

PRACTICAL GUIDE TO

# GREEN BOATING



THE GREEN BOATER



TIPS FOR ECO-FRIENDLY BOATING

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# Introduction

The health of our oceans is in decline. With greater accessibility to information regarding the environment and how human action impacts climate change among other things, we are now seeing tremendous change in the way people approach the topics of environment and sustainability. Yet, much remains to be done.

Unfortunately, over the past few decades, ocean pollution has become a major problem in many parts of the world, especially along the coastlines of large cities. Boats have become more of a contributor than a help when it comes to ocean pollution. Boat engines, fuel, plastics, toxic chemicals and ghost fishing gear are some of the worst elements turning healthy oceans into dark, and dangerous waters difficult for marine life to stay healthy and thrive.

We believe recreational boaters are the **first line of defense** when it comes to protecting the health of our oceans.

Boaters can choose more eco-friendly products, improve engine maintenance and embrace new boating practices in order to help sustain the health of our oceans.

This guide seeks to inform you, the boater, on how to engage in a journey towards the practice of Green Boating.

# Boat Maintenance and Pollution

When we talk about ocean pollution, we usually associate it with human behaviour. The truth is that there are a lot of boats out there that are polluting the environment just because they are not properly maintained. There are a lot of things which can cause water pollution and all these can be categorized into two sections - man made pollutants and natural pollutants.

Man-made pollutants are those which come from factories, automobiles, power plants, gas stations, oil refineries and waste management plants. These pollutants are very dangerous because they can cause great damage to the environment and to living organisms. There are a lot of gases which are produced because of man's ignorance or purposeful avoidance and they have the tendency to accumulate at a high

pace. As a result of this, pollution causes a lot of harm to nature as well as human beings. Let's start with a natural pollutant – sewage.

Although some think that one can simply let sewage out in the ocean as it is considered a natural 'flush', it can still pollute the surrounding environment. For example, discharge from sewage has been associated with shellfish closures<sup>1</sup> as well as serious public health risks. Therefore, it is unacceptable to flush your sewage directly in the water whenever you are close to shore. Instead, you should make sure to let it out at a pumpout service when available. You may discharge sewage 3 nautical miles away from shore, but should still attempt to use shore services whenever possible.

Moreover, you should try to keep all chemicals at bay. Indeed, using chemicals additives or bleach in your boat

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<https://georgiastrait.org/wp-content/uploads/2019/04/19.GGB-web.pdf>

sewage tanks can contribute to the pollution of the ocean and to eutrophication. Eutrophication is a chemical condition wherein water has an increased tendency to become contaminated and is slowly turning out to be toxic to living organisms. This happens when there is an excessive breakdown of microorganisms in water systems. The most common eutrophication triggers include chemicals and other pollutants which can easily find their way into water systems through drains, runoff, rivers, and lakes, due to soil erosion, and others.

Eutrophication occurs when the balance between oxygen and nitrogen in water systems is tipped in favor of the latter. This is caused by a variety of sources including agricultural runoff, sewerage, bacteria and industrial chemicals. It is believed that excessive amounts of nitrogen and phosphates in water systems contribute to this problem, but that it is caused mainly through human action (i.e. dumping of chemicals which

end up in our water systems). Eutrophication is also caused by the excessive use of nitrogen-based fertilizers. Phosphates in particular can cause the growth of algae, which can then increase the amount of nitrogen in the water system.

Eutrophication can have severe consequences on aquatic environments and can even result in marine life death. One of the most common eutrophication triggers is nutrient-rich sewage running off untreated sewage treatment plants, or any kind of sewage dumping. We can, however, prevent them from occurring by regulating the levels of certain nutrients that we add to our water systems. If we do not regulate these levels of nutrients, they can become so abundant that they upset the delicate biological processes that help to maintain healthy ecosystems. And so, we all have a part to play in this! This also means that one should never dispose of anything using the boat's head unless it is meant for this. For example, throwing away kitchen waste,



detergent, paint, solvents, or foreign objects can be very harmful both to you and to the environment. Similarly, one should make sure to keep the pet's waste in shoreside receptacles, or to keep it for composting.

## Maintaining Your Boat

When we speak of maintaining your boat, we are talking about a few things including the engine's maintenance, the batteries, bilge maintenance, general maintenance, winterizing your boat, and preparing your boat for spring.

We have already discussed natural waste disposal, but there are a few other things to consider in that realm. More specifically, you will want to be well-educated on the places where you can dispose of your waste materials. For example, you should use non-VOC (non volatile organic compound) solvents to wash the engine parts and tools of your boat. Then, you should place

these in a container for dirty liquids where you can safely dispose of them later on. Do not dump it in the water! It could kill fish, or even an entire community of marine life! Also, you should be careful about dumping waste oils, engine coolants as well as any kind of toxic chemical on the ground. This can get into the storm drain as well. Do not dump them into a dumpster and especially not in open waters, as again, it can end up polluting the waters and surrounding area. Try not to mix your chemicals with hazardous liquids because they may not be accepted when you want to dispose of them. Ultimately, your best option is to ask your local marina for guidance on this!

## Water

You will want to check the coolant levels in your engine before every single trip you take. Keep in mind that the antifreeze you have allows your engine to keep heat away from your engine so that it works more efficiently.

What this means, in terms of green boating, is that you are reducing your energy consumption which is better for the planet. You may want to choose a non-toxic antifreeze, such as propylene glycol, because it can improve the cooling properties by over 60% and can even be recycled. Do not pour the antifreeze down the drain and/or into the ocean! As you did with the previous chemicals we discussed, dispose of them in the right places. Your impellers and stopcocks should also be checked to make sure they don't waste energy and operate correctly. The pipes and hoses of your boat may contain organism buildup, something that may reduce or even fully block the flow— thus, this is something to check up on as well. Finally, don't forget to look at overboard discharge. This shouldn't have any contaminants leaking from it, such as oil or fuel.

## Oil

Aside from the previously discussed items involved in your boat's maintenance, you should also pay close attention to the oil you use in your boat. The oil that you use has to be changed rather regularly, and a way to make sure to remember this is to set up a step-by-step plan that is tailored to this end. For example, start out by turning off the bilge pump. Then, change the oil. You can put the pump back on after checking whether the oil has remained uncontaminated. You should also make sure to use a closed system when you transfer oil as well as a strong bag so that you avoid any spillage.

When an oil or gas spill occurs, the spill itself can actually destroy the ecosystem. Depending on the type of spill and severity, it can take years for the ecosystem to be completely healed. It is important to understand that the sooner the spill is cleaned up the less chance there is of the problem worsening; but in any case, prevention is the best solution!

Oil spills also have a direct impact on aquatic systems. Depending on the source of the oil and gas, certain aquatic organisms may be killed or affected so severely that they can become endangered as a species. Marine life such as fish and crustaceans are directly affected by the oil and its chemicals in the water. Oil and its byproducts can also affect plant and animal life by reducing their ability to survive and creating environmental stress on them. Fish and animals will begin to die off and eventually lead to severe problems for the ecosystems when their death leads to a lack of food, and so, it truly is a complex and long-lasting problem.

Whenever you are changing or removing filters, place a bag around them so that the dripping is contained. You could also use an absorption pad underneath to avoid any drops getting anywhere other than the filter. Keep in mind that disposing of the oil properly is important

so that there is no run off. You should also check your fuel lines as well as tanks and vents– this will keep our engine running smoothly, efficiently, and therefore, more eco-friendly.

# Fuelling and Power

As discussed previously, oil spills pose a threat to wildlife. Fish and marine life are especially at risk when oil is used because of the effects to their reproduction capacities and the sustainability of their ecosystems. Oil and other chemicals used to extract oil can threaten to harm or kill sensitive species such as the oceans' marine life, birds, and mammals, as well as aquatic communities such as fish and aquatic plants. Furthermore, oil can damage the land and the marine ecosystem by altering its natural pH level which affects the ecosystem's stability. Keep in mind that all systems are interconnected! So, what hurts the water will eventually also reach the animals living in it and the land nearby.

In addition to all of these issues, there is the risk that the oil can leak out into the water or enter the air and pose serious threats to public safety. Water pollution is

particularly worrying if it seeps into the aquifers, rivers, and lakes that are the sources of our fresh drinking water. Oil poses particular threats to marine wildlife such as birds, whales, and seals, as well as aquatic systems such as lakes and the sea for this very reason—although we could talk about the value of the fish dying to our own consumption and how fewer fish can make buying fish and consuming it more expensive, we must also think of the intrinsic value of a diverse ecosystem. A cleanup project can take a very long time and may not be cost effective, therefore proper preventative measures must be taken to mitigate the risk of an oil spill.

## Spill-Free Fuelling

We have to fuel our tanks, whether we like it or not. Yet, there is a way to do so without spilling over on the deck or in the water. Preventing a spill is much cheaper than cleaning it up, so it's an important effort and time investment. Before you start fuelling, make sure that



you have checked that your lines and tanks do not contain any breaks, cracks, or any kind of corrosion. These, alongside leaks, are some of the most common reasons behind oil spills. Moreover, you should have the right collar, bib, and spill kit ready to go before you start any kind of fuelling. This will make the act of catching a spill much easier and more efficient. You should also know the capacity that your tank has or your portable container– do not over-fuel as it will leak. Instead, make sure to respect the limit! Also, using an overflow attachment could be a great investment to make as it can contain overflow while also separating the air from the fuel<sup>2</sup>.

While collecting fuel, use an absorbent collar or bib around the nozzle. This will catch any spillover fuel instead of letting it fall on the wood or directly into the water. Do not fill it over 90% of capacity as heat may

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<https://www.sailorsforthesea.org/programs/green-boating-guide/spillproof-fueling>

lead to expansion. This way, you can be sure that you are not taking up too much oil and thus can avoid leaks or spills.

## Sustainable Use

In the broader context of ecological management, sustainability refers to the ability of an ecosystem to function properly. This definition is most closely related to the concept of environmental management, which seeks to protect the integrity of the ecosystem through various processes and practices. Ecological sustainability refers to the practices and goals of an ecosystem that take into account future climate change, fertility levels, soil quality, food production and consumption, air and water quality, and resource extraction and utilization. These aims are directly related to the long-term preservation of the integrity of the ecosystem. While climate change and extreme weather events are the most pressing concerns of

sustainability, even those events that do little harm to the environment can threaten the stability of the ecosystem, including a small oil spill from your boat. It doesn't matter if your boat is a gigantic carrier or a smaller one, all oil spills hurt the environment. For example, two cups of oil can spread over an acre of water surface!

## What To Do in the Case of a Spill

If you are in an area where an oil spill occurs, whether it is from a boating incident or a natural occurrence, there are some things that you should know as a precautionary measure. In your case, if you witness a large spill or realize that you have caused one, you should not try to clean up an oil spill yourself. Rather, you should contact the proper authorities such as your local law enforcement officials and emergency services.

In the event of an oil spill, it would be helpful if you knew how to protect yourself from the oil. This means that you should wear safety equipment such as rubber gloves, goggles, and face masks. You should also ensure that you have all of the necessary safety supplies so that you can attempt to slow down the spill– for example, consider carrying absorbent shocks, pads, and pillows until help comes.

So, first, identify where the spill comes from. If you can, stop the source of the spill right away. Then, notify the right people. Again, you may need to notify the marina or the fuelling dock, depending on the situation. All absorbent materials used to absorb some of the spill should be disposed of as hazardous waste. Next up, wait for help. You have to call the coast guard to let them know about the spill, and they may ask you questions about the spill, such as where it took place, the cause of the spill, the type or amount of oil that was spilled, the level of threat or danger associated with it,

and the weather conditions where it is located. **An important thing to note here is that you should never ever use soap to get rid of the spill.** Although it may seem like the logical thing to do considering the properties of soap with oil, it'll only separate the spill into smaller particles of oil and therefore it will only make it more difficult to clean the mess up.

# Boat Paint and Cleaners

Now that you are (hopefully) worried enough about an oil spill that you will do everything in your power to avoid one, we can move onto a different topic. Indeed, not only is oil bad for the environment, but the kinds of chemicals that you use to clean and paint your boat can also contribute to polluting the waters your boat is in. For example, there are certain paints that are more harmful than others, which is what we will be discussing throughout this section of the guide.

## Antifouling Paint

The paint on the bottom of your boat is almost constantly touching water. Therefore, the ingredients and toxic components that are inside this paint are directly in touch with water as well, which is why it is important that you are careful about the kind of paint

that you choose. Anti-fouling paint is commonly used. There are many types of this paint, including ablative paint, hard antifouling paint, and teflon or silicone coatings. Antifouling paint is mostly used to repel the growth of bacteria or other marine living things from the bottom of your boat. With ablative paint, which is also called “sloughing” paint, you have a partially soluble product. The active ingredient in this paint exposes fresh paint as well. Hard antifouling is a “contact leaching” paint. It creates a porous film on the surface of your boat. There are biocides within the pores themselves and these are released slowly. There are specific anti-fouling properties (which repel bacteria rather than killing them directly). There aren’t as many toxic metals in this kind of paint, therefore, there isn’t as much sloughing of toxins into the water you are in. There is also a teflon and/or silicone coating. This is something which becomes hard and slick. This material is one that produces a surface which isn’t prone to fouling growth. They aren’t toxic, but they also aren’t as

effective as other paints which contain biocides, for example. To apply this material, you need to have specific conditions, and the use of this paint may lead to slippery conditions when you are hauling the boat, as well as results that do not stick very long<sup>3</sup>.

To be a more eco friendly boater, you have options when it comes to the coatings that you would like to use. For example, you may first want to consider whether you need anti-fouling paint in the first place. This kind of pain is toxic and it is quite expensive, so you may not absolutely need it. You could use regular paint or could even try out using wax instead which is much less toxic both to you and the environment and which doesn't harm the living things in the water.

If you have a smaller boat, you can also try to store your boat on land instead of leaving it in the water, making the need for anti-fouling paint completely obsolete. Or,

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<sup>3</sup> <https://learn.eartheasy.com/guides/eco-friendly-boating/>



if you choose to leave your boat in the water for longer periods of time, you can also simply scrub your boat once a month. That should do the trick! Otherwise, try reducing the amount of toxic paint that you use. This can also be done by avoiding cleaning the hull more than once every two months instead of doing so every single month.

You can also use a tarp or a drop sheet instead. This is a more environmentally-friendly way to keep your boat fresh and clean without leaving behind loads of residue. Whenever you are taking the day to scrape or sand the bottom of your boat, collect the flakes by positioning a tarp or drop sheet underneath. Do this away from the water if possible, as otherwise, flakes can fly into the water, rendering it toxic and harming the ecosystem. You can also use a vacuum if you are able to clean your boat in an enclosed place.

When you are done painting your boat, you shouldn't forget to keep the eco-friendly habits all the way through. So, use non-toxic and oil-based solvents. These are very easily found in most hardware stores, and things like rollers or brushes do not have to be cleaned overnight. You can even keep them uncleaned for up to a week as long as they are kept stored in a plastic bag and that you take out as much air as possible. While painting, do not have loads of paint out and available. Instead, try as much as possible to keep the paint out in the open as minimally as possible. Do not paint while in the water, only do so while on shore to make sure to minimize how much paint ends up in the water. And, while doing so, you can avoid paint spills by putting your paint in a larger bucket. Finally, dispose of the paint in the right places – do not just throw it away like you would any random waste material. These are chemicals and they are toxic to our oceans!

# Cleaners

Cleaning is not everybody's favourite, but it is still something that we all need to get done. However, depending on your boat, where you are cruising to, how much space you have and how often you are likely to be close to the shore where you can get rid of your detergents and cleaning materials, you may need to have some options for biodegradable cleaners - some of which you can create by yourself. There are many kinds of cleaners that can be made easily and with only a tiny bit of oil or vinegar, and most of the natural cleaners simply need ingredients that you have on your boat already.

To clean the decks, you only need one part vinegar to eight parts of water. You should not add essential oils because cleaning water that falls back into the ocean may end up being toxic for the surrounding marine life. To clean your fiberglass, all you need is baking soda and

salt. This becomes a wet paste that you can use to scrub the fiberglass. To clean aluminium use one tablespoon of cream of tartar and add this to half a liter of hot water. To clean brass, use worcestershire sauce, vinegar, as well as salt all combined, For chrome and metal, use baby oil to polish. You can clean chrome with vinegar and salt. Then, you can use lemon juice and salt to clean copper. Mix one part of vinegar into two parts of water to clean clear plastic or glass. Use vinegar and salt solution or tea tree oil to get rid of mildew. Polish interior wood with a bit of olive oil.

For bleaching, you should use hydrogen peroxide bleach, not chlorine as this is very toxic for the ocean. Scouring can be done with baking soda and water paste. Clean hair by using baby shampoo as this is usually phosphate free and has a balanced pH which will not lead to eutrophication if it enters the ocean. The shower can be cleaned with baking soda, similar to the toilet. Finally, dishes can be cleaned with non-petroleum soap.

# Marine Life

One important topic that we still need to discuss is that of respecting marine life. Although life on a boat, or even just being on a boat for a few weeks every summer is great, one must still be aware of one's actions and their repercussions. Certain marine animals and wildlife in the oceans and seas are under serious threat and are endangered. It is up to every Boater to make sure that we respect the laws set in place to protect them while also using common sense.

One of the most important aspects to remember is that you should not disturb marine life. If you see marine animals near you, there are a few steps to follow. If it is a killer whale, you must stay 200 meters away from them. If it is any other kind of marine mammal, you must stay 100 meters away. This is to make sure that they are given the space they need for their wellbeing. Moreover, it is for your own safety. If you notice that a

marine mammal is resting or that there are many boats around already, it is best to stay further away. If they are swimming near you, turn off your engine and let the animal pass you. Then, steer away from them when you can, keeping your distance. You should slow down and try to limit the noise you make. Again, you are in *their* home, so it is up to you to abide by their rules and to respect their environment. Do not chase marine mammals, do not approach them, and don't cut across them or stop right in front of them. It can give them a fright and they can turn aggressive. You should also not split groups of marine mammals and should never trap them between your boat and the shore. Finally, do not disturb the animal, touch it, feed it, swim or dive with it. Leave it alone, as this is how it prefers to be. This isn't only a suggestion, it is the law!

## Birds

Marine birds also deserve your attention and respect. If you see bird colonies, stay 100 meters away from them to give them the space they need. If your boat is near them, slow down in order to reduce the noise you make as it could scare them and they could have a negative physiological response to this stress. If you have a pet on board, make sure that you keep it away from bird colonies or from nests as they may kill young baby birds. You may realize that marine birds will often set up their nests on the grounds, near shorelines or on small cliffs and islets. These can be hard to see, so you have to pay extra attention.

## Corals, Fish, Shellfish

Aside from affecting birds negatively, corals, fish, and shellfish among other living beings are negatively impacted by pollution. The chemicals used to clean

boats, paint them, and in other products that are used by humans can lead to the acidification of our oceans, which in turn disrupt the delicate pH needed by these animals to survive. Moreover, pollution can also take place in the form of microplastics that are often found in cleaning products or even beauty products. Macroplastics refer to bags and other larger items, whereas mesoplastics refer to mid-sized plastics. Microplastics are ingested and bioaccumulate in the tissues of living things in aquatic waters, which is, of course, harmful to their lives and wellbeing. Corals are negatively affected by the acidification of the ocean that follows the dumping of chemicals, and this, in turn, is extremely costly to the surrounding area as corals are the habitat of hundreds, if not thousands, of organisms. Thus, when a coral dies, not only does this organism die, but so do the thousands of organisms that rely on the coral. Their living environment is destroyed and the food chain which used to be supported by the coral is hence disrupted.



# Conclusion

Pollution and other human activities, such as dumping of waste into ocean waters, can have devastating effects on marine life. In fact, some marine animals have been wiped out due to human interference and overfishing. Overfishing has led to an imbalance in the marine food chain. Certain types of aquatic animals are becoming scarce and at great risk of extinction. But, these are only a few of the issues that we are facing today in regards to marine life. With constant pollution from the dumping of chemicals into waters, to eutrophication which kills wildlife, to poaching, and a simple lack of respect vis-à-vis our wildlife and water sources, we have a long way to go.

But things are looking up. The fact that you have read this guide alone is encouraging! We all have a part to play in being better human beings who respect our environments. And, as boat lovers, we must also be

extremely careful about the chemicals we bring into the waters, the oil that spills, the way we behave, and more.

We trust this guide has provided an overview of the issues affecting the health of our oceans and the simple changes we can make to help protect our oceans and marine life.

We encourage you to begin your green boating journey with a simple commitment to be a Green Boater! The checklist below contains some basic tips which you can implement aboard your boat.

Take these tips to heart and by doing so you can help create the ocean you love!

~ The Green Boater

# Green Boating Checklist

## 10 Green Boating Tips

1. Choose to be a 'Green' Boater
2. Maintain Engines, Pumps, Props, Through-Hulls
3. Use Pump Out to Discharge Waste Water
4. Use Non-Toxic Cleaning Products
5. Use Eco-Friendly Bottom Paint
6. Refuse Single Use Plastics Aboard
7. Use Biodegradable Ocean Friendly Products
8. Refuse To Toss Anything Into The Ocean
9. Respect Marine Life
10. Educate Yourself and Your Crew

# About The Green Boater



The Green Boater was established in 2019 as an online platform to educate boaters and enthusiasts about marine products and practices which help stop all forms of ocean pollution.

We produce unique content which is highly relevant, visually appealing and practical for distribution on targeted social media and online platforms. We seek to engage our community with video, live streaming events, special offers, contests and special product offerings.

Our community is made up of boater owners, ocean enthusiasts, marine biologists, manufacturers, environmentalists and anyone seeking to help protect our oceans.

Website

[www.thegreenboater.com](http://www.thegreenboater.com)

The Green Boater TV

[www.youtube.com/user/thegreenboater](http://www.youtube.com/user/thegreenboater)