

# Predicting Global Ballast Water Treatment Markets

by

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It just became impossible to make logical predictions about how regulation-driven markets for ballast water management systems (BWMS) will develop. A recently released study of IMO's program for certifying BWMS revealed serious problems and inconsistencies in the testing and certification criteria that 14 separate IMO nations have used to certify over 50 BWMS, and a lack of evidence that the thousands of IMO-certified BWMS that have been purchased and installed on ships can actually meet ballast water (BW) discharge standards specified in IMO BW regulations.

IMO will need to take action to correct problems with its BWMS testing and certification program. It may also need to intervene somehow in global BWMS markets to correct or avoid problems associated with lower price/lower quality IMO-certified BWMS driving out higher price/higher quality BWMS that are more likely to be capable of reliably meeting BW discharge standards. Whatever actions IMO takes their outcomes and impacts on global BWMS markets are highly uncertain.

The basic problem in BWMS markets stems from the fact that both IMO and USA BW regulations are ambitious attempts at what economists call "technology forcing regulations" or TFRs. When they were developed, over ten years ago, they required ships to meet BW discharge standards in the future that were not achievable with technologies that were available at the time. Like all TFRs, BW regulations were developed under the assumption that by the time they were implemented and enforced potential profits in markets for technologies that could be used to comply would have already have attracted enough investments in research and development for them to be found, and then enough investments in BWMS manufacturing and installation capacity to allow widespread compliance.

Sometimes TFR's work, sometimes they don't, and sometimes they need to be modified to match the limits of existing technologies or allow more time than was allotted for new technologies to be developed and reach market. At this point it is not possible to predict where things stand.

The IMO and the USA are both employing the same five stage strategy for implementing BW regulations, including:

(1) **Determine** acceptable maximum standards for living organisms in BW discharge

(2) **Establish** regulations that require ships to install and use BWMS that can meet these BW discharge standards

(3) **Trust potential profits** in regulation-driven BWMS markets to attract enough investment in research and development for such BWMS technologies to be developed and certified as being able to meet regulated BW discharge standards

(4) **Further trust potential profits** in BWMS markets to attract enough investment in the manufacturing and installation of certified BWMS to allow widespread compliance; and

(5) **Enforce** BW regulations in order to generate enough shipping industry demand to support BWMS markets, achieve widespread compliance, and result in BW regulations.

The USA and IMO both set the same BW discharge standards years ago, so Stage 1 is complete. USA regulations are in place and IMO regulations are expected to be in place soon, so Stage 2 is nearly complete. The USA has not certified any BWMS as being able to reliably meet BW discharge standards, so from the USA perspective we are not through Stage 3. On the other hand, the IMO process for testing and certifying BWMS has resulted in over 50 BWMS being certified. From the IMO perspective, until the results of this new study, it seemed they were through Stage 3. Over the years this caused many BWMS vendors and some shipping industry experts and analysts to predict that we were entering Stage 4 where global BWMS markets should be expected to grow quickly.

These predictions, including some by me, are all roughly the same. 40,000 to 50,000 ships in the affected global merchant fleet will need to comply by purchasing and installing BWMS at a cost of roughly \$1 million each, which puts the potential size of global BWMS market at roughly \$40 billion to \$50 billion. IMO's planned five-year schedule for implementing BW rules requires ships of different types, sizes, and ages to comply in different years, so the type/size/age characteristics of ships in the existing global fleet will dictate the general pattern of BWMS market development. It will be bell-shaped with BWMS demand growing for about 3 years after IMO ratification, peaking at about 10,000 BWMS installed annually (average of 27 per day) and then declining over the following 3 years as the retrofit market dries up and the market flattens out at around 2,000 installations per year (average 5 per day) on newly built ships. Many BWMS market analysts, including me, assumed IMO's extremely tight compliance schedule would create so many BWMS supply and installation bottlenecks that it would be relaxed so that BWMS markets would actually develop over 10 to 15 years.

However, all of these predictions about the Stage 4 development of BWMS markets, and even predictions about when IMO will reach Stage 4, are now most certainly wrong. The recently released report did not recommend how IMO should respond to study results other than to suggest that IMO "consider the findings ...and take action as deemed appropriate." However, IMO will not be able to ignore these study findings, and the future of global BWMS markets will depend on what actions IMO will deem to be appropriate and how quickly and effectively they are carried out. In this regard it is also important to appreciate that the billions in potential sales predicted to encourage the development of BWMS markets represent billions in shipping industry costs that generate no shipping industry revenues. For that reason, it is reasonable to assume that some shipping industry representatives will be "gaming" the situation and using whatever political and legal tools they can to avoid, reduce, or delay compliance cost by preventing IMO from managing this situation quickly and effectively.