



Ballast Water Management Systems

Choose Ecochlor
Choose Peace of Mind



Ecochlor was founded in 2001 to provide a simple, reliable, cost effective and easy to use ballast water management system (BWMS) that can stand up to the most stringent regulations in the world. We aren't in this business for the short-term, our focus is to continue to offer shipowners systems that keep their vessels compliant both now and in the future.

Our simple, reliable ballast water management systems help to protect the environment whilst using a fraction of the power compared to competitor systems — meaning they can also help reduce your fuel consumption and emissions.

Plus, through our innovative environmental technology affiliates we are able to provide shipowners with a full suite of “green marine” options, all proven to lower carbon emissions and save shipowners money.



ECOCHLOR® BWMS SOLUTIONS

Ecochlor's range of systems puts shipowners back in control of the ballast water management process by allowing them to choose which mode of operation is best for their vessels.

EcoOne® Filterless BWMS (ClO₂ alone)

By eliminating the need for filters, it reduces the complexity of installation and maintenance, making it easier for the crew to operate. The lack of filters also means fewer parts to clean or replace, enhancing overall reliability and reducing downtime. Vessels operating this system can operate anywhere in marine and brackish waters (≥ 1PSU) and with no restrictions on temperature or turbidity.

EcoOne® Hybrid BWMS (Filtration & ClO₂ or ClO₂ alone)

This system will allow shipowners to operate their BWMS either with or without a filter. This option is suited for shipowners who wish to have the flexibility of unrestricted operation globally, with the convenience of a no-filter system. Its smart feature allows for seamless filter engagement or disengagement, tailoring to different water types, and ensuring peak performance wherever the trade route leads. Vessels that already have an Ecochlor BWMS with filters installed can upgrade to the hybrid option with minimal cost.

EcoOne® Container Unit

The ideal BWMS for Semi-Submersible Rigs, Jack-Up Rigs, Drillships, FPSOs, and FSRUs. This option can simultaneously serve up to four separate sea chests or quadrants with one system. Plus, no filters are required. You can gravity ballast on uptake and discharge and there is no need to re-treat or neutralize before de-ballasting. The BWMS has very low power and space requirements and a single unit can be shared between multiple rigs and / or vessels.

Ecochlor BWMS: Ensuring Compliance Today, Ready for Tomorrow's Challenges

Ecochlor® Ballast Water Management Systems

ROBUST and RELIABLE

POWERFUL, SAFE TREATMENT TECHNOLOGY

For over 80 years, chlorine dioxide (ClO₂) has been a trusted method for treating drinking water. Due to its unique properties, many consider ClO₂ as 'the ideal biocide', and it is approved by the World Health Organization and the Environmental Protection Agency for use in multiple applications.

Our ClO₂ treatment requires a very low chemical dose because the biocide primarily reacts with living organisms. Due to its limited reaction with non-living organisms, ClO₂ works exceptionally well in “dirty” water without the need for large increases in ClO₂ dosage to ensure efficacy, both protecting tank coatings and limiting power requirements.

Unlike other water treatment technologies, changes in water conditions - salinity, temperature and turbidity - do not influence the effectiveness of ClO₂. Thus, there is no need for the crew to adjust the system when faced with varying waters.

Our powerful ClO₂ treatment technology has been tested extensively to ensure that it works effectively as a single pass treatment under all operating conditions with no neutralization or retreatment prior to discharge.

SMALL FOOTPRINT — FLEXIBLE, MODULAR INSTALLATION

The Ecochlor BWMS offers the small footprint and modularity needed to optimize available space. The Generator treatment cabinet, approximately the size of a small wardrobe, does not increase in size in relation to the flow rate and it can be placed in almost any convenient location on the ship. For our hybrid option, the filtration unit is typically located in close proximity to the ballast pumps and can be placed in either horizontal or vertical configurations.

USCG & IMO REGULATORY REQUIREMENTS

All of the Ecochlor® systems are IMO and USCG Type Approved. This stringent testing demonstrates that our technology can meet and exceed demanding regulations for compliance.

“FIT FOR PURPOSE” ENGINEERING

Ecochlor's systems are 'fit for purpose' all the way down to the component level. Ensuring maximum uptime means using high-quality components within an inherently simple system, which minimizes equipment failure and extends the life of the BWMS.

Selecting one of Ecochlor's BWMSs offers a number of advantages over other treatment technologies.

- **NO** TRO sensors, **NO** electrodes, **NO** complex power supplies that can interrupt ballasting or de-ballasting operation
- **NO** treatment prior to discharge and no need for neutralization
- Gravity ballasting on intake and options for discharge
- Low energy use - very low carbon footprint
- Easy cold ironing
- Treatment of flow rates up to 16,200 m³/hour
- Simple, flexible designs with filter, no-filter, and hybrid filter/no-filter and container options available

UPGRADE YOUR BWMS FOR COMPLIANCE AND EFFICIENCY

The main challenge shipowners face with their BWMS is realizing their initial choice may not have been the best. Issues include inadequate performance and lack of manufacturer service and parts support.

Many systems are too complex for crews, risking non-compliance. Shipowners should proactively reassess and invest in upgraded systems.

Our EcoOne® filterless BWMS simplifies crew operations, and improves overall energy efficiency, reducing the ship's carbon footprint and ensuring compliance with regulatory requirements both now and in the future.



Ecochlor® BWMS

SIMPLE OPERATION, UNMATCHED RELIABILITY

The Ecochlor BWMS offers an unparalleled solution for efficient and compliant ballast water treatment. Engineered with simplicity in mind, the EcoOne® systems' boast minimal parts, ensuring ease of use for your crew and significantly reducing maintenance needs.

Investing in an Ecochlor system means investing in peace of mind, knowing your operations stay compliant today and ready for tomorrow's regulations. Because the true worth isn't just in the cost but in the unquantifiable value of reliability.

OPERATIONAL PARAMETERS

| Operational Parameters (Approved or Pending) | Ecochlor® BWMS with Filter Operation Only | EcoOne® Hybrid System With or Without Filter Operation | EcoOne® System Without Filter Operation Only |
|---|---|--|---|
| Salinity | From <1 to >36 PSU | From <1 to >36 PSU with a filter From ≥1 PSU without a filter | From ≥1 PSU |
| Temperature | From <-2 to 37°C (no limitation) | From <-2 to 37°C (no limitation) | From <-2 to 37°C (no limitation) |
| Filter Pressure | >0.4 bar | With filter: >0.4 bar Without filter: Not Applicable | Not Applicable |
| ClO ₂ Dose | 4.25 mg/L | With filter: 4.25 mg/L Without filter: 4.6 mg/L | 4.6 mg/L |
| Power Requirements <small>Maximum power requirements will only occur when the filter is in continuous cleaning mode for turbid water</small> | Flow Rate: 500-3,000 m ³ /hour Range from 7.5 kW to 17 kW Flow Rate: 3,000-10,000 m ³ /hour Range from 24 kW to 60* kW | With filter: Ranges 7.5 to 60* kW Without filter: Ranges 5 to 15 kW | Flow Rate: 500-3,000 m ³ /hour Range from 5 kW to 7 kw Flow Rate: 3,000-10,000 m ³ /hour Range from 10 kW to 15 kW |

*The maximum power rate is because it includes 2 BS1406 filters requiring two CP-2 electrical panels

EcoOne® Filterless, HYBRID or Container BWMS

FILTERLESS BWMS INSTALLATION

Installation costs can vary widely based on vessel specifications, integration engineering costs, shipyard fees, and installation location. However, integration engineers found that retrofitting an EcoOne® filterless system can be completed approximately 25% faster than a standard BWMS with filter. Additionally, this retrofit can reduce installation time by up to a week during drydocking.

Cost savings are also significant, with up to 40% savings in piping and 30-50% in cabling, not including any savings on owner-supplied equipment. Shipowners can therefore expect both time and cost efficiencies with a filterless EcoOne® retrofit.

TURNKEY INSTALLATION OPTIONS

Through a network of partners, Ecochlor offers a full range of options to provide shipowners additional support for system installations. These services include:

- Integration engineering
- Door to door shipping
- Installation supervision and commissioning testing attendance (with Class approval)
- Purchase and shipment of high-grade steel and plastic pipe
- Materials to support the installation
- Spare parts for redundancy on board the vessel

LOW POWER REQUIREMENTS

Energy efficiency is a significant consideration for any vessel operator. The EcoOne® BWMS is engineered to be highly energy-efficient, reducing the overall energy consumption of the vessel. This efficiency translates to lower operational costs and a smaller carbon footprint, aligning with global efforts to reduce maritime emissions.



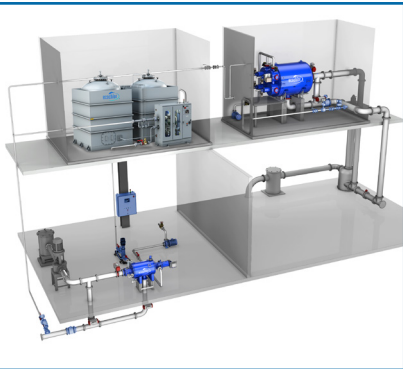
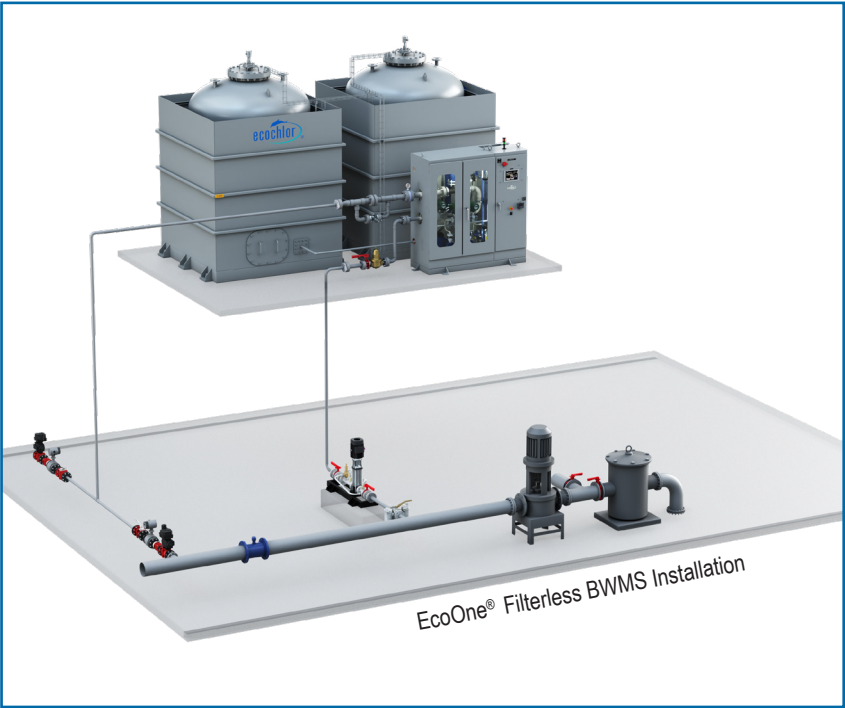
EcoOne® BWMS: THE ULTIMATE SOLUTION FOR YOUR CREW – ANY VESSEL, ANY TRADE ROUTE OR ANY PORT

Managing ballast water is a critical aspect of operating a ship, but it can also be a significant challenge for your crew. Traditional BWMSs often involve complex equipment, intricate maintenance procedures, and extensive training requirements. These challenges can lead to operational inefficiencies, increased costs, and even non-compliance with regulations.

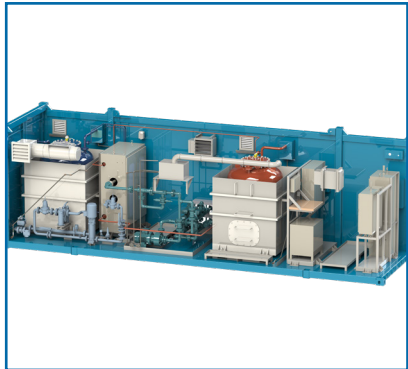
Designed for versatility, the EcoOne® BWMS is perfect for any vessel type, any trade route, and any port. Whether you're operating bulk carriers, tankers, container ships, deck cargo barges, ATB's or offshore support vessels, EcoOne® simplifies ballast water management with its intuitive interface. This user-friendliness not only improves operational efficiency but also helps ensure consistent compliance with ballast water regulations. Minimal training, improved efficiency, and consistent compliance—what more could you ask for?

If your crew is struggling to operate and maintain your current ballast water management system effectively, it might be time to consider a better alternative: the EcoOne® Filterless Ballast Water Management System.

Don't let ballast water management be a burden on your crew. Contact us now to learn more about how you can replace your current BWMS with an EcoOne® system on your vessel!



EcoOne® Hybrid BWMS Installation



EcoOne® Container Unit



FULLY SUPPORTED TRAINING

Ecochlor's BWMSs are very simple to operate, but we still offer multiple training alternatives for the crew post-commissioning. While on board for our chemical resupply, we can provide shipboard training to any new crew members. This follow-on training helps ensure continued safe and reliable operation of the BWMS for years to come. We also offer computer-based training, training at the shipowner's facility, and virtual training for the crew or land-based offices.

CHEMICAL RESUPPLY

Ecochlor has always offered unsurpassed service to clients including shipboard visits twice a year (dependent on ballasting operations) to handle chemical resupply. Ecochlor manages all the logistics for:

- Tracking chemical use with information supplied by the crew after every ballast operation
- Ordering and delivering chemicals to the nearest port or vessel
- Filling the chemical storage tanks and clean up
- New crew training and service maintenance (as time allows)

SERVICE

Ecochlor has service engineers located throughout USA, Europe and Asia. We supply local assistance and support and have Regional Service Managers in the United States, China, Singapore and Europe. We continue to strengthen our in-house team supported by carefully selected Authorized Installation and Service providers strategically located worldwide.

Our spare parts and service network is located in multiple areas throughout the three major time zones to offer real-time response to our clients.



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