

## Comment on the **Draft Action on Invasive Species** in the *2022-2027 San Francisco Estuary Blueprint*

The San Francisco Bay/Delta ecosystem is generally recognized as the most invaded estuary in the world; ballast water is the dominant vector introducing non-native species into the estuary from other parts of the world; and preventing new invasions is the most important and effective action that can be taken to address the problem of aquatic invasive species.<sup>1</sup>

It is thus striking that the proposed *San Francisco Estuary Blueprint* says nothing whatsoever about ballast water and contains no action of any kind to reduce the introduction of non-native species in ballast discharges. This oversight should be corrected. Specific actions to promote the effective regulation of ballast water discharges to reduce the risk of introducing harmful invasive species should be included in the *Blueprint* as priority actions.

Two relevant points should be recognized.

First, the failure to effectively regulate ballast water discharges is a public health threat as well as a critical environmental threat. Scores of human pathogens, including bacteria, viruses and protozoans, have been identified in ballast water. These include the causative agents of infectious and non-infectious diseases, nosocomial and wound infections, as well as microbes that produce air-borne toxins. Studies have also shown alarmingly high levels of antibiotic resistance in ballast water bacteria.<sup>2</sup> Some of these pathogenic bacteria have been carried by ballast water into new parts of the world, including the United States, where they contaminated food or water supplies and made people ill.<sup>3</sup> In the 1990s, ballast water introduced an emergent strain of infectious waterborne disease into South America that killed over 10,000 people.<sup>4</sup> Note that ballast water from overseas is discharged into the Delta upstream of intakes that provide

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<sup>1</sup> Accelerating invasion rate in a highly invaded estuary, *Science* 279: 555-558 (1998).

<sup>2</sup> Pandemic serotypes of *Vibrio cholerae* isolated from ships' ballast tanks and coastal waters: assessment of antibiotic resistance and virulence genes (*tcpA* and *ctxA*), *Microbial Ecology* 65: 969-974 (2013). The occurrence of pathogenic bacteria in some ships' ballast water incoming from various marine regions to the Sea of Marmara, Turkey, *Marine Environmental Research* 81: 35-42 (2012).

<sup>3</sup> Isolation of Latin America epidemic strain of *Vibrio cholerae* O1 from US Gulf Coast, *Lancet* 339: 624 (1992). International dissemination of epidemic *Vibrio cholerae* by cargo ship ballast and other nonpotable water, *Applied and Environmental Microbiology* 60(7): 2597-2601 (1994). Emergence of a new *Vibrio parahaemolyticus* serotype in raw oysters, *JAMA* 284(12): 1541-1545 (2000). Characteristics of *Vibrio parahaemolyticus* O3:K6 from Asia, *Applied and Environmental Microbiology* 66(9): 3981-3986 (2000). PCR detection of a newly emerged pandemic *Vibrio parahaemolyticus* O3:K6 pathogen in pure cultures and seeded waters from the Gulf of Mexico, *Applied and Environmental Microbiology* 69(4): 2194-2200 (2003).

<sup>4</sup> Health and climate change: Marine ecosystems, *Lancet* 342: 1216-1219 (1993). Factors in the emergence of infectious diseases, *Emerging Infectious Diseases* 1(1): 7-15. Epidemic cholera in the new world: Translating field epidemiology into new prevention strategies, *Emerging Infectious Diseases* 1(4): 141-146 (1995).

drinking water to over 25 million Californians. Also, the communities most at risk from the spread of introduced waterborne diseases are generally poorer communities and communities of color, due to generally weaker water treatment, wastewater treatment and public health infrastructure, so that the government's ongoing failure to implement the level of protection from the discharge of human pathogens in ballast water mandated by the Clean Water Act could be construed as an environmental injustice.

Second, although in 2006 the California Legislature drafted and passed and the Governor signed into law the strongest ballast water discharge regulations in the world in order to protect the health and environmental safety of all Californians, the responsible state agency never implemented those regulations. Eventually, Congress took away California's authority to implement its own ballast water law, when it passed the Vessel Incidental Discharge Act (VIDA) in December 2018. Thus, the only remaining possible pathway to effective regulation of ballast discharges is to persuade the federal government to adopt and implement the necessary discharge limits.

The *Blueprint* should be amended to include the following actions:

(1) The Estuary Partners, including the State of California, should use all available means to persuade the U.S. Environmental Protection Agency (US EPA) to adopt limits on harmful non-native organisms and human pathogens in ballast discharge that comply with the Clean Water Act. The Act requires US EPA to base these discharge limits on what can be achieved by use of the "Best Available Technology." Specifically, US EPA should (a) immediately withdraw its proposed discharge limits (published in late 2020 by the previous administration), which had already been rejected by the Second Circuit Court of Appeals for failing to comply with the minimum requirements of the Clean Water Act, and had earlier been found by US EPA and other federal agencies to be far too weak to protect the environment or public health; and (b) immediately develop and publish a new proposed rule based on the Best Available Technology as defined by the Clean Water Act.

(2) The Estuary Partners should insist that US EPA base the ballast water discharge limits on the highest level of treatment that could be achieved using the best available water or wastewater treatment technology employed in purpose-built ballast water treatment plants constructed onshore at or near ports, consistent with long-established Clean Water Act case law holding that "available technology" includes treatment technology used by other industries; unless it is determined that onshore treatment is "economically infeasible" within the meaning of the Clean Water Act. In that case, US EPA should adopt discharge limits based on the highest level of treatment that can be achieved by shipboard treatment systems, as demonstrated by the publicly-available test performance of the most effective shipboard ballast water treatment system. The publicly-available test data have been reviewed twice: in a report released by Friends of the Earth,<sup>5</sup> and in an article published in a peer-reviewed scientific journal by three former members of the US EPA's Science Advisory Board Panel on Ballast Water

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<sup>5</sup> *An Assessment of Ballast Water Treatment to Protect Arctic Waters*, a report for Friends of the Earth US (2018).

Treatment.<sup>6</sup> Both reviews found that the best commercially-available ballast water treatment systems currently in use on some ships consistently demonstrated levels of treatment that are hundreds or thousands of times more effective than is required by US EPA's current proposed rule.

(3) US EPA has argued that the best data for determining the Best Available Technology among shipboard ballast water treatment systems are test data submitted by shipboard ballast water treatment system manufacturers to obtain US Coast Guard approval for the use of their treatment systems in US waters. However, the Coast Guard has refused to release those data to the public and denied Freedom of Information Act requests submitted by the State of California and by scientists. The State of California should sue the Coast Guard to immediately release to the public all test data in its possession on the effectiveness of shipboard ballast water treatment systems.

(4) The Governor should submit to the US EPA Administrator (pursuant to the relevant section in VIDA) a formal objection to the proposed discharge limits and request their replacement with limits based on the Best Available Technology as required by the Clean Water Act, ordered by the Second Circuit Court of Appeals, and described above.

(5) Because US EPA has failed to meet the legal deadlines in VIDA for adopting new ballast water discharge limits, and by its actions has demonstrated that it is in no hurry to adopt new limits but rather is willing to continue to leave in place, indefinitely, the limits rejected by the Second Circuit in 2015, and because VIDA allows states to enforce their own ballast water laws and regulations until US EPA promulgates new limits, California should immediately begin enforcing the discharge limits that the State enacted in 2006. Alternatively, California could expeditiously develop, adopt and enforce discharge limits based on the Best Available Technology, as described above.

(6) If US EPA fails to adopt ballast water discharge limits based on the Best Available Technology as described above, Estuary Partners including the State of California should join with regional and national environmental organizations in suing the US EPA under the Clean Water Act. It should be noted that since the initial *Comprehensive Conservation and Management Plan* was published (forerunner to the *Estuary Blueprint*), environmental organizations have sued US EPA four times over its failure to implement ballast water discharge limits as required by the Clean Water Act, and won each time; that the Court held in the most recent lawsuit that the discharge limits that US EPA is now proposing fail to meet the minimum requirements of the Clean Water Act; that the Court ordered US EPA to revise those limits accordingly; and that by proposing to simply re-adopt the limits that the Court rejected US EPA is openly defying the Court order. Note that the states of New York, Wisconsin, Michigan, Minnesota, Illinois and Pennsylvania previously filed amici curiae briefs in support of the environmental position.

(7) In addition, the California Department of Health, local public health authorities, and the offices of the Attorney General and District Attorneys should consider what other

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<sup>6</sup> Revisiting the basis for US ballast water regulations, *Marine Pollution Bulletin* 118: 348-353 (2017).

powers they may have pursuant to their responsibilities to protect the health and safety of Californians that could be used to prevent the release of potentially fatal human pathogens into the drinking water sources for 25 million Californians, or into marine or fresh waters where such pathogens could infect seafood consumed by Californians or could infect wounds of people working or bathing in such waters.

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