* was submersed below at least 2 feet of rather turbid water. The floating rosettes were the exception.

### Distribution and Management

Duck lettuce is known to infest areas of California, Idaho, Louisiana and Texas. It is currently available through the decorative pond plant trade. "The species was first collected in the southeastern U.S. in 1939. Although it is a weed in rice fields, it seems not to spread very rapidly" (Haynes, APHIS-PPQ).

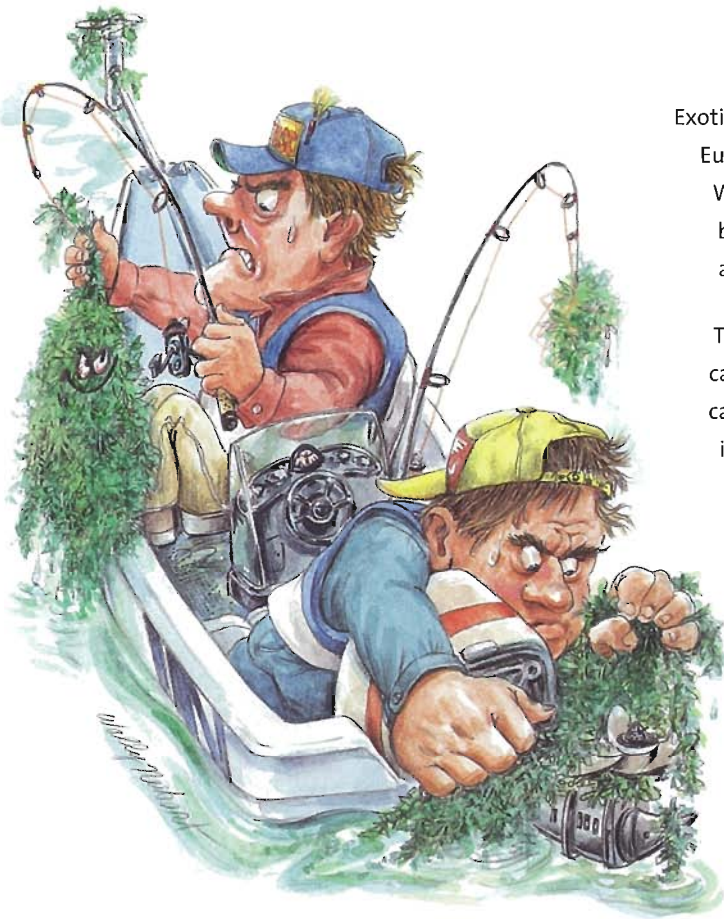
Thompson's Bayou is a nature preserve that is part of the University of West Florida campus. There are diverse native plant species in the bayou, including *Echinodorus cordifolia*, *Orontium aquaticum*, and *Potamogeton pulcher*. *Ottelia* is established in some embayments that are difficult to reach by canoe or airboat. Salinity increases rapidly a few miles downstream from Thompson's Bayou and will likely contain this plant to the bayou. Management options for this infestation are currently being discussed.



Figures 2 and 3. Flowers, leaves, and stems, with immature fruit capsules, of *Ottelia alismoides*.



# Too Many Weeds Spoil the Fishing



Exotic invasive aquatic plants such as Hydrilla, Eurasian Watermilfoil, Curlyleaf Pondweed, Water Chestnut and Water Hyacinth can be detrimental to a healthy fishery in lakes across the country.

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# Plants For Lakefront Revegetation



*Examples of shorelines planted with native aquatic plants.*

**by John A. Rodgers**  
Florida Department of  
Environmental Protection  
Bureau of Invasive Plant  
Management

The Department of Environmental Protection's Bureau of Invasive Plant Management offers a new website publication, "Plants for Lakefront Revegetation." The 42-page site can be downloaded and includes color photographs of 20 species of native aquatic plants. The guide lists detailed explanations of each plant including: size,

flower type and season, habitat, distribution, common uses, soil and light requirements, pest problems, growth rates, and cost, among other information. (See examples on following pages.)

Replanting native vegetation along the shorelines of Florida's lakes and rivers provide numerous environmental benefits, such as:

- ◆ Refuge and nesting site for small fish and birds,
- ◆ Buffer zones to reduce bank erosion from waves and boat wakes,
- ◆ Food source for waterfowl,

manatees and other aquatic animals,

- ◆ Living surface for small insects and other invertebrates important to fisheries,
- ◆ Plant competition for encroaching invasive exotic plants, and
- ◆ Natural water purification systems.

Some of the species listed that can be used statewide, and some of their uses include:

**Hibiscus** – shelter for small birds; butterfly attractor



**SPIKERUSH**

*Eleocharis cellulosa & interstincta*

**DESCRIPTION**

**Average Height:** 2 ½ ft  
**Leaf Type:** Leaves inconspicuous; stems green, round, tubular  
**Leaf Size:** Blades are absent, stems elongated  
**Flower Type:** Small short spike with scales, not showy  
**Flower Color:** Yellow-brown  
**Flowering Season:** Spring to fall  
**Habitat:** Marshes, lakes  
**Wildlife Value:** Habitat for fish and other aquatic animals; ducks and mammals feed on seed head  
**Distribution:** Statewide  
**Overwinter:** Yellowing of stems  
**Common Uses:** Adds diversity to shoreline plants and attracts wildlife

**PLANTING REQUIREMENTS**

**Soil:** Sand to muck  
**Light:** Medium to high  
**Salinity:** Low to medium (brackish)  
**Propagation:** Seeds and rhizomes  
**Pest Problems:** None; not a preferred grass carp plant  
**Growth Rate:** Medium  
**Water Depth:** 6 to 12" of water  
**Density:** 2 ft apart  
**Planting:** Prefers shallow water areas, clumps soon send out rhizomes



**Survivability:** High

**Cost:** Retail \$ 2.50 1 gal  
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**HIBISCUS**

- Hibiscus coccineus* (red)
- Hibiscus laevis* (white to pink)
- Hibiscus moscheutos* (white to cream)
- Hibiscus grandiflorus* (light-pink)

**DESCRIPTION**

**Average Height:** 5 to 6 ft  
**Leaf Type:** Ovate, some strongly lobed  
**Leaf Size:** 4 to 6"  
**Flower Type:** Single flower per leaf axil, numerous on plant  
**Flower Color:** Red, white or pink  
**Flowering Season:** Spring to summer  
**Habitat:** Marshes, edges of streams and lakes  
**Wildlife Value:** Shelter for small birds; butterfly attractor  
**Distribution:** Statewide  
**Overwinter:** Leaves and stems die back; resprout in spring  
**Common Uses:** Flowering shrub



**PLANTING REQUIREMENTS**

**Soil:** Sand to muck, prefers acid soils  
**Light:** Medium to high  
**Salinity:** Low (except *H. coccineus* and *H. grandiflorus*,

occasionally in brackish marshes)  
**Propagation:** Seeds (and cuttings)  
**Pest Problems:** None  
**Growth Rate:** Medium to fast  
**Water Depth:** Moist soils and seasonal wet areas  
**Density:** 5 ft apart  
**Planting:** Trim branches to avoid leggy appearance and to promote bloom production  
**Survivability:** High (using small potted plants)  
**Cost:** Retail \$ 15.00 3 gal  
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# FAPMS – The Early Years Part III

## 1981 – 1982

by Catherine Johnson,  
US Army Corps of Engineers

This is a continuation of the early history of the Society. Part I can be found in *Aquatics*, Summer 1999, and Part II can be found in *Aquatics* Fall 2000. The purpose of writing this history is that we tend to take current interagency cooperation, regulations, and agency structure for granted. In fact it was not always so good, and we have the efforts of those who came before us in our Society to thank for our current situation.

### 1981

In 1981 the officers were:

- President – Joe Joyce (USACE)
- President-Elect – Bill Maier (DNR)
- Secretary – Bill Moore (Pennwalt)
- Treasurer – Carlton Layne (EPA)
- Directors – Rue Hestand (GFC), Bill Haller (UF), Johns Adams (SFWMD), Len Bartos (SWFWMD), Elroy Timmer (FL Aquatic Weed Control), Ross Hooks (Broward Co), Ray Spirnock (A.R.C. Inc), Nick Sassic (Orange Co), Harold Brown (H.F. Brown, Inc.)

Committee chairmen were: Local Arrangements – Larry Maddox, Equipment Demonstration – Herb Cummings, By-laws – Debbie Valin, Awards – Eddie Knight, Program – David Tarver, Nominating – Joe Schweigert, Advertising – Gordon Baker, Membership/Publicity – Bill Maier, and Governmental Affairs – Harold Brown.

Review of herbicides continued both on a national and state level. EPA conducted sampling of 2,4-D products for dioxin contamination because of results from a Canadian 2,4-D product study. It was found that there was no contamination in US products due to different formulation methods. EPA also required that the companies producing 2,4-D conduct additional testing for acute and chronic impact in order to



*The FAPMS 3rd Annual meeting "BBQ Cooking Team." Did you recognize from left Nick Sassic, Carlton Layne, Paul King, Bill Haller and Larry Maddox?*

continue product usage. FAPMS also commented to EPA on a proposed diquat ruling.

The advisory council had a busy year with Dr. Arnett Mace as chairman. A committee of the council screened applicants for the Bureau of Aquatic Weeds and Research Chief and selected five finalists. The post remained vacant until October when Danny Riley was selected. The Council made recommendations on the subdivision of Class III waters, establishment of the council by statute, the proposed 16c-20 Aquatic Plant Control Permits rule, and the state cost share program. Frustration of council members ran high when the staff at the DNR (Department of Natural Resources, now Department of Environmental Protection) did not regard these recommendations.

FAPMS was also very involved in several issues. The Society commented extensively on each of the three drafts of Chapter 16c-20, Aquatic Plant Control Permits rule.

On behalf of the Society, Joe Joyce wrote the executive director of the DNR to support the participation of the DNR biologists in the Society and recommend that aquatic plant control permits continue to be signed at the field level. FAPMS was also supportive of DACS (the Florida Department of Agriculture and Consumer Services) drafting rules for recertification of applicators and the creation of a continuing education credit program. A proposal that would have moved the aquatic plant control operations to DACS was defeated thanks to the support of FAPMS members. FAPMS members also collected the information necessary for the Section 18 exemption request for Scout, (later called Rodeo) for use on emergent weeds. This information was collated and forward to DACS for submission to EPA.

There were also changes within the agencies. The new Center for Aquatic Weeds opened its doors in



1981. The Center, created in 1978, pulled together some researchers to one location and provided research and planning coordination for several departments. On a down note, federal funding for operational programs decreased. This impacted the USACE spray crews based in Clewiston and the cost share program. The spray crew personnel were given other positions and the aquatic plant management of Lake Okeechobee was turned over to SFWMD in June 1982.

Much was accomplished at the FAPMS Board meetings. An advertising committee, Gordon Baker chairman, was tasked with finding new advertisers for Aquatics. The Board directed the treasurer to purchase a \$5,000 certificate of deposit to increase savings earnings. An auditing committee was established to review all Society financial documents. A motion passed to charge a \$100 fee for booth space at the annual meeting to pay for coffee breaks. A scholarship commit-

tee was created to fund an annual scholarship for students pursuing a career in aquatic plant management. The Bureau, the company handling the mailing of Aquatics, was contracted to maintain the membership and complimentary lists. The decision was made that all paid members would receive the newsletter. The application for tax-exempt status with the IRS retroactive to 1976 was filed.

The March 1981 "Aquatics" issue was the first received by members



*Editor's note: If you have a favorite airboat adventure you'd like to share please contact Judy Ludlow, Aquatics Editor. Airboats are an integral tool of our trade, and demand respect. Many of us have "favorite" stories that, if shared, may educate and enlighten others so that they may avoid the situation you were in, or learn new tricks to get out of a jam!*

## My Favorite Airboat

# "Story"

July, 1990's, my bother and I were smoothly skimming across a 5,000 acre wildlife refuge in South Georgia when suddenly all went quite as the aluminum airboat slowly coasted to a stop near the middle of the cypress covered black water wetland. Suddenly the beautiful flora rich aquatic ecosystem evolved into a lonely, hot, remote swamp miles from the nearest ramp or anyone.

The 350 cubic inch Chevy motor was dead and would not turn over. There was no way we could paddle through the two feet high water hyacinths and frog's bit. We would not be missed until after supper when we were expected to call home with the "everything is OK call." We did not want to spend the night in the swamp. The mosquitoes in Georgia would have a feast that night- we wanted out. Keep in mind this happened prior to when cell phones and national walkie-talkies would hang on every possible appendage.

Finally I noticed what had caused the engine to stop, the hot wire connection to the starter had somehow worked its way out of the metal jacket connector and the engine could not receive battery fire. The metal cage prevented access, even with long arms, to the starter. The only possible way to reach the starter

was through the back of the boat. That meant climbing around the cage and entering around the prop in order to make the connection. After much deliberation and cussing, I agreed to make the repair but I really hated working inside the cage and around that heavy wooden prop.

First the ignition key was removed and the kill switch turned on, working on a hot engine was bad enough in the 98-degree afternoon heat, but the last thing I needed was a spinning prop with me in its path. I climbed in the cage being careful not to cause the transom to dip and potentially sink the boat. I pushed the prop upwards and into the 12 and 6 o'clock position. Slowly I began pushing the wire into the metal jacket connection using a big Craftsman's screwdriver. It was a tight position and my back was pressed as tight against the metal cage as possible. My head was nearly perfectly aligned with the prop path if it were to start, but that couldn't happen with the safety precautions we had taken.

The big screwdriver was slowly forcing the copper wire back in position when suddenly it snapped out of the jacket and slid out of control. The forward pressure carried the screwdriver over to the other starter

post and the short block engine fired. Everything went in slow motion as the prop rapidly jerked to the two o'clock position, then stopped inches from the top of my head. It did not start. This is a boat that always cranked at the turn of the key. As the wave of weakness left, I couldn't believe the engine had turned over!

Then it hit me, since the batteries were still hooked up and the slipped screwdriver had touched both starter posts at the same time, I had effectively hot-wired the engine. That the key was removed and the kill switch turned on made absolutely no difference! The engine had fired but for some stroke of luck or perhaps fate, did not spin the prop around far enough to strike me.

Moral of the story - first do not ever enter the cage of an airboat unless it is a true emergency! If you must, be aware the boat may rapidly sink if water comes over the transom, so be ready to quickly jump to the side of the boat and have passengers wear their life vest. Perform this maneuver in very shallow water if possible. Second, disconnect all batteries before attempting any mechanical work inside the cage!

I was lucky and survived this stupid event; don't let it happen to you!



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of other APMS chapters and with Paul Myers as editor. The September issue had an update on Sonar registration process. Interesting articles to note were: "The Aquatic Weed - Mosquito Control Connection" by Frank Wilson, Director of Polk County Environmental Services and "1980 Aquatic Flora Survey Report" by David Tarver, DNR. Several articles were written on native aquatic species.

The 5<sup>th</sup> annual meeting was held October 20-22, 1981 at the Howard Johnson on Lee Road in Orlando, FL. The keynote speaker was Commissioner Doyle Conner from DACS and was the second presidential award winner. The equipment demonstration had ten pieces of equipment and nine more were displayed at the BBQ. The Aquatic Plant Managers of the Year were James Wilmoth and James Ducote from SJRWMD. The photo contest winners were Don Doggett for the Aquatic scene and Terry Nigels with the Operational scene. By the end of the year membership reached 610 and the "Aquatics" circulation had increased to 1500. Dr. Alva Burkhalter, former chief of the Bureau of Aquatic Plants, received a special award for his many years of dedication to the aquatic plant management field and FAPMS.

Bob Gates retired from SWFWMD after 18 years to lead seminars and private consultation work. Frank Stafford, retired director of Sarasota County Aquatic Plant Control and a charter member of FAPMS, was honored by APMS by being presented a Lifetime Honorary Membership. Two more regional chapters of APMS, the Midwest and Western chapters were formed.

## 1982

In 1982 the officers were: President - Bill Maier (DNR)  
President-Elect - Carlton Layne (EPA)  
Secretary - Bill Moore (Pennwalt)  
Treasurer - Jim McGehee (USACE)  
Directors - Debbie Valin (GFC), Herb Cummings (SFWMMD), Rue Hestand (GFC), Len Bartos (SWFWMD), Nick Sassic (Orange Co), Andy Price (Asgrow), Elroy Timmer (FL Aquatic Weed Control),

Ross Hooks (Broward Co), Ray Spirnock (A.R.C. Inc)

Committee chairmen were: Governmental Affairs - Frank Wilson, Awards - Jim Wilmoth, Program - Mike Mahler, Local Arrangements - David Tarver, Newsletter - Joe Flanagan, By-laws - Terry Sheperson, Nominating - Clarke Hudson, Membership - Carlton Layne, Special Funding - Elroy Timmer, and Exhibits - Bob Arnold.

The Board supported several special projects. Bylaws for the FAPMS scholarship and research foundation were submitted for review by the Board. Applicators were polled to see what Society funded projects would be helpful. The majority requested a "how to" aquatic manual. The Board authorized \$1000 for this project and named Bill Haller, chairman to jointly produce the manual with IFAS. The results of this effort were circular 707 "Weed Control in Aquaculture and Farm Ponds" and the "Calibration, A

Field Approach" videotape. The goals of the president were: produce the aquatic weed manual, increase membership growth, support the recertification of applicators, and continue coordination for promulgation of reasonable regulations. To this end, a letter was sent to DNR about the overlap in research between DNR and the Center for Aquatic Weeds. The letter expressed concerns that DNR needed to abide by the recommendations of the American Assembly Conference including that the Center for Aquatic Weeds be the principle research group.

The possibility of increased federal funding happened, thanks to the efforts of Bill McCartney the executive director of the Northwest Florida Water Management District. Senator Lawton Chiles submitted a bill increasing the annual funding for the River and Harbors Act of 1958 (APC program) to 10 million dollars annually.

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On the state level, progress was made. The final version of 16c-20 went into effect February 1, 1982. The EPA granted the Section 18 exemption for Rodeo on April 11, 1982 for use of glyphosate on emergent weeds. Initial use was limited to areas where flood control was the primary goal. The use restrictions were eased to allow use on pond and lake shores provided that the control coincides with the intended use of the water body. The new re-certification standards went into effect on October 1, 1982.

Dr. Arnett Mace stepped down as the Director of the Center for Aquatic Weed Research. Harry McGill, who served on the FAPMS Board from 1976 to 1978, died at the age of 36 from leukemia. McGill had worked for the GFC, then General Development Corporation and his own company managing aquatic plant control operations. The Society made a \$100 donation to the trust fund set up for his children. Paul Myers resigned from Polk County aquatic weed control to start his own company, Applied Aquatic Management Inc. Mike Mahler left DNR to assume the duties of the Polk County aquatic weed control program.

The 6<sup>th</sup> annual meeting was held October 27-29, 1982 in Orlando at the Howard Johnson's, with 297 registrants. Eleven booth spaces were purchased which helped defray meeting expenses. The BBQ was catered to save the backs of FAPMS members and was held on Lake Butler at the Sportsman's Club. There were 11 nominees for the "Aquatic Plant Manager of the Year" with the winner being Johnny Mason from the US Army Corps of Engineers. Bill Haller was the only winner of the membership contest and won a \$50 savings bond for bringing in 10 new members. T-shirts with the Society logo were sold at the meeting. The Presidential Award was given to Harold Brown for his dedication to FAPMS and the aquatic plant management industry.

## Resources

Resources for these articles  
 FAPMS – The Early Years Parts I, II, and III were from the following:  
 Baker, Gordon, "A Watery Jungle" –Revisited, *Aquatics* March 1989, Volume 10, No. 4  
 Brown, Deanna, History of the Florida Aquatic Plant Management Society up to 1979.  
 Haller, William, History of 1980 Presidential Term

Official Files of the Society, 1976-1982  
 Aquatics, 1979 -1982

Any information, stories, or pictures you may have regarding the history of the FAPMS are always needed! Please contact Terry Warson, Chair, FAPMS Historical Committee at 352-344-2646, or any other member of the board.

## "Interim Statement and Guidance on Application of Pesticides to Waters of the United States in Compliance with FIFRA"

- On July 11, 2003, EPA issued interim guidance and its interpretation of the Clean Water Act to resolve issues pertaining to pesticides that are regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and applied to waters of the U. S.
  - The Interim Statement and Guidance addresses two sets of circumstances for which EPA believes that the application of a pesticide to waters of the United States, consistent with relevant requirements of FIFRA, do not constitute the discharge of a pollutant that requires a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act. The two circumstances are:
    - (1) the application of pesticides directly to U.S. waters in order to control pests (for example mosquito larvae or aquatic weeds that are present in the water); and
    - (2) the application of pesticides to control pests that are present over U.S. waters that result in a portion of the pesticide being deposited to water bodies (for example when insecticides are aerially applied to a forest canopy where water may be present below the canopy, or when insecticides are applied for control of adult mosquitoes).
- The memorandum is available at: [http://www.epa.gov/npdes/pubs/pesticide\\_interim\\_guidance.pdf](http://www.epa.gov/npdes/pubs/pesticide_interim_guidance.pdf).
- On August 13, 2003, EPA formally solicited public comments on this Interim Statement and Guidance with a notice published in the Federal Register. The comment period will last until October 14, 2003. The Federal Register Notice is available at: <http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/2003/pdf/03-20529.pdf>
  - Until a final position is established, the application of pesticides in compliance with relevant FIFRA requirements is not subject to NPDES permitting requirements, as described in the July 11 memorandum.
- For more information:** Contact Louis Eby in the EPA Water Permits Division, (202) 564-6599, [eby.louis@epa.gov](mailto:eby.louis@epa.gov).

Draft Aug 19, 2003



# July 11, 2003 Memorandum



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

JUL 11 2003

**MEMORANDUM**

**SUBJECT:** Interim Statement and Guidance on Application of Pesticides to Waters of the United States in Compliance with FIFRA

**FROM:** G. Tracy Mehan, III  
Assistant Administrator for Water (4101)

Stephen L. Johnson  
Assistant Administrator for  
Prevention, Pesticides and Toxic Substances (7101)

**TO:** Regional Administrators, Regions I - X

The Environmental Protection Agency (EPA) is issuing this interpretation of the Clean Water Act (CWA) to address jurisdictional issues under the CWA pertaining to pesticides regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) that are applied to waters of the United States. This Memorandum is issued, in part, in response to a statement by the U.S. Court of Appeals for the Second Circuit in *Altman v. Town of Amherst* that highlighted the need for EPA to articulate a clear interpretation of whether National Pollutant Discharge Elimination System (NPDES) permits under section 402 of the CWA are required for applications of pesticides that comply with relevant requirements of FIFRA. EPA will solicit comment on this interim statement through the Federal Register prior to determining a final agency position. Until that position is made final, however, the application of pesticides in compliance with relevant FIFRA requirements is not subject to NPDES permitting requirements, as described in this statement.

EPA will continue to review the variety of circumstances in which questions have been raised about whether applications of pesticides to waters of the U.S. are regulated under the CWA. As EPA determines the appropriate response to these circumstances, we will develop additional guidance. This memorandum addresses two sets of circumstances for which EPA believes that the application of a pesticide to waters of the United States consistent with all relevant requirements of FIFRA does not constitute the discharge of a pollutant that requires an NPDES permit" under

the Clean Water Act:

- 1) The application of pesticides to The application of pesticides directly to waters of the United States in order to control pests. Examples of such applications include applications to control mosquito larvae or aquatic weeds that are present in the waters of the United States.
- 2) The application of pesticides to control pests that are present over waters of the United States that results in a portion of the pesticides being deposited to waters of the United States; for example, when insecticides are aerially applied to a forest canopy where waters of the United States maybe present below the canopy or when insecticides are applied over water for control of adult mosquitoes.

It is the Agency's position that these types of applications do not require NPDES permits under the Clean Water Act if the pesticides are applied consistent with all relevant requirements of FIFRA. Applications of pesticides in violation of the relevant requirements of FIFRA would be subject to enforcement under any and all appropriate statutes including, but not limited to FIFRA and the Clean Water Act. This interpretation also does not preclude or nullify any existing authority vested with States or Tribes to impose additional requirements on the use of pesticides to address water quality issues to the extent authorized by federal, state or tribal law.

**Background and Rationale**

In this interim statement and guidance, the Agency construes the Clean Water Act in a manner consistent with

how the statute has been administered for more than 30 years. EPA does not issue NPDES permits solely for the direct application of a pesticide to target a pest that is present in or over a water of the United States, nor has it ever stated in any general policy or guidance that an NPDES permit is required for such applications.

In *Headwaters, Inc. v. Talent Irrigation District*, the U.S. Court of Appeals for the Ninth Circuit held that an applicator of herbicides was required to obtain an NPDES permit under the circumstances before the court. 243 F. 3rd 526 (9th Cir. 2001).<sup>1</sup> The *Talent* decision caused public health authorities, natural resource managers and others who rely on pesticides great concern and confusion about whether they have a legal obligation to obtain an NPDES permit when applying a pesticide consistent with FIFRA and, if so, the potential impact such a requirement could have on accomplishing their own mission of protecting human health and the environment. Since *Talent*, only a few States have issued NPDES permits for the application of pesticides. Most state NPDES permit authorities have opted not to require applicators of pesticides to obtain an NPDES permit. In addition, state officials have continued to apply pesticides for public health and resource management purposes without obtaining an NPDES permit. These varying practices reflect the substantial uncertainty among regulators, the

There has been continued litigation and uncertainty following the *Talent* decision. One such case is *Altman v. Town of Amherst* (Altman), which was brought against the Town of Amherst for not having obtained an NPDES permit for its application of pesticides to wetlands as part of a mosquito control program. In September 2002, the Second Circuit remanded the Altman case for further consideration and issued a Summary Order that stated, "Until the EPA articulates a clear interpretation of current law among other things, whether properly used pesticides released into or over waters of the United States can trigger the requirement for an NPDES permit [or a state-issued permit in the case before the court] the question of whether properly used pesticides can become pollutants that violate the Clean Water Act will remain open." 46 Fed. Appx. 62, 67 (2d Cir. 2002).

This Memorandum provides EPA's interpretation of how the CWA currently applies to the two specific circumstances listed above. Under those circumstances, EPA has concluded that the CWA does not require NPDES permits for a pesticide applied consistent with all relevant requirements of FIFRA. This interpreta-



tion is consistent with the circumstances before the Ninth Circuit in *Talent* and with the brief filed by the United States in the *Altman* case.

Many of the pesticide applications covered by this memorandum are applied either to address public health concerns such as controlling mosquitoes or to address natural resource needs such as controlling non-native species or plant matter growth that upsets a sustainable ecosystem. Under FIFRA, EPA is charged to consider the effects of pesticides on the environment by determining, among other things, whether a pesticide "will perform its intended function without unreasonable adverse effects on the environment," and whether "when used in accordance with wide spread and commonly recognized practice [the pesticide] will not generally cause unreasonable adverse effects on the environment." FIFRA section 3(c)(5).

The application of a pesticide to waters of the U.S. would require an NPDES permit only if it constitutes the "discharge of a pollutant" within the meaning of the Clean Water Act. The term "pollutant" is defined in section 502(6) of the CWA as follows

The term 'pollutant' means dredged spoil, solid waste, incin-

erator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

EPA has evaluated whether pesticides applied consistent with FIFRA fall within any of the terms in section 506(2), in particular whether they are "chemical wastes" or "biological materials." EPA has concluded that they do not fall within either term. First, EPA does not believe that pesticides applied consistent with FIFRA are "chemical wastes." The term "waste" ordinarily means that which is "eliminated or discarded as no longer useful or required after the completion of a process." *The New Oxford American Dictionary* 1905 (Elizabeth J. Jewell & Frank Abate eds., 2001); see also *The American Heritage Dictionary of the English Language* 1942 (Joseph P. Pickett ed., 4th ed. 2000) (defining waste as "[a]n unusable or unwanted substance or material, such as a waste product"). Pesticides applied consistent with FIFRA are not such wastes; on the contrary, they are EPA-evaluated products designed, purchased and applied to perform their

intended purpose of controlling target organisms in the environment.<sup>4</sup> Therefore, EPA concludes that "chemical wastes" do not include pesticides applied consistent with FIFRA.

EPA also interprets the term "biological materials" not to include pesticides applied consistent with FIFRA. We think it unlikely that Congress intended EPA and the States to issue permits for the discharge into water of any and all material with biological content. With specific regard to biological pesticides, moreover, we think it far more likely that Congress intended not to include biological pesticides within the definition of "pollutant." This interpretation is supported by multiple factors.

EPA's interpretation of "biological materials" as not including biological pesticides avoids the nonsensical result of treating biological pesticides as pollutants even though chemical pesticides are not. Since all pesticides applied in a manner consistent with the requirements of FIFRA are EPA-evaluated products that are intended to perform essentially similar functions, disparate treatment would, in EPA's view, not be warranted, and an intention to incorporate such disparate treatment into the statute ought not to be imputed to Congress. Moreover, at the time the Act was adopted in 1972,

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chemical pesticides were the predominant type of pesticide in use. In light of this fact, it is not surprising that Congress failed to discuss whether biological pesticides were covered by the Act. The fact that more biological pesticides have been developed since passage of the 1972 Act does not, in EPA's view, justify expanding the Act's reach to include such pesticides when there is no evidence that Congress intended them to be covered by the statute in a manner different from chemical pesticides. Finally, many of the biological pesticides in use today are reduced-risk products that produce a more narrow range of potential adverse environmental effects than many chemical pesticides. As a matter of policy, it makes little sense for such products to be subject to CWA permitting requirements when chemical pesticides are not. Case law also supports this interpretation. *Ass'n to Protect Hammersley, Eld, and Totten Inlets v. Taylor Resources*, 299F.3d 1007,1016 (9th Cir. 2002) (application of the *ejusdem generis* canon of statutory interpretation supports the view that the CWA "supports an understanding of... 'biological materials,' as waste material of a human or industrial process").

Under EPA's interpretation, whether

a pesticide is a pollutant under the CWA turns on the manner in which it used, i.e., whether its use complies with all relevant requirements of FIFRA. That coverage under the Act turns on the particular circumstances of its use is not remarkable. Indeed, when asked on the Senate floor whether a particular discharge would be regulated, the primary sponsor of the CWA, Senator Muskie (whose views regarding the interpretation of the CWA have been accorded substantial weight over the last four decades), stated:

I do not get into the business of defining or applying these definitions to particular kinds of pollutants. That is an administrative decision to be made by the Administrator. Sometimes a particular kind of matter is a pollutant in one circumstance, and not in another. Senate Debate on S. 2770, Nov. 2, 1971 (117 Cong. Rec. 38,838).

Here, to determine whether a pesticide is a pollutant under the CWA, EPA believes it is appropriate to consider the circumstances of how a pesticide is applied, specifically whether it is applied consistent with relevant requirements under FIFRA. Rather than interpret the statutes so as to impose overlapping and potentially confusing

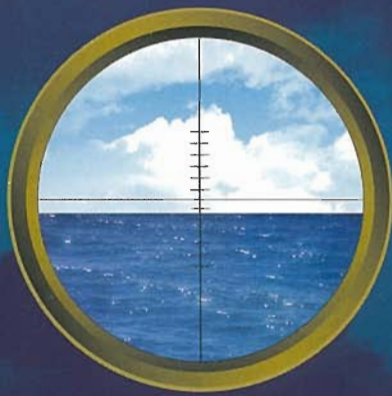
regulatory regimes on the use of pesticides, this interpretation seeks to harmonize the CWA and FIFRA.<sup>8</sup> Under this interpretation, a pesticide applicator is assured that complying with environmental requirements under FIFRA will mean that the activity is not also subject to the distinct NPDES permitting requirements of the CWA. However, like an unpermitted discharge of a pollutant, application of a pesticide in violation of relevant FIFRA requirements would be subject to enforcement under any and all appropriate statutes including, but not limited to, FIFRA and the CWA.

### Solicitation of comment on this Interim Statement and Guidance

In the near future, the Agency will seek public comment on this interim statement and guidance in the Federal Register. The Agency will review all comments and determine whether changes or clarifications are necessary before issuing final interpretation and guidance.

Please feel free to call us to discuss this memorandum. Your staff may call Louis Eby in the Office of Wastewater Management at (202) 564-6599 or Arty Williams in the Office of Pesticide Programs at (703) 305-5239.

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## Editorial

*Continued from page 3*

The lake never was a lake again while he was there. Flip came to the sunshine state when Jack Duquine hired him during Jack's tenure as chief of Fisheries. Flip was, for several years, the only fisheries biologist to have much interest in aquatic plants and weeds. Of course, most of the other managers were interested when the weeds behaved the way they said or had hoped, which was not very often in those days of big problems and few solutions.

In these early years, problems were great and plentiful and answers few. During this era, he maintained an open mind and was involved in almost every "research/management" program in Florida. From the early sulfuric acid experiments to the present and on into the future, the Sunshine State benefited far more than we know, from the contributions made by Flip.



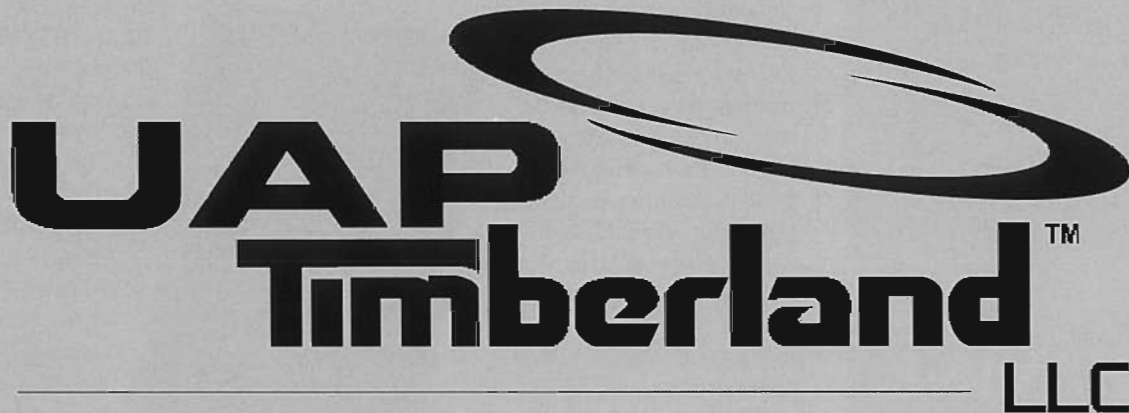
*Clayton Phillipy "heading home."  
Photo courtesy of Jess Van Dyke*

Flip hired and supervised all of the aquatic botanists employed by the GFC... Lowell Trent, Tom Drda, Don Widmann, Jerry Krumerlich, Bill Maier, Joe Hinkle, Debbie Valin, Dan Dobbins, Richard Dumas, to name a few. And not to forget the one person that has killed more water hyacinths than any other person, Phil Phillipps.

Flip may be gone but he certainly left a legacy in the aquatic plant management field. When his ashes were scattered on Lake Jackson as he requested, it might be said that the Sunshine State lost some of its light. But I chose to believe that through all the people that were touched by his life and sunny outlook, the subtropical sand bar known as Florida will continue to be a better place to live.

My spirit is always lifted and I smile when I recall some of the sayings and bits of wisdom he left.

- I'm at the peak of a mediocre career. (What an understatement in retrospect.)
- You'd thought I'd spit on the Pope (when he told me how my request for a cell phone was received by his superiors.)
- A job not worth doing at all is not worth doing well (he attributed to me).
- It takes sick people to beat a dead



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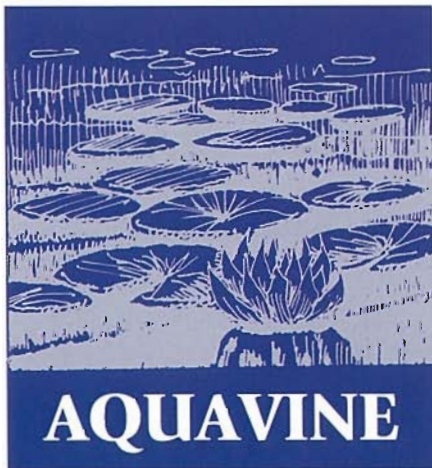
horse (on some decisions made in Fisheries.)

— You don't expect a rational decision from someone who rides a Moped to work in Tallahassee, do you? (My query as to when we could get a sensible decision from higher powers.)

— One awe sh—wipes out all the attaboys before.

I could go on for a long time, but I'll end by saying that I was blessed by knowing and working for C. L. "Flip" Phillippy. Although I miss his wisdom, insight, and genius, my memories will always be positive and I will smile as I remember.

Let me assure all who read this tribute that if you have anything to do with aquatics, then you have benefited from the life and work of C. L. "Flip" Phillippy. A man who accepted the blame (even when not due) and realized one can accomplish a lot if you don't worry about who gets the credit.



### FAPMS Board Meeting- See you at the annual meeting!

October 13, 2003, contact Angie Huebner, [angie.l.huebner@usace.army.mil](mailto:angie.l.huebner@usace.army.mil)

**Florida Aquatic Plant Management Society Annual Conference,** October 13-16, 2003 Adam's Mark Hotel, Daytona Beach, FL. Contact Bill Torres, 850-245-2809 or [William.torres@dep.state.fl.us](mailto:william.torres@dep.state.fl.us) for more information.

**North American Lake Management Society 2003 Annual Conference: "Protecting Our Lakes' Legacy,"** November 5-8, 2003 Mashantucket, Connecticut. Contact Terry Thiessen, 608-233-2836, [thiessen@nalms.org](mailto:thiessen@nalms.org) for more information.

**Book Review of DiTomaso, Joseph M. and Evelyn Healy. 2003. Aquatic and Riparian Weeds of the West, University of California Agriculture and Natural Resources Publication 3421, Oakland, CA. 442pp. ISBN1-879906-59-7.** Reviewed by John D. Madsen, Mississippi State University, GeoResources Institute, Box 9652, Mississippi State, MS 39762-9652. E-mail [jmadsen@gri.msstate.edu](mailto:jmadsen@gri.msstate.edu).

Weighing in at 442 pages, this book is a thorough description of 89 aquatic weeds, with additional descriptions of 96 other species that might be confused with the most common weeds in western wet areas. While many of the weeds described are nonnative invaders listed as noxious on federal or state lists, the book also includes many native plants that may pose a nuisance to riparian users. *Aquatic and Riparian Weeds of the West* is inclusive of most of the submersed and floating-leaved weeds, but of necessity is more selective in treating emergent plants, including woody species.

For each of the 89 plant descriptions, the authors have prepared entries that include the common (based on the *Composite List of Weeds* by the Weed Science Society of America) and scientific names, Bayer code, noxious weed lists, synonyms, general information, descriptions life stages including seedling, mature plant, roots and underground structures, flowers, fruit and seed, habitat, ecological characteristics, distribution, propa-

gation and phenology, cultural or mechanical methods that encourage or discourage survival, and a description of similar species (which often includes photos).

The photos by Jack Kelly Clark are nothing short of stunning. The thorough photo cataloging of life stages (including seed and seedlings) is alone worth the cost of this book. The author's brief summaries for each species are also useful, and comparisons to similar species are very worthwhile.

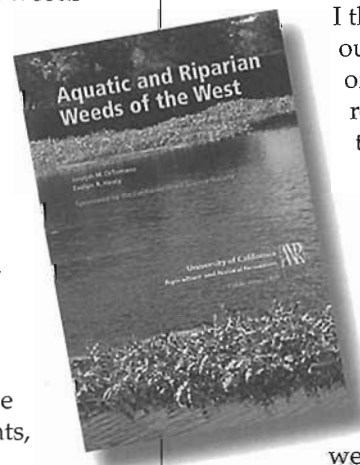
Potential readers should also bear in mind that this book is focused on the western US; some of the troublesome weeds of the eastern US are not mentioned. While some cultural management techniques are mentioned, the authors purposely avoid making specific recommendations on how to control the weed species described. This book will not tell you the best techniques to manage aquatic and wetland weeds of the west; biological and chemical control techniques receive no mention

whatsoever. Personally, I think this book is an outstanding example of the genre, so long as readers bear in mind the limitations.

The target audience of this book is not the casual user of Peterson guides, but rather the professional resource manager seeking to identify and understand their

weed species. At 442 pages, this is not a pocket identification guide, though it would fit in a large fanny pack or daypack. I would recommend this to aquatic and wetland professionals in the western US, and possibly the rest of the United States so long as readers bear in mind that it focuses on western aquatic weeds.

*Aquatic and Riparian Weeds of the West* (ISBN 1-879906-59-7) is available from <http://anrcatalog.ucdavis.edu>.







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