

THERE'S SO MUCH of it; why be concerned? And there you have in that public state of mind the real cause and extent of the water pollution we have today.

The public is at last becoming exposed—and aroused—about industrial, human waste, and thermal pollution. This issue focuses on a lesser known aspect of water pollution that's directly related to the industries this magazine serves. The pollutant to which we refer is aquatic weeds.

Why be concerned? It can be said that this country's water pollution by aquatic weeds alone is a problem growing as fast as a foot a week.

That's the rate of growth for hydrilla verticillata, a submersed weed variety discovered and identified in Florida for the first time only nine years ago. The plant has now infested large areas of the Southeast.

Cut it up and the pieces each will take root upon striking soil. It grows up from deep water, 20 to 30 feet. It will bog down motor boats, clog waterways, cause a painful itch or even entrap and drown swimmers. It displaces huge quantities of water, becoming so heavily matted that the non-swimming "lily-walker" bird trots safely across the surface.

"In just five months' time a typical recreation lake can become an economic problem," estimates Andy Price, aquatic biologist for Pennwalt Corporation. "Dig a new lake and the same thing can happen within a year."

No one knows how the weed got to the U.S. It may have been an "exotic tropical plant" imported for fish

aquariums, guesses Price. Then when somebody's fish died, the aquarium was emptied into the canal in back of the home.

But this weed pest is just one of some 150 species of vascular aquatic plants and more than 250 species of algae to worry about. Aquatic weeds have been around from the beginning.

Most any body of water eventually will die of eutrophication, or enrichment. Dig a new pond. Gradually, plants sprout, grow and die around the water's edges. Dirt from the bank sifts and tumbles in toward the center. Decayed plants provide nutrients for new plants. Eventually, the pond's water is displaced until it's just a bog. Finally, the water disappears entirely, leaving just a dip in the land.

But we the people have caused Nature to go berserk. By our very numbers, knowledge and mobility we have increased the eutrophication and, consequently, aging process to an alarming rate. We enrich waters with our wastes and commercial fertilizers, then spread untold varieties of weeds as far and as fast as we can tow a motorboat.

Why be concerned? Even the National Academy of Science's recently published volume on weed control, 471 pages, devotes only one chapter and 20 pages to aquatic weeds. Yet the opening sentence calls "aquatic weeds a worldwide problem that is becoming more critical."

"One aquatic weed alone, the waterhyacinth," the NAS volume continues, "has become known as the



'million-dollar weed' because of control costs and damage it has caused in recent decades in subtropical and tropical regions from the Nile River to the United States.

"It has been estimated that without unceasing control efforts, the Panama Canal would be closed by aquatic weeds within three to five years."

Dr. Lyle W. Weldon of USDA's Aquatic Weed Laboratory in Fort Lauderdale, Fla., reported to the National Geographic Society recently that:

"Aquatic weeds in Florida alone cost the state more than \$50 million a year in just property depreciation. The cost to the nation must be more than a billion."

Submersed weeds of many kinds infest 65% of all irrigation ditches in 17 western states, reported NGS.

Why be concerned? Such weeds, points out the NAS volume, present delicate control problems, requiring special techniques that do not endanger crops dependent on irrigation water or prove toxic to man, fish and wildlife.

Chemical control appears to be most promising. Yet, observes Andy Price, "it takes from \$1 to \$3 million to develop a new chemical, and anywhere from three to five years from conception to get federal registration."

A wide array of newly developed herbicides is being used, NGS stated, particularly nonresidual types that, when properly applied, are harmless to animals.

Some of these weed killers, said NGS, are so safe that aquatic biologists at National Weed Service in Orlando used them to treat a public reservoir. The weeds dis-

appeared in days; the potability of the water remained.

"A Miami country club discovered the value of herbicides," continued NGS. "Site of a \$200,000 golf tournament, the course was marred by unsightly weeds clogging its six miles of canals. Five days before the tournament, a herbicide crew treated the stagnant water. By the time the first golfer teed off, the canals were as clear as the club's swimming pool."

This one issue couldn't hope to cover the total scope of aquatic weed control. We've chosen to approach the subject by discussing a pioneering water management service that's offered by a large chemical manufacturer; by reporting on the latest in mechanical harvesters; by telling how one city is using both mechanical and chemical means to fight aquatic weeds; and presenting a technical report on government research to control hydrilla verticillata.

On an information-gathering run to Florida, this magazine's editor was given a tie clasp with the words "Clean Water."

An alert businessman had seen an opportunity to capitalize on the emblem that the U.S. Department of Interior had used for a booklet on aquatic pests in irrigation systems.

The editor wore the tie pin to a local restaurant. A "now-generation" waitress, catching sight of it as she placed a glass of water on the counter, exclaimed:

"Clean water, that's catchy!"

It had better be.



WATER