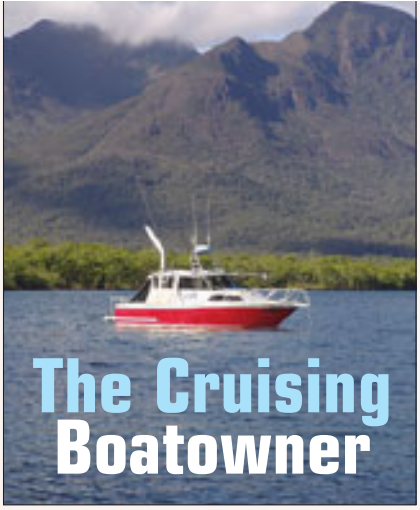


The Cruising Boatowner

Toilet Options & All The New Legislation

With Peter Webster & Ruth Cunningham

In the world of the cruising boat owner, the subject of toilets is hardly on anyone's list of favourite subjects, matters for discussion, or even need-to-know reference material.

Yet, it's a subject everybody has a vested interest in understanding, especially as the ground rules are changing so quickly.

Last week, I was studying the terrific job Mick Stewart from ADM Marine has done installing the very complete, top-of-the-line Lectrasan-based sanitation system onboard the new Salty 27 we've been building.

The Lectrasan part of it is reasonably straightforward - it's what happens after that, with these high quality, total sanitation systems that leads to a mire of confusion and no little cost. A completely optioned version of one of these purifying, holding and/or discharge systems could cost as much as $5,000-$6,000 (or as little as $2,500) depending on the type of toilet you want - or must have – and the type of boat you've got. New, old, power, sail – they are all different, and whilst the cost of the component parts of a sanitation system can be quickly and accurately costed, unfortunately, the same cannot be said for the cost of getting it installed.

Most jobs have to be costed on a boat to boat basis.

Types of Discharge

You may not be aware of it, but toilets are now being classified with A, B and C type levels of discharge (or containment, if you will) as the authorities clamp down on the uncontrolled use of traditional marine pump-out toilets in popular waterways such as Sydney Harbour, Gold Coast's Broadwater, Port Philip Bay, etc.

I don't think anybody in the boating world has a problem with this concept.

The whole notion of swimming in water containing untreated sewage is repugnant and completely unacceptable in a modern society.

Nevertheless, there have been times when the writer has personally experienced such problems in popular boating areas around Sydney – especially when you get boats rafted up together off the popular beaches or coves in Pittwater, around Sydney Harbour, Moreton Bay . . wherever.

That said, apart from tub-thumping and chest beating, hardly anyone in authority (outside of NSW) has done anything very constructive about dealing with the problem, either. Identifying the problem is easy - coming up with the infrastructure to deal with it will probably take the next 5-10 years.

But I don't want to make a political issue out of this here – instead, I'd like to deal with readers on a more personal level. For the moment, it's about each of us making a decision about how we can best handle the situation because we want to, not because we have to.

I'm sure every F&B reader wants to have a sensible solution to the toilet problem – but equally, I'm convinced most readers, especially those outside the reach of the big city marinas, are worried about getting access to proper pump-out facilities.

At press time, here on the Gold Coast, for example, only one Marina offered working pump-out facilities – and marine centres such as the big Runaway Bay facility (where we are based) is "at least 12-15 months" off getting their pump out facility installed on the newly installed fuel wharf arm. Needless to say, pump out facilities in outlying or regional areas are few and far between.

Which takes us back to square one – what can we do about it?

The toilet issue is coming down to a choice of three systems, *including*

- The basic portable chemical toilet
- A traditional (manual or electric) marine toilet connected to a holding tank that can be (either) be pumped out professionally where possible, or Y-valved overboard where it is legal to do so.
- A complete sanitation system that comprises an electric (or manual) toilet, a sanitation system to neutralise the effluent, and a holding tank to contain it, before it is (1) pumped out professionally or (2) Y-valved overboard when it's legal to do so.

Let's take a closer look at the systems.

The Portable Chemical Toilet

The first option for all of us right now is to go down to BIAS Marine and purchase one of several varieties of cheap chemical toilets. They range in cost from $59-$129 and all work on a very similar principle. Fresh water is contained in an upper tank, which is manually pumped from the upper tank down around the bowl, to wash and clean the bowl.

The effluent, soft toilet paper and the water then drops down, via a slide-out trapdoor, into a lower holding tank.

A special chemical, having previously been poured into the lower holding tank in a specified quantity (to neutralise the effluent in this lower tank) eliminates any lingering smell, and effectively 'contains' or holds the resultant liquid ready for disposal.

When the boat goes back to the wharf, the marina or the public launch

ramp, the toilet's lower tank is disconnected from the top two thirds, and is simply picked up and walked over to the first available public or club toilet.

This lower tank is then placed over the conventional toilet bowl, and the trapdoor (or watertight screw top lid) is opened, dropping the contents into the regular toilet's bowl, before being flushed into the local sewerage system.

This methodology is relatively cheap, it's quite effective and it's reasonably hygienic – and it completely stops effluent flowing from the boat into the water.

The downside of the chemical toilet include fairly severe restriction in terms of available liquid space in the lower tank, and the shallowness of the bowl for large people. It's not uncommon for a family of (say) four people to fill up the lower tank with a mixture of effluent and water in just one or two days.

Thus, if you're away from land for more than one or two days, you could well fill up the lower tank way ahead of time ie, before you go back to base.

Experienced boat owners have tackled this problem in different ways. Families quickly discover that taking a leak in the chemical toilet is a waste of scarce capacity, so the 'loo tends to become the domain of the girls, while the boys face south and do what comes naturally . . . at least as far as Number ones are concerned.

Depending on where you live, the chemical toilet can be emptied as you go, or extra portable chemical toilets can be put onboard (they are quite cheap, and will last for years).

In many regional areas, the contents can be legally dropped overboard if the boat is far enough away (at least a mile) from public areas, marine parks, the Great Barrier Reef, etc.

Every state has slightly different, or **area specific** regulations – so please be careful about where you can *(and can't)* dump treated effluent. These rules are easily tracked down on your State government's web site. Ignorance of the rules and regs in your area is not necessarily a defence (in law), so it is worth going to the trouble of double-checking what you can – and can't – do in your part of the world.

Summary? Given that the vast majority of Australian boatowners only ever go out for the day, with an occasional over-nighter, the portable chemical toilet system is cost effective and reasonably practical.

Incidentally, take a little care to shop around for the right chemical toilet. They do vary from maker to maker,

and we are (finally) starting to see models coming through with much bigger tankage and bigger, deeper bowls, but still of the same compact proportions. Mostly, the bigger capacity ones are just taller, which actually makes them more comfortable for adults to use.

Traditional Marine Toilet

For thousands of boatowners across Australia, the issue is more about what to do with their existing toilet– or how to upgrade it so that it will comply with the new regs coming into play in all the popular boating areas, let alone the remote national or marine parks.

The big issue with existing boat pump-overboard toilets is whether you can fit a holding tank into the boat or not. The toilet itself can almost certainly be used (especially if you've already got an electric model) but boatowners now need a holding tank to contain the raw effluent until it can be (1) pumped out professionally at the marina or (2) Y-valved overboard in an approved area.

The emphasis here on this "Y-valve"

business is that a "Y" valve (in-line, between the 'loo and the holding tank) enables the skipper to turn the Y-valve so the effluent from the toilet goes into (1) the holding tank or (2) overboard through a skin fitting.

This is the cheapest alternative for existing boatowners, and in fact, for many new boat owners, too.

The cost is directly related to the type of boat you have – and the degree of difficulty involved in finding somewhere to install the holding tank, "downhill" (so to speak) from the toilet itself. This is not easy, and has left many boat owners contemplating all sorts of weird and wonderful arrangements.

The larger the boat, of course, the easier it is to instal. Some of the hardest boats to fix are those in the 7.0 – 10.0m class, especially when the original toilet was located down near, or under the boat's waterline. Getting the holding tank below the toilet lets gravity work for you, and believe me, gravity is a lot simpler, cheaper and far more reliable than either the manual or electric pumps that might otherwise be needed to move the effluent from the boat's toilet bowl, "uphill" to the holding tank.

This is why several companies offer holding tanks designed to fit right under the old-style toilet bowls; it might lift the bowl up a foot or so (or more) but hey, this can sometimes be the only (practical) option on the table.

Holding tanks vary in construction and complexity to an amazing degree. Some are just polypropelene tanks, no more, no less. These can be purchased in the $450-$650 range.

Others have special valving arrangements, gauges, macerators, inspection ports, etc, extending right through to the packages that actually have an integral sewage treatment system built in. You do tend to get what you pay for, and the range is from around $1,200 through to about $2,500 for the better systems from the Lectrasan or Aquasan type companies.

Remember though, these prices are all just to purchase the equipment – installation is an entirely different ballgame.

The Top End Of Town . .

At the top end of the scale, the really sophisticated sanitation systems can cost a great deal of money, but offer a near hospital level of hygiene and

comfort. Depending on the type of system, and the degree of difficulty installing it in the boat, it is not uncommon to invest as much as $4,000-$6,000 in the job.

That is not a misprint. I was standing in the new Salty 27 this week admiring the new electrically operated "large size" vitreous china bowl ($500-$700 with in built macerator compared to the regular $250 manual or $350 base electric model) thinking about these matters, when Mick Stewart from ADM Marine, the man who had installed our full sanitation system in the Salty, said "If you think that's impressive, Pete, stick your head down into the lower bilge compartment and have a look at the rest of it!"

The 'rest of it' is an astonishing array of pipes, tanks, Y-valves and skin fittings which are illustrated on this page by the excellent diagram we've produced here (Page 16) courtesy of the Lectrasan people and their agents in Australia (AMI) from whom we purchased the Lectrasan unit and several of the component parts of the wider sanitation system.

We've invested in the complete sanitation system because we intend to work extensively on and around the Great Barrier Reef, and there will be plenty of times when it won't suit to up anchor and trundle off to find somewhere to dump the treated effluent – so we have invested in a fairly large capacity, full treatment system. This also enables us to live onboard in a marina, and not have to keep toddling off to the marina's toilet in the dead of night.

From a cruising view point, bliss is having your own John . . . . .

We're All Involved

This issue concerning the discharge of treated (let alone untreated) sewage is a matter boatowners need to take onboard very rapidly.

And it's a mistake to think "Ah, this doesn't affect my old boat . ." It's not just about new boats. It is about every boat on the water, and our need to handle the output of the boat's toilet.

Across Australia the authorities are joined at the hip in their agreement to ban the discharge of effluent (treated mind you, let alone untreated!) from boats within a coo-ee of moored craft, public beaches, marine parks – let alone sensitive 'Green" Zones such as those along the Barrier Reefs of WA and Qld. But there are sensitive "Green Zones" in Tasmania's wilderness regions, Port Philip Bay, the Islands in SA's Gulfs and so on. Even if you live in an area or region where these restrictions do not apply, be assured that it is only a matter of months (not years) before they will be brought into effect in your part of the world too.

For example, in NSW, the law already insists that nowhere in NSW coastal waters can untreated effluent be discharged overboard.

Nowhere. Well, not unless you are three miles offshore, that is!

That's fairly emphatic, isn't it?

Trailerboat Solutions

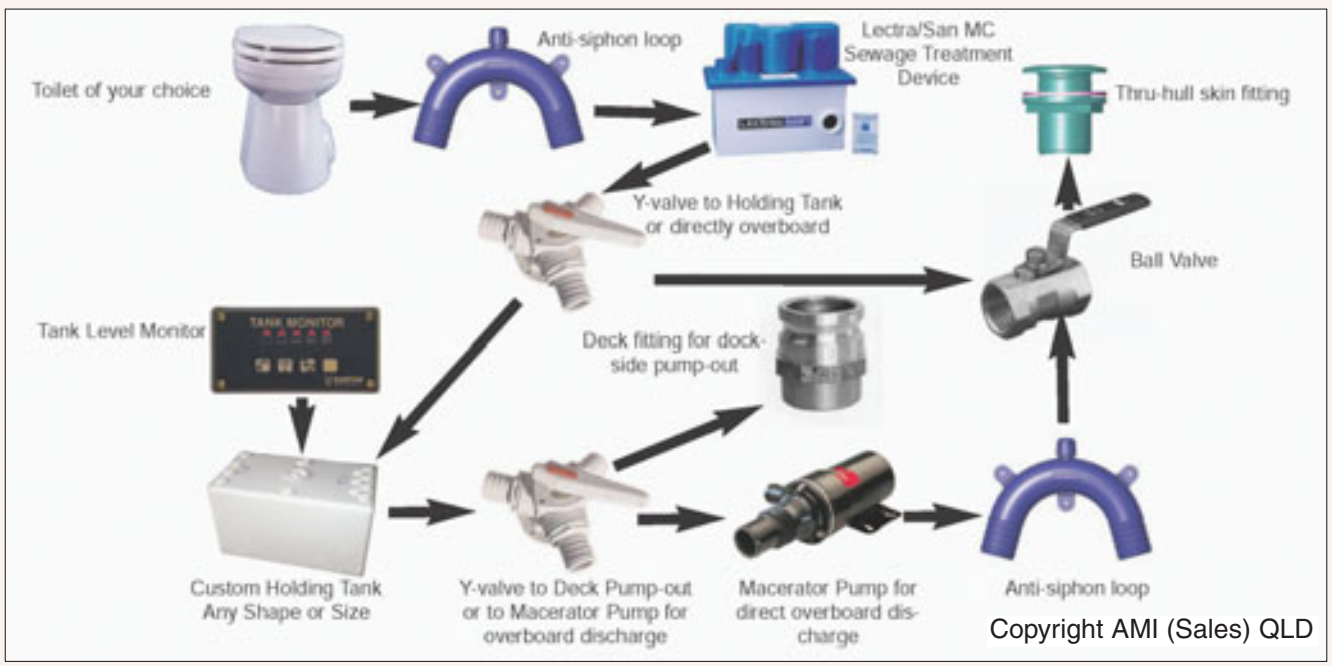
Fortunately, for trailer boat owners, there are usually public toilets in the vicinity of launch ramps which enable boat owners to dump the effluent from their portable chemical toilets fairly easily in the public toilets close to the ramps.

Mind you, even that is fraught with problems. Especially in outlying regions where councils are starting to ban boat owners from dumping their portable toilet's load in their local sewerage systems, partly through a lack of water in many country areas, but also because many bush or coastal toilets are 'pit' toilets. Then, some authorities have reacted strongly against 50-60 boat owners rocking up on a Sunday afternoon to dump their toilet effluent in the local launch ramp's toilet pit.

In this situation, the trailer boat owner has no choice but to carry on until they find a toilet they can dump their load – or take it home with them to dump there.

(Continued Over Page)

Bar one pump on the outlet line, this is the sewage system we've just installed in the Salty 27. It starts with a top of the line electric toilet, goes to the Lectrasan treatment system - and so on. Apart from the cost of buying all the items (from $3,000-$4,000 depending on the supplier and quality levels) there is the not inconsiderable cost of installing the system. In the Salty 27 (which was DESIGNED for it, this came to another $1,200.



Larger Craft Solutions

There are several reputable, macerator based toilet treatment systems available for larger craft, such as the Lectrasan unit we've just installed in the new Salty 27.

At the moment they're still something of a rarity in boats, and as we found when we installed ours last month in the Salty 27, there's a fair bit of work involved in their installation. It's not something the average handyman can knock over in a couple of hours – this is serious boat building, involving ball-valved saltwater inlets, ball-valved treated liquid outlets, and quite complicated piping between the components in the system and the skin fittings.

What we've done is adopted the system recommended by Lectrasan and AMI wherein we can either Y-valve the effluent straight overboard if we're out to sea, or in an area which permits such practice.

However, even with this top-of-the-line Lectrasan system, there are still "No Discharge" areas where you simply cannot put anything overboard, so we had to have the holding tank onboard as well.

In turn, because we can't access pump-out facilities at the Runaway Bay Marina here on the Gold Coast (yet) nor can we access the launch ramp public toilets (like a smaller trailer boat) we've had to Y-valve the outlet from the holding tank too – so we can dump its load in an appropriate location.

Look, you can be forgiven for thinking this is a whole load of you-know-what, but for those of us who love boating and want to pursue this activity, we have no choice in the matter.

The day of discharging the boat's manual toilet straight overboard, is over. Boat owners will all need to find a holding tank of one kind or another, and in many cases, that is going to involve no little cost and often, quite difficult installations.
F&B

The following notes were produced for Queensland boatowners by their Dept of Transport, but represent a very good, concise summary of what is becoming the national situation.

Maritime Safety Queensland's Sewage Legislation Notes

Sewage legislation is about how you can manage the discharge of sewage generated on your boat.

If you use a boat anywhere in Queensland's waterways sewage legislation applies to you. Sewage is waste from toilets or urinals, but does not include grey water from sinks or showers unless mixed with sewage. The discharge of sewage from boats contributes to reduced water quality, poses a human health risk and decreases visual aesthetics of waterways.

For this reason, the state government expanded the Transport Operations (Marine Pollution) Regulation 1995 from the beginning of 2004 to control the discharge of sewage, treated or untreated, into certain designated waters. Additional legislative requirements extending the restrictions for the discharge of untreated sewage to other areas, as well as specifying precautionary distances from sensitive areas for treated sewage, came into effect in July.

The following requirements apply until 2010.

For recreational craft to 15 persons and commercial class 2 and 3 vessels sewage management measures must be adopted if sewage is likely to be generated.

As a general rule:

- **For people undertaking short duration daytrips that are unlikely to discharge sewage, there are no requirements. Recommended good practices are to always use onshore toilets when docked and encourage passengers to use onshore facilities before going out.**
- *If you use your boat for overnight or extended trips you will need to take steps to ensure compliance with existing regulations. This could be a portable toilet, holding tank or a sewage treatment system, as well as being aware of the designated areas in marine parks where discharge is prohibited.*
- **More stringent requirements apply to registered Class 1 commercial vessels (declared ships) as they are likely to have a higher sewage generating capacity than other classes of vessels.**

There are two different forms of sewage: treated and untreated. All sewage discharged into a waterway must first pass through a macerator.

Untreated Sewage is sewage that is discharged directly from a toilet into a waterway or contained in an onboard holding tank. It cannot be discharged in any designated smooth waters, rivers and creeks, boat harbours, marinas and canals. In Moreton Bay and Hervey Bay discharges are permitted beyond 1 nautical mile of reefs, aquaculture fisheries resources and the mean low water mark of the mainland. For open waters discharge is permitted, but not within 1 nautical mile of aquaculture resources.

Restricted areas on specific locality maps can be located on the Maritime Safety Queensland website.

Treated sewage refers to sewage that has passed through a treatment system on board and has three distinct classes: A, B or C.

Grade A is the highest form of treatment and there are no additional restrictions other than areas that are totally prohibited to discharge.

Grade B is a lesser form of treatment and in addition to the grade A restrictions can only be discharged in waters provided it is beyond 700m of people in water, acquaculture resources or reef.

Grade C is the least form of treatment and in addition to Grade A & B restrictions can only be discharged within 900m of people in water, acquaculture resources or reef.

Even if you have a full treatment system on your vessel, restrictions still apply in areas classed as prohibited discharge waters.

Prohibited discharge waters refer to the discharge of treated and untreated sewage in boat harbours, canals and marinas. Designated areas include a buffer zone or a protection zone under the Marine Parks (Moreton Bay) Zoning Plan 1997, the Noosa River, and areas designated as prohibited discharge areas in the marine pollution regulation.

Many companies are now manufacturing and distributing a range of treatment systems to suit a variety of requirements and budgets. Maritime Safety Queensland, boating and yacht club representatives, ship chandlers and marine dealerships can advise you on the best options for your circumstances.

For more information: Maritime Safety Queensland, Phone (07) 3120 7485