

THE CASE FOR THE MACERATOR-CHLORINATOR DEVICES FOR SEWAGE TREATMENT ON
SMALL CRAFT

To the landlubber and those others who are unfamiliar with all aspects of the problem of human waste disposal on small craft, it seems obvious that there can be no argument to the statement that holding tanks and recirculating types of toilets are the logical and fool-proof solution to water pollution caused by boats. The promoters of these devices have been most effective in selling their concept which, boiled down, is simply this—"no effluent, no pollution."

So convincingly has this theory been exploited that some legislators have even gone to the absurd lengths of advocating that holding tanks for bilge water be required, and that all craft regardless of size (even canoes) have provision for toilet facilities that would assure that all wastes would be properly disposed of ashore. However, when foolish laws of man are at cross purposes with the laws of nature, there can be no doubt as to which laws will prevail.

So let us concede that "no effluent—no pollution" is axiomatic. Now, just so we all speak the same language, let us say that throughout this presentation the phrase "holding tank" shall mean any device, including recirculating toilets, whose contents are retained aboard a boat for disposal in a legal manner ashore.

A few of the fallacies of the holding tank concept are as follows: The smaller the boat, the greater is the problem for available space. On craft that are barely large enough to accommodate a marine toilet, there simply is no room for a holding tank of any meaningful dimensions. Each flushing of a marine head requires about three quarts of water. Translate that into the capacity that would be required for a tank to hold all the discharge for even a week-end's outing for a couple with two children! In new boats this could possibly be provided, but how can this space be found on the hundreds of thousands of boats already built?

Many many more people enjoy small boats than are aboard large yachts where space is not so tight. As a matter of fact, the number of passengers per boat does not vary in proportion to the size of the boat. And, of course, boats in the 20-25 foot category outnumber those 35 to 45 feet long many times. It would be easier to find space for a 50 gallon tank on a forty footer than a ten gallon tank on a twenty-two footer. And you are likely to find the same number of people on both!

Now, let us suppose that we do have a holding tank on our boat. Where can it be pumped out? There are virtually no pumping stations in existence. According to a survey made in the Province of Ontario only two marina operators out of 282 said they would be willing to install pumping stations on their premises. The reasons? Pumping stations are costly to install, a nuisance to operate, and a source of irritation to both client and proprietor. Marina owners are, frankly, loath to get into the cesspool business. Furthermore, they ask, what are we going to do with the sewage after we pump it out? Most marinas are beyond municipal sewer systems, and if their own toilets do not flush directly into the marina waters, they have only septic tanks that would quickly become overloaded. Then, what can they do? Cart it off in tank trucks? To where? The nearest municipal sewer? Will the municipality let them? And does the municipality have a sewage treatment plant or do they also dump?

Marina operators also fear to invest money required for pump-out facilities due to the high cost (estimated variously at about \$3000 per station), and the very likely early obsolescence due to the very rapid improvements that are being made in treatment devices. They also recognize that any law that is so difficult of compliance and enforcement as to invite wholesale evasion will sooner or later be changed. Remember Prohibition? Another problem: As of now there is no such thing as a universally accepted deck fitting to standardize pump-out facilities.

Holding tanks can in themselves become wholesale breeders of bacteria. Provision will have to be made to prevent the formation of dangerous and explosive gases generated by bacterial putrefaction action on organic matter. How can you empty a tank completely? Tanks will have to be vented and ventilated to permit gases (methane and hydrogen-sulphide) to escape harmlessly. And what about the odor? In the laboratory, hydrogen-sulphide is known as the rotten egg odor! You figure that one out.

It is a fact that holding tanks are widely used in aircraft. But the longest airplane flight rarely exceeds eight hours and the toilets are serviced every time the plane touches down. But you cannot take a modification of an airplane unit