

Evaluating the Feasibility of Shore-based Treatment of Ballast Water to Avoid Introductions of Invasive Non-native Species (ER P5 of Delta Plan)

Summary: Staff, together with representatives from the California State Lands Commission and stakeholder groups, will brief the Council on a forthcoming feasibility study to meet a mandate in the Marine Invasive Species Act to identify and conduct research about “...*the means by which to reduce or eliminate a release or establishment...*” of nonindigenous species by shipping vessels.

Background

San Francisco Bay and the Delta are often described as the most invaded estuary in the world. In coastal and estuarine environments, the ballast water of commercial ships has long been recognized as one of the most important mechanisms, or “vectors,” through which nonindigenous species are moved to new locations throughout the world. The Asian overbite clam (*Potamocorbula amurensis*) is an example of a non-native, invasive species presumed to have been introduced to the Bay-Delta ecosystem via ballast water. The clam has had profound effects on the food web in the western portions of the Delta and Suisun Bay.

Ballast water is used as a balancing and weight distribution tool necessary for the navigation, stability, and propulsion of large seagoing ships. Vessels may take on, discharge, or redistribute ballast during cargo loading and unloading, as they encounter rough seas, or as they transit through shallow waterways. Typically, a vessel takes on ballast water after cargo is unloaded in one port to compensate for the weight imbalance, and will later discharge that ballast water when cargo is loaded in another port. This transfer of ballast water from “source” to “destination” ports results in the movement of thousands of species throughout the globe on a daily basis. Invasive species that affect the Delta may be introduced directly by ballast water discharges at the Delta’s inland ports or at ports in San Francisco Bay, or indirectly by recreational boats that become infested in other ports before using the Delta. Once established, these species can cause significant environmental, economic, and human health impacts. A recent estimate suggests that invasive species are responsible for \$120 billion in losses and damages annually in the United States (Pimental et al. 2005).

Rationale for the Study

Non-native species are a major obstacle to successful restoration of the Delta ecosystem, because they affect the survival, health, and distribution of native Delta wildlife and plants. There is little chance of eradicating most non-native species, once established. Therefore, the Delta Plan emphasizes preventing additional invasions by

non-native species and calls for the ecosystem to be managed in ways that minimize the impacts of invasive species that have already become established.

The Delta Plan's policy ER P5 provides, in part:

The potential for new introductions of or improved habitat conditions for nonnative invasive species, striped bass, or bass must be fully considered and avoided or mitigated in a way that appropriately protects the ecosystem.

Better management of ballast water discharges is one way to avoid introducing new invasive species that may further degrade the Delta ecosystem.

The best way to manage ballast water to avoid new introductions of invasive species, however, is not clear. California law (Public Resources Code Section 71205.3) requires the California State Lands Commission (CSLC) to implement performance standards for the discharge of ballast water into state waters. Vessels may comply with the performance standards through retention of all ballast water on board the vessel, use of ballast water treatment technologies, or discharge of ballast water to a reception facility approved by the Commission. At this time, on-board treatment systems have been unable to meet the stringent interim performance standards, and despite the fact that the discharge of ballast water to shore-based reception facilities is an approved method for vessels to comply with California's performance standards, there are currently no operational ballast water reception facilities in California.

The Commission asked the Delta Stewardship Council to manage both the preparation and subsequent independent review of a feasibility study about the potential use of shore-based ballast water reception and treatment facilities in California to meet California's interim performance standards for the discharge of ballast water (see Title 2 California Code of Regulations Section 2293). The study will culminate in the production of a report detailing the potential of this method to meet the needs of regulated vessels to comply with California's interim performance standards. This investigation is consistent with the Delta Science Program's duty of providing the best possible unbiased scientific information to inform decision-making in the Delta by funding research and synthesizing scientific information to policy makers (Water Code 85280(b)(4)).

At the hearing, State Lands Commission staff Nicole Dubroski and Chris Brown, as well as a panel of stakeholders, including John Berge from the Pacific Merchant Shipping Association, Marc Holmes, Restoration Program Director at The Bay Institute, and Dr. Andy Cohen, Lead Scientist at the Center for Research on Aquatic Bioinvasions, will be available to answer questions of the Council.

When completed, the study will determine whether shore-based treatment is feasible and truly capable of meeting the standards, thus providing the basis for the State Lands Commission to move forward with pilot- or full-scale implementation of shore-based treatment options, or if shown to be infeasible, to modify the performance standards, so

they can be met via ballast water retention or on-board treatment technologies. The information may also be helpful to Delta ports as they consider how best to comply with the Delta Plan's regulatory policies.

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