

NOTICE OF PROPOSED REGULATORY ACTION

TITLE 2. ADMINISTRATION DIVISION 3. STATE PROPERTY OPERATIONS CHAPTER 1. STATE LANDS COMMISSION ARTICLE 4.8. BIOFOULING MANAGEMENT TO MINIMIZE THE TRANSFER OF NONINDIGENOUS SPECIES FROM VESSELS ARRIVING AT CALIFORNIA PORTS

The California State Lands Commission (Commission) will decide whether to adopt the regulations described below after considering all comments, objections, or recommendations regarding the proposed action.

PROPOSED REGULATORY ACTION

The Commission proposes to repeal section 2298 and adopt sections 2298.1, 2298.2, 2298.3, 2298.4, 2298.5, 2298.6, 2298.7, 2298.8, 2298.9, and 2298.9.1 under Article 4.8, and repeal section 2297.1 under Article 4.7, in Title 2, Division 3, Chapter 1 of the California Code of Regulations (CCR). These sections would establish regulations governing the management of biofouling, including recordkeeping and reporting, for vessels arriving at California ports, as authorized by Public Resources Code section 71201.7.

Specifically, the proposed regulatory action would:

- Repeal section 2298 to remove the existing requirement for annual submission of the Hull Husbandry Reporting Form (Revised June 6, 2008), to be replaced with a revised annual reporting form included in section 2298.5
- Adopt section 2298.1 to define the purpose, applicability, and date of implementation for the provisions of Article 4.8
- Adopt section 2298.2 to define specific terms to provide clarity for the provisions of Article 4.8
- Adopt section 2298.3 to establish requirements for developing and maintaining a vessel-specific Biofouling Management Plan
- Adopt section 2298.4 to establish requirements for developing and maintaining a vessel-specific Biofouling Record Book
- Adopt section 2298.5 to incorporate by reference an annual reporting form that replaces two existing annual reporting forms
- Adopt section 2298.6 to establish minimum requirements for biofouling management of a vessel's wetted surfaces

- Adopt section 2298.7 to establish additional biofouling management requirements for high-risk vessels remaining in one port for forty-five days or more
- Adopt section 2298.8 to clarify that propeller polishing is not prohibited under this regulatory action
- Adopt section 2298.9 to establish a process for the submission and approval of alternatives to Article 4.8
- Adopt section 2298.9.1 to establish criteria for emergency exemptions
- Repeal section 2297.1 to remove the existing requirement for submission of the Ballast Water Treatment Technology Annual Reporting Form (Revised July 1, 2010), to be replaced with a revised annual reporting form included in section 2298.5, and the Ballast Water Treatment Supplemental Reporting Form (Revised July 1, 2010), which is no longer necessary

The proposed regulatory action is proposed in accordance with the authority granted by Public Resources Code section 71201.7.

WRITTEN COMMENT PERIOD

Any interested person or his or her authorized representative may submit written comments relevant to the proposed regulatory action to the Commission. The written comment period closes at 5:00 pm on January 10, 2017. The Commission must receive all written comments by that time. Submit written comments to:

Ravindra Varma
Supervisor, Planning Branch
California State Lands Commission
Marine Environmental Protection Division
200 Oceangate, Suite 900
Long Beach, CA 90802

Written comments may also be submitted by facsimile at (562) 499-6317 or by email to CSLC.MEPDRegulations@slc.ca.gov. Please include “**Article 4.8 Comments**” in the subject line of the email.

PUBLIC HEARING

Commission staff has scheduled a public hearing on this proposed action on Tuesday January 10, 2017, at 10:00 a.m. The location of the hearing is:

Port of Long Beach
Board Room
4801 Airport Plaza Drive
Long Beach, CA 90815

The Port of Long Beach is accessible for persons with disabilities. At the hearing, any person may present oral or written statements or arguments relevant to the proposed action. The public hearing will conclude once all who are present and wish to speak have had an opportunity to speak.

AUTHORITY AND REFERENCE

Authority: Public Resources Code section 71201.7 provides the Commission with the authority to adopt regulations as necessary to implement the provisions of the Marine Invasive Species Act.

Reference: The proposed regulations would implement, interpret, and make specific Public Resources Code sections 71200, 71201, 71202, 71204, and 71205.

INFORMATIVE DIGEST/POLICY STATEMENT OVERVIEW

The California Legislature amended the Marine Invasive Species Act (Public Resources Code section 71200 *et seq.*) in 2007 to add Public Resources Code section 71204.6, which required the Commission to develop and adopt regulations governing the management of biofouling on vessels 300 gross registered tons and above that arrive at a California port, excluding vessels of the armed forces or vessels in innocent passage as defined in Public Resources Code section 71202. Public Resources Code section 71204.6 also required the Commission to consider vessel design and voyage duration while developing these regulations. The section further required the Commission to:

- Develop the regulations based on the best available technology economically achievable
- Design the regulations to protect the waters of the state
- Adopt the regulations by January 1, 2012

Public Resources Code section 71201.7 requires the Commission to adopt regulations necessary to implement the Marine Invasive Species Act (hereafter “the Act”). The Commission adopted regulations, conditioned on the approval from the Office of Administrative Law, similar to the currently proposed regulations on December 18,

2015. Commission staff, however, chose to withdraw the regulations in March 2016 to address errors associated with the rulemaking.

SUMMARY OF RELATED EXISTING MARINE INVASIVE SPECIES ACT LAWS

California's Marine Invasive Species Act requires the removal of biofouling from vessels on a regular basis (Public Resources Code section 71204(f)). Under the Act, a "regular basis" is:

- No longer than by the date of expiration on the vessel's full-term Safety Construction Certificate or an extension of that expiration date
- No longer than by the date of expiration on the vessel's full-term United States Coast Guard Certificate of Inspection or an extension of that expiration date by the United States Coast Guard
- No longer than 60 months since the time of the vessel's last out-of-water drydocking

Because the definition of "regular basis" is set to expire upon the adoption of the proposed regulations, the Legislature intended for this provision to be an interim measure until the California State Lands Commission (Commission) could identify and adopt management requirements to satisfy the purpose of the Act.

Title 2, Division 3, Chapter 1, Article 4.8 (2 CCR § 2298) was originally adopted and implemented by the Commission with an effective date of January 1, 2009. The sole component of the existing regulation requires annual submission of the Hull Husbandry Reporting Form (Revised June 6, 2008).

SUMMARY OF PROPOSED REGULATORY ACTIONS

The proposed rulemaking would:

- Align with the priorities of the Commission, as described in Legislative reports (see Scianni et al. 2013, Dobroski et al. 2015)
- Align with the Commission's Strategic Plan, adopted on December 18, 2015
- Implement Public Resources Code section 71201.7

The purpose of the Act, as described in Public Resources Code section 71201(d), is to move the State expeditiously toward elimination of the discharge of nonindigenous species into the waters of the State or into waters that may impact the waters of the

State, based on the best available technology economically achievable. The State cannot achieve this purpose without the proposed regulations.

The proposed regulations would repeal two sections and adopt ten sections. A description of each of the proposed regulations is presented below.

Section 2298 of the California Code of Regulations is proposed for repeal. A Marine Invasive Species Program Annual Vessel Reporting Form included in section 2298.5 will replace the existing Hull Husbandry Reporting Form currently included in this section. The new Marine Invasive Species Program Annual Vessel Reporting Form will combine the existing Hull Husbandry Reporting Form (currently required by this section) and the existing Ballast Water Treatment Technology Annual Reporting Form (currently required by 2 CCR § 2297.1), to improve clarity and data quality and reduce the number of reporting forms required of the regulated industry.

Section 2298.1 is proposed for adoption and would identify the purpose, applicability, and implementation date of the article.

Section 2298.2 would define key terms used throughout the text of the regulations to describe management requirements and regulation applicability. These definitions clarify the intent of the regulatory language and are necessary to increase compliance as intended by the regulations.

Section 2298.3 would make specific the requirements for the development and maintenance of a Biofouling Management Plan. The Biofouling Management Plan shall:

- Be aligned with the International Maritime Organization's *Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* (hereafter referred to as the "IMO Biofouling Guidelines")
- Describe the vessel-specific biofouling management strategy
- Be maintained onboard the vessel
- Be made available for inspection by Commission staff upon request

Section 2298.4 would make specific the requirements for the development and maintenance of a Biofouling Record Book. The Biofouling Record Book shall:

- Be aligned with the IMO Biofouling Guidelines

- Document the implementation of the vessel-specific biofouling management strategy since the most recent of either a vessel's delivery or the prior out-of-water maintenance
- Be maintained onboard the vessel
- Be made available for inspection by Commission staff upon request

Section 2298.5 would require annual submission of a Marine Invasive Species Program Annual Vessel Reporting Form (SLC 600.12, Revised 08/16). This new Marine Invasive Species Program Annual Vessel Reporting Form would replace the Hull Husbandry Reporting Form (currently required by 2 CCR § 2298) and the Ballast Water Treatment Technology Annual Reporting Form (currently required by 2 CCR § 2297.1) to improve clarity and data quality and reduce the number of reporting forms that must be submitted by the regulated industry.

This section would require reporting form submission twenty-four hours in advance of a vessel's first arrival of a calendar year to a California port. This modified submission timing would enable Commission staff to collect necessary data to prioritize boarding and inspection prior to a vessel's arrival based on a per-vessel risk assessment. Data-driven prioritization of inspector resources will enable Commission staff to more effectively and efficiently identify vessels with greater perceived nonindigenous species (NIS) introduction risk.

This Marine Invasive Species Program Annual Vessel Reporting Form included in this section incorporates all previous questions from the existing Hull Husbandry Reporting Form, with a clarifying revision in one question, with the addition of a subset of revised questions from the existing Ballast Water Treatment Technology Annual Reporting Form. The revised form is incorporated by reference: "Marine Invasive Species Program Annual Vessel Reporting Form" (SLC 600.12, Revised 08/16).

Section 2298.6 would make specific minimum requirements for biofouling management of a vessel's wetted surfaces.

Section 2298.7 would make specific minimum requirements for biofouling management for vessels that remain in a port, place, or shared waters for forty-five days or greater prior to arrival at a California port.

Section 2298.8 would make specific that these regulations do not prohibit or limit propeller cleaning in California waters.

Section 2298.9 would make specific the process for submission and approval of petitions for alternatives to Article 4.8. Alternatives proposed in petitions must fulfill the purpose of the regulation in Section 2298.1(a) and must be approved by the Commission's Marine Environmental Protection Division Chief. The Division Chief's approval can be withdrawn if he or she determines that the approved alternative requirements are not being followed.

Section 2298.9.1 would make specific the conditions that must be met for a vessel to claim an emergency exemption from the requirements of Article 4.8.

Section 2297.1 is proposed for repeal. The Marine Invasive Species Program Annual Vessel Reporting Form, proposed for adoption in section 2298.5, would replace the existing Ballast Water Treatment Technology Annual Reporting Form currently included in this section. The new Marine Invasive Species Program Annual Vessel Reporting Form will combine the existing Hull Husbandry Reporting Form (currently required by 2 CCR § 2298) and the existing Ballast Water Treatment Technology Annual Reporting Form (currently required by this section), reducing the total reporting form requirements on the regulated industry. The Ballast Water Treatment Supplemental Reporting Form (currently required by this section) is no longer necessary, as it is redundant with the new United States Coast Guard (USCG) Ballast Water Management Report (BWMR; required under Title 33 of the Code of Federal Regulations § 151.2060) that must be submitted by vessels arriving at California ports on a per arrival basis.

COMPATABILITY WITH EXISTING STATE REGULATIONS

The proposed regulations are consistent and compatible with existing state regulations. After conducting a review for any regulations that would relate to or affect this area, the Commission has concluded that there are no other state regulations that require vessel biofouling management.

Through California's Clean Water Act section 401 certification of the U.S. Environmental Protection Agency's (EPA) 2013 Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP), the State Water Resources Control Board (Water Board) placed restrictions on in-water cleaning of vessels in copper-impaired waterbodies. These restrictions are primarily driven by concerns about increased copper discharges into copper-impaired waterbodies. These restrictions may influence the location and frequency of vessel in-water cleaning in California waters, but the Water Board's restrictions do not require biofouling management. In most cases, these restrictions limit the availability of in-water cleaning in several California ports. Nevertheless, vessels subject to the Water Board's restrictions and the proposed regulations would be able to comply with both.

DIFFERENCES FROM FEDERAL REGULATIONS

United States requirements for biofouling management to prevent the introduction of NIS include regulations adopted and implemented by the USCG and the VGP, adopted and implemented by the EPA.

The USCG requirements are found specifically within 33 CFR § 151.2050(e), 33 CFR § 151.2050(f), and 33 CFR § 151.2050(g)(3). These regulations require the following management activities:

- Rinsing of vessel anchors and anchor chains to remove organisms at their place of origin
- Removing biofouling from the hull, piping, and tanks on a regular basis
- Disposing of any removed substances in accordance with local, state, and federal regulations
- Detailing biofouling maintenance and sediment removal procedures within a ballast water management plan

The USCG requirements do not provide guidance for biofouling removal frequency, other than the undefined standard of “regular basis.” Therefore, Commission staff believes that there is no specific requirement to manage biofouling in a comprehensive manner. There is a requirement to keep biofouling management records onboard within a vessel’s ballast water management plan. Unlike the proposed regulations for vessels arriving at California ports, there is no USCG requirement to submit reporting forms detailing biofouling management activities. There also are no requirements for high-risk vessels that remain in one location for extended periods to manage biofouling prior to entering a United States port.

The USCG recently adopted a new Ballast Water Management Report (33 CFR § 151.2060) (BWMR) and required submission of this report beginning May 1, 2016. The new BWMR contains questions about a vessel’s ballast water treatment system (if installed onboard) that are similar to questions contained in the Commission’s Ballast Water Treatment Supplemental Reporting Form (adopted under 2 CCR § 2297.1). The Commission also requires submission of the BWMR, making the Ballast Water Treatment Supplemental Reporting Form redundant and unnecessary. Commission staff, therefore, proposes in this rulemaking action to repeal the requirement for vessels to submit the Ballast Water Treatment Supplemental Reporting Form.

The EPA requirements are located within the 2013 VGP (<https://www.epa.gov/npdes/vessels-vgp>) sections 2.2.20 and 2.2.23. These provisions require the following biofouling management activities:

- Removal of fouling organisms from seawater piping on a regular basis and disposal of removed substances in accordance with local, state, and federal regulations
- Minimize the transport of attached living organisms when traveling into U.S. waters from outside the U.S. economic zone or between Captain of the Port zones

The EPA requirements offer limited guidance on management measures to minimize the transport of attached living organisms. These management measures may include the use of appropriate anti-fouling management systems, in-water inspection and cleaning, and thorough cleaning of hulls and niche areas while in dry dock. The EPA VGP requirements are vague (e.g. “minimize” and “regular basis”) and do not impose definitive standards.

Unlike the proposed regulations for vessels arriving at California ports, there is no EPA VGP requirement to submit annual reporting forms outlining vessel-specific maintenance and operational practices that influence biofouling accumulation and viability. The EPA requires vessels to submit limited maintenance information in a Notice of Intent at the initiation of each five-year VGP cycle. This five-year cycle does not allow for the reporting of ongoing biofouling management activities or operational practices that may result in significantly greater NIS introduction risk.

There is no mechanism in the VGP for properly assessing risk on a per-arrival basis, a practice that is critical to ensuring that high-risk vessels are identified, properly inspected, and managed.

Unlike the proposed California regulations, the EPA VGP contains no requirements for vessels that represent high NIS introduction risk, specifically:

- Vessels without anti-fouling or foul-release coatings
- Vessels with anti-fouling or foul-release coatings that are aged beyond their effective coating lifespan
- Vessels remaining in one geographic location for extended residency periods

The planning and implementation of a biofouling management strategy made specific by the proposed regulations are necessary to minimize the transport of nonindigenous species into and throughout the waters of the State of California.

BENEFITS OF THE PROPOSED REGULATIONS

NIS and invasive species may cause significant impacts to California's economy, human health, and environment. In the United States, invasive species are believed to be responsible for approximately \$120 billion in losses and damages each year (Pimentel et al. 2005). In California, NIS and invasive species threaten the coastal tourism and recreation industries. These industries represent a large component of California's Gross State Product, more than \$18.4 billion in 2013 (NOEP 2016).

Vessel biofouling contributes to the introduction of problematic and harmful algal bloom diatom (single-celled algae) species. Harmful diatoms include species of the genus *Pseudo-nitzschia*, which produces the toxin domoic acid that can result in gastrointestinal distress, memory loss, coma, and even death in humans (Lefebvre and Robertson 2010). Domoic acid from *Pseudo-nitzschia* blooms have also been linked to large-scale mortality in sea lions along the central California coast (Scholin et al. 2000). Diatoms are typical components of early-stage biofouling communities and can contribute many different species to a ship's biofilm (also referred to as slime layer or microfouling).

Several parasites of mussels and barnacles have been detected from biofouling communities on vessels operating within California (Davidson et al. 2013). The presence of parasites within vessel biofouling communities is alarming because it hints at the potential for biofouling-mediated spread of human pathogens and parasites into and throughout California.

The nonindigenous overbite clam (*Corbula amurensis*) has been associated with the biofouling community on vessels within the San Francisco Bay region (Davidson et al. 2008a) and has had significant impacts to California's environment and native fish species. The clam was first detected in the San Francisco Bay in 1986, and spread throughout the region's waterways within two years. The clam accounts for up to 95% of the living biomass in some shallow portions of the bay floor (Nichols et al. 1990). It is believed to be a major contributor to the decline of several pelagic fish species in the Sacramento-San Joaquin River Delta, including the threatened native delta smelt, by reducing the plankton food base of the ecosystem (Feyrer et al. 2003, Sommer et al. 2007).

Of the more than 250 currently established NIS in California's coastal waters, up to 60% are believed to have been introduced through vessel biofouling (Ruiz et al. 2011). In recognition of the substantial threat to the State's economy, environment, and human health, the California Legislature enacted the Marine Invasive Species Act in 2003 and adopted amendments to it in 2007. The 2007 amendments require the Commission to develop and adopt the proposed biofouling management regulations to reduce the likelihood of biofouling-mediated NIS introductions into California.

The proposed regulations satisfy the purpose of the Marine Invasive Species Act, as specified in Public Resources Code section 71201(d): "to move the State expeditiously toward elimination of the discharge of nonindigenous species into the waters of the State." Vessels complying with the proposed regulations will reduce their likelihood of introducing NIS into California waters. As a result, human health and welfare, as well as the environment, will benefit significantly by enforcement of these important regulations.

DOCUMENTS INCORPORATED BY REFERENCE

The following documents are incorporated by reference within the proposed regulatory text:

- International Maritime Organization's *Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* (adopted on July 15, 2011)
- *Marine Invasive Species Program Annual Vessel Reporting Form (SLC 600.12, Revised 08/16)*

PRE-RULEMAKING CONSULTATION AND DECISION NOT TO PROCEED WITH PREVIOUS SUBMISSION

Commission staff consulted with many stakeholder groups throughout the regulation development process. Public Resources Code section 71204.6 specifically required the Commission to consult with the State Water Resources Control Board (Water Board), the USCG, and a technical advisory group consisting of interested persons including, but not limited to shipping, port, and environmental conservation representatives.

The technical advisory group, including representatives from the Water Board and the USCG, provided guidance and comments on six drafts of the regulatory text since 2008. A summary of the technical advisory group consultations is included in the *CONSIDERATION OF ALTERNATIVES* section of this notice.

An earlier version of the proposed Article 4.8 regulations was published in the California Notice Register (California Regulatory Notice Register 2011, No. 37-Z) in September 2011. After four public comment periods, the rulemaking action ended in September 2012 without final adoption.

Commission staff received further public input on the development of the proposed regulations during the pre-notice discussion period from November 19, 2014, through December 31, 2014. Commission staff considered the comments from that informal comment period while drafting the express language within this proposed rulemaking. On May 1, 2015, a proposed rulemaking similar to the proposed rulemaking noticed herein was published in the California Notice Register (California Regulatory Notice Register 2015, No. 18-Z). On March 18, 2016, Commission staff withdrew that rulemaking.

DISCLOSURES REGARDING THE PROPOSED ACTION

Commission staff, acting on behalf of the Commission, has made the following determinations:

REGULATIONS MANDATED BY FEDERAL LAW

Per Government Code section 11346.2(c), Commission staff finds that the proposed regulations are not mandated by federal regulations.

LOCAL MANDATE

Commission staff has determined that the proposed regulations do not impose any mandates on local agencies or school districts.

FISCAL IMPACTS

Commission staff has determined that the proposed regulations do not impose any mandate or cost requiring state reimbursement to any local agency or school district pursuant to Government Code sections 17500 *et seq.*

Commission staff does not anticipate other non-discretionary costs or savings imposed on local agencies.

Commission staff anticipates minimal costs to the Commission. Additional inspection responsibilities are expected to result in additional costs ranging between \$11,093.80 and \$33,266.34 annually. There are no expected savings.

Commission staff has determined that the proposed regulations will have no impact on costs or savings in federal funding to the State.

HOUSING COSTS

Commission staff has determined that the proposed regulations will have no significant effect on housing costs.

STATEMENT REGARDING ADVERSE ECONOMIC IMPACTS DIRECTLY AFFECTING BUSINESSES, INCLUDING ABILITY TO COMPETE

Commission staff has determined that the proposed regulations will have no significant statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states.

STATEMENT OF THE RESULTS OF THE ECONOMIC IMPACT ASSESSMENT

Through the Economic Impact Assessment, Commission staff has determined that the proposed regulations:

- (1) Will have no impact upon the elimination of jobs but may result in the creation of a small but uncertain number of jobs within the State of California.
- (2) Will have no impact upon the elimination of existing businesses but may result in the creation of a small but uncertain number of new businesses within the State of California.
- (3) May expand to an unknown extent several categories of businesses currently doing business within the State of California, specifically businesses specializing in:
 - The development and manufacturing of anti-fouling systems
 - In-water cleaning and treatment services
- (4) Will have no significant impact upon worker safety within the State of California.

Commission staff has determined that the proposed regulations will benefit:

(1) The State's environment by:

- Establishing biofouling management requirements to reduce the likelihood of vessels arriving at California with excessive biofouling
- Reducing the risk of biofouling-mediated introductions of NIS into California waters

The proposed regulations would meet the purpose of the Marine Invasive Species Act (Public Resources Code section 71201(d)): "...to move the State expeditiously toward elimination of the discharge of nonindigenous species into the waters of the State..."

(2) The health and welfare of California residents by ensuring that vessels arriving at California ports undertake a minimum level of biofouling management to reduce the risk of biofouling-mediated introductions of:

- Pathogens and parasites (Davidson et al. 2013)
- Harmful nonindigenous species (e.g. harmful algal blooms and toxic diatoms)

The health and welfare of California residents would benefit significantly from the adoption and implementation of the proposed regulations.

COST IMPACTS ON REPRESENTATIVE PERSONS OR BUSINESSES

Sources of information

The estimates presented here were obtained from four categories of sources:

- 1) Estimates provided by shipping industry representatives who were involved in the Technical Advisory Group that advised the development of the proposed regulations
- 2) Vessel-reported data provided to the Commission through mandatory submission of the annual Hull Husbandry Reporting Form, since 2008 (data summarized in Falkner et al. 2009, Takata et al. 2011, Scianni et al. 2013, Dobroski et al. 2015)
- 3) Academic peer-reviewed literature
- 4) Technical and government reports

The implementation of the proposed regulations would result in increased costs to the regulated community. In most cases, staff expects the costs to be minor. Many of the costs associated with biofouling management are already incorporated into operational strategies because of the economic incentive to minimize biofouling-induced drag and associated fuel consumption.

Costs

Most of the costs associated with the proposed biofouling management regulations are already integrated into the current practices of the commercial fleet to reduce biofouling-induced drag and maximize fuel efficiency. Most of these costs are associated with

practices to prevent biofouling attachment or accumulation, including the purchase, application, and appropriate use of anti-fouling and foul-release coatings (i.e. using coatings that are not aged beyond their effective lifespan).

Some additional costs may result from the implementation of the proposed regulations. These costs are detailed below.

Biofouling Management Plan (2 CCR § 2298.3) and Biofouling Record Book (2 CCR § 2298.4)

There may be costs associated with the development and maintenance of the required Biofouling Management Plan and Biofouling Record Book. Both the Biofouling Management Plan and Biofouling Record Book proposed in these regulations are also part of the IMO Biofouling Guidelines. Although the IMO Biofouling Guidelines are voluntary, it is reasonable to assume that proactive owners and operators will adopt the guidelines and develop these documents. In these cases, additional costs to comply with the proposed regulations should be minimal.

Several companies have indicated that most of the information needed for the development and maintenance of these documents is already kept onboard or as part of a vessel's records within a Ship Management System. In these cases, the costs are expected to be minimal. One company indicated that it would cost about \$4,000 per vessel to develop the Biofouling Management Plan and Biofouling Record Book. Another company indicated that it takes about 40 person-hours per vessel to develop these documents.

As indicated by one company, owners and operators of multiple vessels will be able to spread the cost of developing multiple sets of documents across their fleet, resulting in reduced per-vessel costs.

Marine Invasive Species Program Annual Vessel Reporting Form (2 CCR § 2298.5)

The proposed regulation replaces two existing reporting forms (the Hull Husbandry Reporting Form (Revised June 6, 2008) and the Ballast Water Treatment Technology Annual Reporting Form (Revised July 1, 2010)) with the proposed Marine Invasive Species Program Annual Vessel Reporting Form (SLC 600.12, Revised 08/16). No additional costs are expected. Overall administrative costs may be reduced because of the reduction in the number of forms submitted per year.

Biofouling Management of Hulls and Other Wetted Surfaces (2 CCR § 2298.6(a))

Most vessels already implement best practices by using anti-fouling and foul-release coatings appropriately (i.e. within the coating's expected lifespan). These vessels would

be compliant with the proposed provisions in this section, and therefore, should have no additional costs.

A small proportion of vessels operating in California (approximately 1.6% of the fleet in 2013) either:

- Use coatings that have exceeded their effective coating lifespan as documented in their Biofouling Management Plan
- Are not using an anti-fouling coating

These vessels will have to manage biofouling in a different way to minimize NIS introduction risk. The vessel-specific Biofouling Management Plan must document how these vessels will manage biofouling in lieu of the appropriate use of anti-fouling or foul-release coatings (i.e. best preventive practices).

An option that masters, owners, operators, or persons in charge of a vessel may choose to manage biofouling in the absence of an effective anti-fouling coating will be in-water cleaning or treatment. The estimated costs associated with in-water cleaning or treatment range from \$10,000 to \$42,000 per cleaning event. The costs vary because of vessel size, geographic location where the service is performed, and the type of cleaning.

Biofouling Management for Niche Areas (2 CCR § 2298.6(b))

This provision of the proposed regulations requires management of certain vessel niche areas in any manner that the master, owner, operator, or person in charge determines is appropriate. This subpart specifies several different niche areas, and there are many management options available for each.

One option is the targeted application of appropriate anti-fouling or foul-release coatings to certain niche area surfaces. With proper planning, this option can be implemented during a scheduled out-of-water maintenance (e.g. dry docking). In this case, the additional amount of ship surface area to be coated is expected to be minimal. Therefore, the coating application cost is expected to be a marginal increase from the cost of the already scheduled out-of-water maintenance and coating application.

One option for management of sea chests and internal piping networks is the installation of Marine Growth Prevention Systems (MGPS). These systems are typically installed in sea chests or sea strainers and release small doses of biocides (typically copper or sodium hypochlorite) to prevent the settlement of biofouling organisms. The cost for MGPS installation and maintenance depends on the type of system installed

and the number of units needed (typically based on the number of sea chests), and has been estimated at \$100,000 to \$1,000,000 per ship. In most cases, there should be no additional costs for the continued addition of biocides to the MGPS between dry dockings. Many vessels that arrive at California ports (at least 50% each year from 2008 to 2011) already have MGPSs installed (Scianni et al. 2013). No additional costs associated with biofouling management in sea chests and internal piping networks are anticipated for these vessels.

Another option for managing certain niche areas is in-water cleaning. Many masters, owners, operators, or persons in charge of a vessel choose to conduct in-water cleaning of the propeller (i.e. propeller polishing) because it typically increases the fuel efficiency. The estimated cost of propeller polishing is between \$2,000 and \$5,000 per cleaning. In-water cleaning can also be a suitable management option for many other niche areas.

There are many other options for managing niche areas, and vessel masters, owners, operators, or persons in charge are encouraged to determine which options are best suited for their vessels and operational profiles.

Extended Residency Periods (2 CCR § 2298.7)

Section 2298.7 focuses on vessels that have experienced extended residency periods (45 days or more in the same location). This provision is expected to be applicable to a small minority of vessels operating in California. For example, the percentage of vessels arriving at a California port that reported a residency period at or above 45 days was:

- 2.82 percent in 2008
- 3.96 percent in 2011
- 2.01 percent in 2013

After an extended residency period, a master, owner, operator, or person in charge of a vessel may wish to conduct an underwater inspection prior to transiting to California to determine biofouling extent. A typical underwater inspection ranges from \$2,500 to \$6,500 per inspection.

If the vessel needs to be cleaned to manage biofouling in accordance with the vessel-specific Biofouling Management Plan, there are two likely management options available. One option is in-water cleaning or treatment to remove or treat the biofouling. The estimated costs to conduct in-water cleaning or treatment range from \$10,000 to \$42,000. The costs vary because of vessel size, geographic location where the service is performed, and the type of cleaning.

Propeller Cleaning (2 CCR § 2298.8)

Section 2298.8 is merely a clarifying provision. There are no requirements associated with it. Commission staff is not aware of any cost impacts that a representative private person or business would necessarily incur because of this proposed section.

BUSINESS REPORT

Commission staff has determined that the proposed regulations will impose a new reporting requirement upon businesses operating in the State. Section 2298.5 would require submission of the Marine Invasive Species Program Annual Vessel Reporting Form. This annual reporting requirement will replace the submission of two existing annual reporting requirements and one per-arrival reporting requirement, resulting in fewer forms to be submitted and processed. It is necessary that this reporting requirement apply to businesses so that the Commission can verify compliance with the Act and associated regulations to protect the health, safety, and welfare of the people of the State.

SMALL BUSINESS DETERMINATION

Commission staff has determined that the adoption of these regulations may adversely affect small businesses. There are several small barge owners or operators based in California. These companies may or may not qualify as small businesses because of their annual gross receipts (Government Code section 11342.610(c)(7) excludes the activity of "Transportation and warehousing, where the annual gross receipts exceed one million five hundred thousand dollars (\$1,500,000)," from classification as a "small business"). If these small barge companies do qualify as small businesses and if the vessels owned or operated by these companies fall under the jurisdiction of the Commission (and are subject to the Act), they may incur costs to comply with the proposed regulations. The costs for these vessels would be similar to the costs for any vessel to comply. The startup costs would be up to \$4,000 per vessel to develop and maintain a Biofouling Management Plan and a Biofouling Record Book. Ongoing costs would be variable, ranging from \$0 to \$42,000 for full-scale in-water cleaning, if necessary.

The adoption of these regulations may indirectly expand or create small businesses. Additional local in-water cleaning capacity may be necessary if there is additional demand for cleaning services as a component of a comprehensive biofouling management strategy.

ALTERNATIVES INFORMATION

In accordance with Government Code section 11346.5, subdivision (a)(13), the Commission must determine that no reasonable alternative considered or otherwise identified and brought to the attention of the Commission would be:

- More effective in carrying out the purpose for which the action is proposed;
- As effective and less burdensome to affected private persons than the proposed action; or
- More cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of the law.

Commission staff invites interested persons to present statements or arguments with respect to additional alternatives to the proposed regulations during the written comment period.

REFERENCES CITED IN NOTICE OF PROPOSED REGULATORY ACTION

Davidson, I.C., McCann, L.D., Fofonoff, P.W., Sytsma, M.D., Ruiz, G.M. 2008a. The potential for hull-mediated species transfers by obsolete ships on their final voyages. *Diversity and Distributions* 14: 518-529.

Davidson, I., Ashton, G. Ruiz, G., Scianni, C., Brown, C., Pagenkopp Lohan, K., Fleisher, R. 2013. Richness, extent, condition, reproductive status and parasitism of fouling communities on commercial vessels. Final Report prepared for California State Lands Commission. 70 pgs.

Dobroski, N., Brown, C., Nedelcheva, R., Scianni, C., Thompson, J., 2015. 2015 Biennial report on the California Marine Invasive Species Program. Produced for the California State Legislature. 133 pgs.

Falkner, M., Dobroski, N., Scianni, C., Gehringer, D., Takata, L. 2009. Biennial report on the California Marine Invasive Species Program. Produced for the California State Legislature. 108 pgs.

Feyrer, F., H.B. Matern, and P.B. Moyle. 2003. Dietary shifts in a stressed fish assemblage: Consequences of a bivalve invasion in the San Francisco estuary. *Environmental Biology of Fishes* 67: 277-288.

IMO. 2011. International Maritime Organization Marine Environmental Protection Committee MEPC 62/24/Add.1: Annex 26. 2011 Guidelines for the Control and

Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species. 25 pgs.

Lefebvre, K.A., Robertson, A. 2010. Domoic acid and human exposure risks: a review. *Toxicon* 56(2): 218-230.

Nichols, F.H., J.K. Thompson, and L.E. Schemel. 1990. Remarkable invasion of San Francisco Bay (California, USA) by the Asian clam *Potamocorbula amurensis*. II. Displacement of a former community. *Marine Ecology Progress Series* 66: 95-101.

NOEP (National Ocean Economics Program). 2016. Market – Ocean Economy search. Website: <http://www.oceaneconomics.org/Market/ocean/oceanEcon.asp>. (accessed: July 12, 2016).

Pimentel, D., Zuniga, R., Morrison, D. 2005. Update on the environmental and economic costs associated with alien-invasive species in the United States. *Ecological Economics* 52: 273-285.

Ruiz, G.M., Fofonoff, P.W., Steves, B., Foss, S.F., Shiba, S.N. 2011. Marine invasion history and vector analysis of California: a hotspot for western North America. *Diversity and Distributions* 17: 362-373.

Scholin, C.A., Gulland, F., Doucette, G.J., Benson, Sc., Busman, M., Chavez, F.P., Cordar, J., DeLong, R., De Vogelaere, A., Harvey, J., Haulena, M., Lefebvre, K., Lipscomb, T., Loscutoff, S., Lowenstine, L.J., Marin, R., Miller, P.E., McLellan, W.A., Moeller, P.D.R., Powell, C.L., Rowles, T., Silvagni, P., Silver, M., Spraker, T., Trainer, V., Van Dolah, F.M. 2000. Mortality of sea lions along the central California coast linked to a toxic diatom bloom. *Nature* 403: 80-84.

Scianni, C., C. Brown, A. Newsom, R. Nedelcheva, M. Falkner, and N. Dobroski. 2013. 2013 Biennial report on the California Marine Invasive Species Program. Produced for the California State Legislature. 157 pgs.

Sommer, T., C. Armor, R. Baxter, R. Breuer, L. Brown, M. Chotkowski, S. Culberson, F. Feyrer, M. Gingras, B. Herbold, W. Kimmerer, A. Mueller-Solger, M. Nobriga, and K. Souza. 2007. The collapse of pelagic fishes in the upper San Francisco estuary. *Fisheries* 32: 270-277.

Takata, L., Dobroski, N., Scianni, C., Falkner, M. 2011. 2011 Biennial report on the California Marine Invasive Species Program. Final Report prepared for the California State Legislature. 136 pgs.

CONTACT PERSONS

Direct inquiries concerning the substance of the proposed regulations to:

Christopher Scianni
Senior Environmental Scientist (Supervisory)
California State Lands Commission
Marine Environmental Protection Division
200 Oceangate, Suite 900
Long Beach, CA 90802-4335
Telephone: (562) 499-6390
Facsimile: (562) 499-6317
Email: Chris.Scianni@slc.ca.gov

or: Patrick Huber
Staff Attorney
California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825-8202
Telephone: (916) 574-0728
Facsimile: (916) 574-1855
Email: Patrick.Huber@slc.ca.gov

Requests for copies of the proposed text of the regulations, the initial statement of reasons, the modified text of the regulations, if any, or other information upon which the rulemaking is based should be directed to:

Ravindra Varma
Supervisor, Planning Branch
California State Lands Commission
Marine Environmental Protection Division
200 Oceangate, Suite 900
Long Beach, CA 90802-4335
Telephone: (562) 499-6400
Facsimile: (562) 499-6317
Ravi.Varma@slc.ca.gov

AVAILABILITY STATEMENTS

Commission staff will have the entire rulemaking file available for inspection and copying throughout the rulemaking process at the Sacramento and Long Beach offices listed above. As of the date this notice is published in the Notice Register, the rulemaking file consists of this notice, the proposed text of the regulations, the initial statement of reasons, including the economic impact assessment, and relevant sources of information upon which the proposed rulemaking is based. Interested parties may obtain copies of any of the aforementioned files by contacting Ravindra Varma as listed above, or by visiting the website listed below.

AVAILABILITY OF CHANGED OR MODIFIED TEXT OF ORIGINALLY PROPOSED REGULATIONS

After considering all timely and relevant comments, the Commission may adopt the proposed regulations as described in this notice. If Commission staff makes any substantial and sufficiently related modifications to the proposed text, the modified text with changes clearly indicated will be made available to the public for at least fifteen days prior to the date that the Commission adopts the regulations. Interested parties shall send requests for copies of any modified regulations to the attention of Ravindra Varma at the address indicated above. The Commission will accept written comments on the modified regulations for at least fifteen days after the date that they are available.

AVAILABILITY OF THE FINAL STATEMENT OF REASONS

Upon its completion, interested parties may obtain a copy of the Final Statement of Reasons by contacting Ravindra Varma at the address, telephone number, or email address listed above or by accessing the website listed below.

AVAILABILITY OF DOCUMENTS ON THE INTERNET

Copies of the notice of proposed rulemaking, the initial statement of reasons, the proposed text of regulations, the economic impact assessment, relevant documents, and any future changes or modifications to the proposed text can be accessed through our website at: <http://www.slc.ca.gov>