

CALENDAR ITEM

51

A	Statewide	8/20/2010 W9777.234 W9777.290
S	Statewide	M. Falkner G. Gregory M. Meier

**CONSIDER APPROVAL OF THE REVISED LEGISLATIVE REPORT TITLED
“2010 ASSESSMENT OF THE EFFICACY, AVAILABILITY AND ENVIRONMENTAL
IMPACTS OF BALLAST WATER TREATMENT SYSTEMS
FOR USE IN CALIFORNIA WATERS”**

The Coastal Ecosystems Protection Act (Act) of 2006 expanded the Marine Invasive Species Act of 2003 to more effectively address the threat of nonindigenous species introduction through ballast water discharge. The Act directed the California State Lands Commission (Commission) to implement performance standards for the discharge of ballast water and to prepare reports assessing the efficacy, availability, and environmental impacts, including water quality, of currently available ballast water treatment technologies. These reports must be submitted to the California Legislature prior to each implementation date. The performance standards regulations were adopted in October 2007, and subsequent ballast water treatment technology assessment reports were approved by the Commission in December 2007 and December 2008. The most recently approved report determined that technologies were available for the January 1, 2010 implementation date, and recommended moving forward with the implementation of performance standards for new vessels with a ballast water capacity of less than 5000 metric tons (MT).

The current report (Exhibit A), prepared by the Commission’s Marine Facilities Division in compliance with Public Resources Code section 71205.3 was originally considered by the Commission on June 28, 2010. The report evaluates the efficacy, availability and environmental impacts of ballast water treatment systems for new vessels with ballast water capacity over 5000 MT. The implementation date for this vessel class is January 1, 2012. At the June meeting, the Commission requested that staff revise the report to ensure that the report conclusions more thoroughly reflected the variability and uncertainty regarding the assessment of available ballast water treatment technologies to meet California’s performance standards. Commission staff have updated the report, and present the revised report at this meeting to the Commission for approval.

In preparation of the report, Commission staff conducted a literature review, contacted technology vendors, held discussions regarding treatment system development and performance verification, and consulted a cross-interest, multidisciplinary panel (as required by Section 71205.3 and described in subdivision (b) Section 71204.9 of the PRC).

Vessels have several options for complying with the performance standards regulations. Over 80% of vessel voyages to California waters do not discharge ballast water. In these cases, the

CALENDAR ITEM NO.51 (CONT'D)

standards are met because all ballast water is retained on board the vessel. Retention is the most protective management strategy available because no organisms are released from the vessel via ballast water. Alternatively, vessels may discharge to a shoreside or barge-based ballast water reception facility. Although no such facilities currently exist in California, there has been recent interest by several companies in developing this option for vessels in California and along the West Coast. Finally, for vessels that cannot retain all ballast on board or discharge to a reception facility, shipboard ballast water treatment will likely be necessary to meet California's performance standards.

Progress continues to be made in the development and assessment of ballast water treatment systems. Both the quantity and the quality of the recently received data on system performance attest to this fact. The fields of treatment technology assessment and compliance verification, however, are still evolving. Scientific methods to assess the concentration of certain types of viable organisms present in ballast water discharge still must be developed or refined so that Commission staff may rapidly assess vessel compliance with the ballast water performance standards. The Commission is currently funding research to address some of these knowledge gaps, however additional work is necessary to develop compliance verification protocols for use in California.

California's standards for total bacteria (excluding specific human pathogen indicators) and total viruses pose a significant challenge. Methods exist to quantify total counts of bacteria and viruses (or virus like particles) in a sample of ballast water, however, no techniques are available to assess the viability of all bacteria and viruses, as is required by the California performance standards. The best available technique for bacterial assessment involves the use of a subset or proxy group of organisms to represent treatment of bacteria as a whole. While this technique is not without some debate, it is scientifically supported by many experts in microbiology and technology assessment. The viruses pose a greater challenge. Without strong evidence for the selection of proxy organisms in this size class, Commission staff believes that there are no acceptable methods for verification of compliance with the total viral standard at this time, and that the Commission should proceed with assessment of technologies for the remaining organism size classes in the standards.

Commission staff reviewed 46 ballast water treatment systems for this report. Based on currently available information and using best assessment techniques, at least eight treatment systems have demonstrated the **potential** to comply with the Commission's performance standards (see Tables VI-1 and VII-1). Efficacy data for these systems indicate that at least one test met or exceeded California's performance standard for every testable organism/size category during either land-based or shipboard testing. Three of the eight systems show the **potential** to meet California's performance standards under more rigorous evaluation criteria. These three passed more than 50% of the time over multiple tests (3 or more) at either the land or shipboard scale (Tables VI-3 and VII-1). Additional systems are close to demonstrating the potential for meeting California's standards, and Commission staff are awaiting data from these tests of system performance. Commission staff have consulted with the vendors of systems that have demonstrated the potential to comply with California's standards, and at this time, two vendors (Ecochlor and Qingdao Headway Tech.), are willing to self-certify that their systems will meet California's standards. Evaluations in this report do not constitute endorsement, approval, or guarantee that a ballast water treatment system will meet California's standards for all vessels and all scenarios.

CALENDAR ITEM NO.51 (CONT'D)

It is important to note that, as a whole, treatment systems have undergone a relatively small number of tests, under a limited range of environmental conditions. This leads to inherent uncertainty regarding treatment system performance across the spectrum of potential variables, including ship type and source water properties (e.g. temperature, turbidity, salinity). This uncertainty is likely to persist over the next several years. In the absence of a significant worldwide effort to install and test treatment systems on multiple vessels and under all possible environmental scenarios, it is unreasonable to expect that sample sizes and available data will increase adequately in the near future to demonstrate, with a high level of confidence, that treatment systems will consistently meet California's performance standards under every potential situation and under all circumstances. However, continuing to wait for such information will only serve to delay progress. Due to the inherent uncertainty regarding treatment system performance and evaluation, the utilization of an adaptive management approach will be essential at all stages of implementation in order to move forward and protect California's aquatic resources from the impacts of species introductions.

Commission staff believe that, given the data currently available, multiple treatment systems have demonstrated the potential to meet California's performance standards for vessels with construction initiated on or after January 1, 2012, and a ballast water capacity greater than 5000MT. Practically speaking, vessels with this construction date will not be expected to meet the standards until construction is complete and they are operational, sometime in 2014 at the earliest. The lead time available for further technology development and refinement is sufficient to indicate that technologies will be available by the time these vessels are operational. At least three to four years will pass before any vessels in this size class will need to install treatment systems to meet California's standards.

Current federal law will continue to require ballast water exchange as the primary management method. Thus, in order to comply with both California and federal law, many vessels that must discharge in California will need to first exchange ballast water according to federal requirements for distance from shore and depth, and then utilize a ballast water treatment system to reduce organisms to levels at or below California's standards. Though seemingly duplicative, the execution of exchange before treatment will likely serve to improve the efficacy of systems. The concentrations of organisms in the open ocean (where exchange will occur) will be lower than concentrations in nearshore areas. Since the shipboard and land-based data utilized for this report tested treatment systems with comparatively organism-rich water from nearshore areas, it is expected that system performance will be improved if open ocean exchange is conducted before treatment. Open ocean waters also generally exhibit lower levels of turbidity, organic matter, and human pathogens/pathogen indicators, which should also serve to improve system performance and reduce organism levels at discharge.

All eight of the systems which show potential for meeting California's performance standards are currently commercially available. Seven of those systems are marketed to treat at ballast water pump rates over 2000 m³/hr, which would accommodate over 80% of the vessels that operate in California with ballast water capacity over 5000 MT. Of the three systems that show potential for meeting the standards under more rigorous consistency criteria, all can accommodate much higher pump rates of 4500 m³/hr or more. Several additional systems that are close to meeting all of California's standards are also commercially available.

CALENDAR ITEM NO.51 (CONT'D)

Treatment vendors and vessel operators will need to assess potential environmental and water quality impacts from treatment system usage in California waters. Vessels must comply with the U.S. Environmental Protection Agency's National Pollution Discharge Elimination System Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels, and the California-specific provisions added to the Vessel General Permit through the Clean Water Act Section 401 certification process. Commission staff recommends that treatment vendors also consult the Marine Invasive Species Program's "Ballast Water Treatment Technology Testing Guidelines," which were developed in conjunction with the State Water Resources Control Board (Water Board) and provide additional guidance on relevant California water quality control plans and objectives for vessels intending to discharge treated effluent in State waters. Based on the available data, not all treatment systems will meet all of EPA and California water quality objectives, particularly for chlorine residuals. Currently, vessels must meet the EPA Vessel General Permit standard for chlorine residuals, as California defers to the EPA for regulation of this toxicant in discharged ballast water. The eight systems that show the potential to meet the EPA and California standards have undergone some toxicity testing, and have received environmental approvals from the International Maritime Organization and/or the State of Washington. Vessel owners and operators will need to consult with the Water Board and the U.S. EPA to better assess the potential for water quality impacts from treatment system usage in California waters.

The Commission will continue to gather information on treatment system efficacy, availability and environmental impacts as California's standards are implemented and additional vessels install treatment systems for both experimental purposes and to meet state, federal and international ballast water management requirements. Commission staff is working closely with the shipping industry and treatment vendors to ensure a smooth transition to the new standards. Commission staff believe that sufficient evidence exists to demonstrate that systems will be available to implement the performance standards for new vessels with a ballast water capacity greater than 5000 MT in 2012. However, in recognition of the rapidly changing fields of technology development and performance assessment, Commission staff will prepare an update of this report by September 1, 2011. In preparation of the update, Commission staff will convene a scientific advisory panel to review the latest data on treatment systems and testing protocols and provide input regarding the availability of treatment systems in an effort to ameliorate concerns regarding the implementation of California's performance standards. While not required by statute, this update will verify that technology development is progressing on schedule to allow for the implementation of the standards beginning January 1, 2012.

At this time, Commission staff recommends that the Legislature allow the implementation of standards for new vessels with a ballast water capacity over 5000 MT to proceed on January 1, 2012. In addition, and in order to ensure full implementation and compliance verification as performance standards move forward, Commission staff also recommend that the Legislature:

- 1) Support staff involvement with the development of performance standards and evaluation of treatment technologies at the federal and international levels; and
- 2) Maintain the accessibility and funding levels of the Marine Invasive Species Control Fund, so research can be supported and methods developed for compliance verification as vessels with treatment systems begin to arrive to California.

CALENDAR ITEM NO.51 (CONT'D)

STATUTORY AND OTHER REGULATIONS:

- A. Public Resources Code Sections 71200 through 71271.

OTHER PERTINENT INFORMATION:

Pursuant to the Commission's delegation of authority and the State CEQA Guidelines (14 Cal. Code Regs. 10561), the Commission Staff has determined that this activity is exempt from the requirements of the CEQA because the activity is not a "project" as defined by the CEQA and the State CEQA Guidelines.

Authority: Public Resources Code Sections 21084 and 14 Cal. Code Regs. 15300.

EXHIBIT:

- A. "2010 Assessment of the Efficacy, Availability and Environmental Impacts of Ballast Water Treatment Systems for Use in California Waters"

IT IS RECOMMENDED THAT THE COMMISSION:

1. Find that the activity is exempt from the requirement of CEQA pursuant to Title 14, California Code of Regulations, Section 15061 because the activity is not a project as defined by Public Resources Code Section 21065 and Title 14, California Code of Regulations, Section 15378.
2. Accept, as the California State Lands Commission's Report to the Legislature, the "2010 Assessment of the Efficacy, Availability and Environmental Impacts of Ballast Water Treatment Systems for Use in California Waters," the document in Exhibit A.
3. Authorize the Commission staff, prior to submission to the Legislature, to make such nonsubstantive changes in the report as are necessary to correct errors or clarify the information presented.
4. Direct staff to submit the report, substantially in the form attached as Exhibit A, to the Legislature in compliance with Section 71205.3 of the Public Resources Code.