



# Water Management

Freshwater on a ship is a precious commodity. We go to great efforts to ensure it is used most efficiently and treated properly.



**In 2019, we produced 90% of our fresh water**  
on board via desalination or reverse osmosis.



### Efficiencies

like aerators, low-flow showerheads, reduced flow dishwashers and laundry equipment help us reduce water consumption.



Our average guest water consumption is  
**66 gallons per day**  
– 34 gallons less than the U.S. average.



**Condensation from air conditioning units** is collected and then used in laundry areas.

## HOW WE PROVIDE POTABLE (FRESH) WATER

Onboard, fresh, or potable, water is used for drinking, showers, sinks, toilets, galleys, pools and spas and is obtained in one of three ways:

- 1. Desalination:** This system boils and evaporates seawater which is then condensed into fresh water. While this process requires high levels of energy, we repurpose our engine waste heat or steam from exhaust gas boilers to heat the water for this process.
- 2. Reverse Osmosis:** This system creates fresh water by pumping seawater at very high pressure through a filter or semi-permeable membrane that only allows water molecules to pass through. The newest reverse osmosis systems being installed on our ships require 65% less energy to operate than a few years ago.
- 3. Bunkering:** Fresh water is bunkered (sourced locally) only where our use will not stress the local community from a social, health, or environmental perspective.



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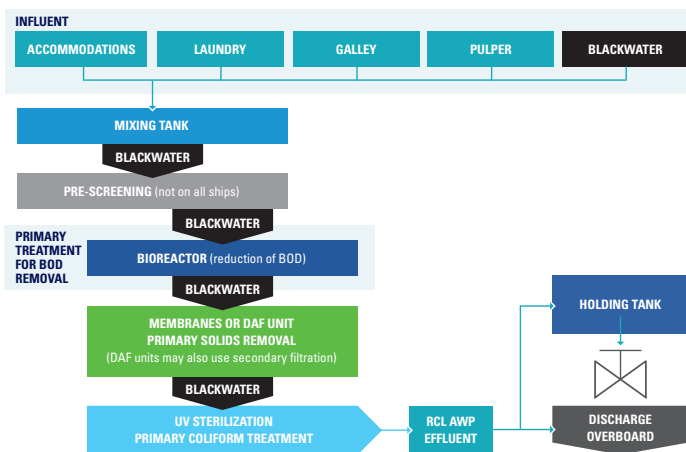
## HOW WE HANDLE WASTEWATER

Wastewater on board is handled much like it would on land through a water treatment plant. It is our policy that no untreated waste goes overboard. This takes into account all international and maritime standards and laws, and in many instances, take us above and beyond what is mandated.

### Advanced Wastewater Purification

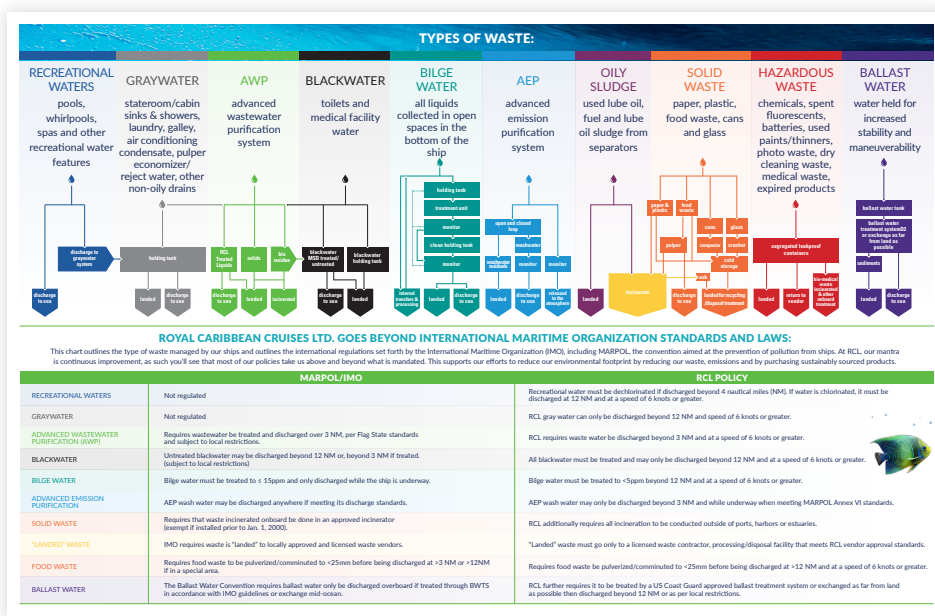
All of our ships operate with a water treatment plant, but in 2004 we made a commitment to install Advanced Wastewater Purification (AWP) systems on board. To date, 85% of our capacity is equipped with this system.

Designed to maximize the limited space on board a ship, the tertiary treatment system processes sewage, or Blackwater, and all forms of graywater including water from sinks, showers, and galleys. The technology is fully automated and is based on a biological degradation and membrane separation. The results are treated and discharged water that is twice as stringent as U.S. federal standards.



- > 85% of our capacity is equipped with this system.
- > Treated water is discharged at 3 NM from land – far exceeding the required.
- > In 2019, we added an AWP to Perfect Day at CocoCay.

This chart outlines the wastewater streams on board, their treatment and the international regulations by which they are governed.



[Download the Wastewater Stream Chart](#)

## BALLAST WATER TREATMENT

Ballast water is seawater brought onto a ship to help stabilize it. Our systems treat ballast water which greatly reduces or eliminates its potential to discharge non-native species into other local environments when the ships move to other ports. *Quantum of the Seas*, in 2014, was built with a ballast water treatment system before there were any international requirements to have such technology. Since then, other RCL ships have been retrofitted with ballast water systems as part of ongoing initiatives to include this feature on all of our vessels.

