Department of Transport - Coast Guard
33 CFR Part 151 [USCG-2001-10486] RIN 2115-AG21

Standards for Living Organisms in Ship's Ballast Water
Discharged in U.S. Waters - Request for Comments

175274

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Response to Questions

Q1. Among the 3 options proposed, none may be entirely suitable.

G1. The goal of no discharge of zooplankton and photosynthetic organisms may be achievable because current ballast water treatment technologies under development includes exclusion of species by filtration. If the goal for the taxonomic groups listed is zero discharge, this standard could be relatively easy to apply because it is based on their absence. It could be noted that absence is not the same as dead organisms as discussed below. Goals for the 35 to 126 per 100 ml criteria for some microbes would be more difficult to monitor because of the additional requirement of numerical counts. Volume based counts would be more labor intensive, and working with microbes may require a higher level of technical expertise and additional resources.

G2. Drinking water regulations for many substances are expressed as numerical concentrations that were developed from scientifically defensible data bases. Each regulated substance has a "safe" concentration that is based on specific levels of protection to human health, other organisms, and their environments. The perceived threat from most exotic or invasive species introduced by ballast water would be largely based aquatic ecosystem level concerns, and some microbes and toxin producing species that have human health concerns. Substances regulated by drinking water regulations tend to be a common concern on a global basis, this would not be case concern in the management of exotic species. A species native to one region or watershed, could be an exotic in an adjoining one. Terminology has also been a problem in this field, where an exotic species is defined on biogeographic distribution, while the invasive designation is associated with an exotic or native species based on their negative impact.

Concerns for some organisms like E. coli have been addressed through regulations developed, and possibly administered, by human health regulatory agencies. Concerns about exotics species has been of interest primarily to natural resources management agencies who deal with their effects. Responsibilities for ballast water management has generally be relegated to transport agencies. There should be a clear understanding among these agencies regarding their mandates, and existing legislation, in developing regulations on the management of exotic species in a ballast water context. These regulations would contain key terms, and their definitions should be consistent with the same terms using in other regulations (See G6). If the target of ballast water regulations are based on organisms designated as "exotic" that approach could be problematic for species like E. coli with many strains, and might be viewed as a "cryptogenic" species.

G3. There is a growing body of information that recognizes the limitations of ballast water exchange to reduce the risk of further exotic species introductions, nevertheless, exchange is the only method currently available. Exchange is mandatory for overseas vessels entering the Great Lakes and Hudson River waters because of the lower probability of marine organisms surviving when discharged into a freshwater environment. This strategy could be less effective for marine

systems where offshore organisms are discharged into a nearshore environment.

Our experiences in the Great Lakes region have further indicated that well over 80% of incoming overseas vessels enter with cargo, with little to no exchangeable ballast water on board (NOBOBs). These vessels carry about 50 tonnes of unpumpable ballast, which appears to be the probable cause for the continuing introducing of exotic species to the Great Lakes where lake ballast is mixed with residual ballast that is eventually discharged. Similar high frequencies of vessels carrying little or no exchangeable ballast water may be expected among most vessels at all major ports.

Q2. It is important that a standard be adopted to define goals, and provide the impetus for continuing efforts to achieve a desirable solution. S2 and S4 would be more desirable than S1 and S3 standards on the basis of their regulatory application, but not necessarily their effectiveness.

Concerns were expressed on this issue in my comments on Potential Approaches to Setting Ballast Water Treatment Standards (USCG-2001-8737), May 1, 2001. Numerical standards based on any values excluding zero and 100%, could be difficult to apply because it would require measurements before and after final exchange to calculate percentages. The 95 to 99% removal level in S1 and S3 would require QA/QC methodology that is capable of producing readings at this level of accuracy. Standards that are based on several taxonomic groups, and their life-stages, would require a high level of technical expertise onboard or on site to conduct the monitoring.

S4 would be easier to apply than S2 because no organisms greater that 50 microns would be discharged, and monitoring is based on their absence or presence. Application of S2 is more difficult because of the need to verify that remaining organisms larger than 100 microns were killed or inactivated.

Q3. No comments

Q4. No comments

Q5. Applicable of any standards would be based on a mandatory or voluntary basis. There are concerns with both because current Best Available Technology for ballast water treatment are largely in the developmental and testing stages. There will be reluctance among vessel owners to invest in these technologies because of high costs and rapid advancements on many fronts. If standards was voluntary, participation would be poor. Economic impact can be a factor if a standard is mandatory for all vessels entering North American ports, but not other global ports. Our analyses indicated 885 overseas vessels entered the Great Lakes 4,019 times between 1989 to 1997, 45% of the vessels entered only once over the 9 year period. Transit patterns could be markedly changed if overseas vessels that carry cargo to the Great Lakes are required to have treatment capability onboard that may not be required at other ports.

Monitoring voluntary ballast water treatrnent efforts on a global basis will be challenging, and

enforcement of a mandatory regulation would be more demanding. There were about 13,200 active vessels in the world fleet that made 560,400 visits to world ports in 2000, including 6,400 vessels that made 59,900 visits to U.S. ports. Larger U.S. ports like NY-NJ, Savannah, Charleston, Miami, Houston, Seattle, Tacoma and Los Angeles received over 1000 visits in 2000. Frequencies are considerably higher at major global ports like Rotterdam that received 29,000 large vessels, Hong Kong that received 34,900 ocean cargo vessels, and Nagoya that received 40,500 overseas and domestic vessel visits in 2000.

Q6. Potential impacts the goals and standards could have may be environmental as well as its application, the latter which will the focus of these comments.

Various sections of the Clean Water Act (CWA) have traditionally applied to water related concerns, and that responsibility might also be extended to deal ballast water discharge. Yet the terms under which many substances are regulated under the CWA may not be easily extended to deal with ballast water concerns. CWA regulations are developed for individual substances rather than a poorly defined diverse group of organisms as may be case here. There are substances found in ballast water such as oil that are regulated by this of similar acts. In general, regulated substances becomes an issue only when concentrations exceed a certain level in a water body, and conclusions can be drawn on their effects to the biota in that area.

CWA-type regulations are generally applied on the basis of a substance exceeding the specified concentration. The substance can be designated as a "pollutant", and discharging that substance above the regulatory level can be viewed as "pollution." It could be difficult to apply the same principles to ballast water management if exotic species are viewed as pollutants, and release of these organisms into a new environment as "pollution." Essential elements such as copper and zinc are covered by CWA regulations because they pose a threat to human health at high concentrations. The same rationale may not be extended an organism if they are not considered to be a pollutant in its native range.

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