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 OPERATING IN CALIFORNIA WATERS

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 amend and renumber 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 in Title 2, Division 3, Chapter 1 of the California Code of Regulations (CCR). These sections would establish regulations governing the management of biofouling on vessels arriving at a California port or place, as required by Public Resources Code (PRC) section 71204.6.

Specifically, the proposed regulatory action will:

- Amend section 2298, and renumber as Section 2298.5, to modify the existing Hull Husbandry Reporting Form and the annual submission requirement;
- 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 2298.6 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 or place for forty-five days or greater;
- 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, should such cases occur; and
• Adopt section 2298.9.1 to establish criteria for emergency exemptions.

The proposed regulatory action will implement PRC section 71204.6 in accordance with the authority granted by PRC 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 June 16, 2015. All written comments must be received at the Commission by that time. Written comments should be submitted to:

Ravindra Varma  
Supervisor, Planning Branch  
California State Lands Commission  
Marine Facilities 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.MFDRegulations@slc.ca.gov. All written comments submitted via e-mail must include “Article 4.8 Comments” in the subject line of the e-mail.

PUBLIC HEARING

Commission staff has scheduled a public hearing on this proposed action. The hearing will be held on Tuesday June 16, 2015, from 9:00am. 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. Commission staff requests, but does not require, that persons who make oral comments at the hearing also submit a written copy of their testimony. The public hearing will conclude once all who are present and wish to speak have had an opportunity to speak.

AUTHORITY AND REFERENCE

Public Resources Code section 71201(d) declares that the purpose of the Marine Invasive Species Act (the Act) is to move the State expeditiously towards elimination of the discharge of nonindigenous species into waters of the State. Public Resources Code section 71201.7 provides the Commission with the authority to adopt regulations as necessary to implement the provisions of the Act. The proposed regulations would implement, interpret, and make specific PRC section 71204.6. This section of statute directs the Commission to develop and adopt regulations governing the management of biofouling on vessels arriving to a California port or place.

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 PRC section 71204.6. Public Resources Code section 71204.6 requires the Commission to develop and adopt regulations governing the management of biofouling on vessels, 300 gross registered tons and above, arriving at a California port or place, excluding vessels of the armed forces or vessels in innocent passage as defined in PRC section 71202. PRC section 71204.6 also requires the Commission to consider vessel design and voyage duration in developing these regulations. The section further requires the Commission to develop the regulations based on the best available technology economically achievable, and to design the regulations to protect the waters of the state.

Accordingly, the proposed rulemaking would implement the requirement to adopt biofouling management regulations mandated under PRC section 71204.6. The State cannot achieve the purpose of the Act, as described in PRC section 71201(d), without the proposed regulations.

The proposed regulations will amend one section and adopt ten sections. A description of each of the proposed regulations is presented below.
Section 2298 of the California Code of Regulations is amended and renumbered as Section 2298.5. This section would change the timing of annual submission of the Hull Husbandry Reporting Form from “within 60 days of receiving a written or electronic request from the Commission” to “twenty-four hours in advance of the first arrival of the calendar year to a California port or place.” This section would also amend the “Hull Husbandry Reporting Form” revision date from June 6, 2008, to June 5, 2014. The revised Hull Husbandry Reporting Form is incorporated by reference and is available for review.

Section 2298.1(a) would establish the purpose of Article 4.8.

Section 2298.1(b) would specify the vessels to which these regulations apply.

Section 2298.1(c) would specify that the Commission will interpret adjacent ports within identified shared California waters as the same port or place.

Section 2298.1(d) would identify the date of implementation of these regulations.

Section 2298.1(e) would specify that the Commission will monitor the effectiveness of these regulations by evaluating vessel compliance and biofouling extent after implementation of the proposed regulations, and will revise these regulations as necessary. This section would also specify that the Commission will revise these regulations at a later date to adopt biofouling compliance assessment protocols, after developing and vetting them through a technical advisory group process.

Section 2298.2 would define key terms used throughout the text of the regulations to describe management requirements and regulation applicability. These definitions provide clear intent of the regulatory language and are necessary to encourage 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; and
- 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; and
- Be made available for inspection by Commission staff upon request.

Section 2298.5 would modify the timing of submittal for an existing reporting form, the annual Hull Husbandry Reporting Form. This modification would require reporting form submission twenty-four hours in advance of a vessel’s first arrival of a calendar year to a California port or place. This modified submission timing would enable the Commission to collect necessary data to prioritize boarding and inspection prior to vessel arrival based on a per-vessel risk assessment. Data-driven prioritization of inspector resources will enable Commission staff to identify vessels with greater perceived nonindigenous species (NIS) introduction risk, and to track the occurrence and impacts of maintenance and operational practices that influence biofouling accumulation. Evaluating temporal trends in these practices and their effects on biofouling accumulation would also enable Commission staff to evaluate the effectiveness of the proposed regulations and to inform any further revisions of these regulations, if necessary.

This section will slightly modify an existing reporting form, including a small clarifying revision in one question. The revised form would be incorporated by reference: *Hull Husbandry Reporting Form (Revised June 5, 2014)*.

Section 2298.6 makes specific minimum requirements for biofouling management of a vessel’s wetted surfaces. This section also makes specific additional requirements for vessels that exhibit obviously excessive biofouling levels.

Section 2298.7 makes specific a performance standard based on biofouling extent (i.e. percentage cover) for vessels that remain in a port, place, or shared waters for forty-five days or greater prior to arriving to a California port or place.

Section 2298.8 would specify that these regulations do not prohibit or limit propeller cleaning in California waters.
Section 2298.9 makes specific the process for submission and approval of petitions for alternatives to Article 4.8, should such cases occur. Alternatives proposed in petitions must fulfill the purpose of the regulation in Section 2298.1(a), and will be approved or withdrawn by the Commission’s Marine Facilities Division Chief.

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

DETERMINATION ON MAJOR REGULATION DESIGNATION
The Commission has determined that the proposed rulemaking action is not a major regulation, as defined by Government Code section 11342.548 and 1 CCR section 2000. The rulemaking action places recordkeeping, reporting, and biofouling management requirements on vessel masters, owners, operators, or persons in charge of a vessel. None of these parties are considered California business enterprises or individuals. Most of the affected businesses are international shipping companies headquartered outside of California.

Although none of the affected parties are considered California business enterprises or individuals, Commission staff evaluated the cumulative cost impacts predicted to occur, as specified by 1 CCR section 2000. The predicted costs are based on an average of 1817 unique vessels arriving at California ports or places each of the previous five years (2010 through 2014). Additional cost impact details are provided in this document within the section titled COST IMPACTS ON REPRESENTATIVE PERSONS OR BUSINESSES.

During any 12-month period between the date the regulation is estimated to be filed with the Secretary of State through 12 months after the regulation is estimated to be fully implemented, the cumulative cost impacts on international businesses are predicted as follows:

- A one-time cost of up to $7.27 million dollars cumulatively to prepare and maintain a Biofouling Management Plan and Biofouling Record Book for all of the approximately 1817 vessels arriving at California ports or places within a 12-month period.
  - The actual cost is expected to be lower because an unknown number of vessels already have these documents onboard through voluntary implementation of the IMO Biofouling Guidelines. Several shipping companies have also indicated that ship owners with multiple vessels will be able to use a company-specific template to spread the costs out over their fleet and reduce overall costs.
Between $0.51 million and $2.14 million cumulatively for in-water cleaning (if needed) for approximately 51 vessels (2.8% of total) arriving at California ports or places during a 12-month period that are not expected to comply with biofouling management requirements.

New costs associated with niche area management are variable and depend on management decisions made by the vessel owner. These potential costs are therefore difficult to predict.

- At a minimum, adding the application of anti-fouling or foul-release coatings to niche areas, in addition to hull surfaces, while a vessel is in dry dock will incrementally increase the coating costs.

- Vessel owners may choose to conduct in-water cleaning of niche areas as their identified method of management. In these cases, the costs may be as low as $2,000 to $5,000 per ship to clean a propeller. Costs associated with in-water cleaning of other niche areas are unknown, but are expected to be less than the cost to clean an entire ship (i.e. less than $10,000 to $42,000). Assuming that each of the approximately 1817 vessels arriving at California ports or places within a 12-month period manages niche areas through in-water cleaning using an estimate of $10,000 per ship (i.e. the lower estimate for cleaning the entire ship), the cumulative cost is predicted to be up to $18.17 million.

New costs associated with requirements targeted at vessels with obviously excessive biofouling and vessels with extended residency periods are dependent on the small, but unknown, number of vessels that will fall into these categories.

- Each vessel that does fall under these categories will likely either need to undergo an in-water inspection at a cost of $2,500 to $6,500 per ship or in-water cleaning (including inspection) at a cost of $10,000 to $42,000 per ship. Assuming that the percentage of vessels reporting extended residency periods remains similar to the 2.82% (approximately 51 vessels) reported in 2008 and the 3.96% (approximately 72 vessels) reported in 2011, the cumulative costs are predicted to be between $0.51 million and $3.02 million.

- The number of vessels exhibiting obviously excessive biofouling is unknown, but is expected to be similarly low. The potential cost impacts are therefore likely to be similar, ranging between $0.51 and $3.02 million. Examples of vessel hulls with obviously excessive biofouling within the scientific literature are few and are generally associated with slow or stationary vessels (e.g. barges and laid-up vessels). Although the operational profile of barges (e.g. slow moving, long residency periods)
has generally been associated with excessive biofouling, a study of coastal barges operating on the U.S. west coast (Davidson et al. 2010a) showed low levels of biofouling, likely due to frequent voyages into freshwater (e.g. Columbia River), which can function as a biocide for marine species.

Using the higher estimates for each potential cost factor, the total cumulative cost impact of regulation adoption for the approximately 1817 unique vessels arriving at a California port or place during any 12-month period (as defined in 1 CCR section 2000(g)) is predicted to be $33.62 million.

ANTICIPATED BENEFITS OF THE PROPOSED REGULATION
See the description of anticipated benefits of the proposed regulation under “STATEMENT OF THE RESULTS OF THE ECONOMIC IMPACT ASSESSMENT” below.

CONSISTENCY/COMPATABILITY WITH EXISTING STATE REGULATIONS
The Commission evaluated the proposed regulations for any inconsistency or incompatibility with existing state regulations and has found that these are the only regulations dealing with comprehensive management of biofouling on vessels arriving at a California port or place. Therefore, the proposed regulations are neither inconsistent nor incompatible with existing state regulations.

Through the 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) has placed restrictions on in-water cleaning 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 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.

DIFFERENCES FROM FEDERAL REGULATIONS
United States federal requirements for biofouling management to prevent the introduction of NIS can be found within the Code of Federal Regulations adopted and implemented by the United States Coast Guard (USCG) and the VGP adopted and implemented by the EPA.
The USCG requirements are found specifically within 33CFR151.2050(e), 33CFR151.2050(f), and 33CFR151.2050(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; and
- 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 phrase “regular basis.” Therefore, 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 or place.

The EPA requirements are found specifically within the 2013 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; and
- 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”, “regular basis”) and function more like guidance rather than enforceable requirements.
Unlike the proposed regulations for vessels 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 for properly assessing risk on a per-arrival basis, a practice that is critical to ensuring that high-risk vessels are identified and 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 with obviously excessive biofouling; and
- 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.

**DISCLOSURES REGARDING THE PROPOSED ACTION**

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

**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. No other non-discretionary cost or savings imposed on local agencies is anticipated.

Commission staff has determined that no costs or savings to any other state agencies are anticipated.
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 significant impact upon the elimination of jobs within the State of California. The proposed regulations may result in the creation of a small but uncertain number of jobs within the State of California;

(2) Will have no significant impact upon the elimination of existing businesses within the State of California. The proposed regulations may result in the creation of a small but uncertain number of new businesses within the State of California;

(3) May significantly expand several categories of businesses currently doing business within the State of California, specifically businesses specializing in:

   • The development and manufacturing of anti-fouling systems; and
   • 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;
• Reducing the likelihood of future environmental, human health, and economic impacts resulting from the introduction and establishment of new biofouling-mediated NIS.

The proposed regulations 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 operating within California undertake a minimum level of biofouling management to reduce the risk of biofouling-mediated introductions of:

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

The health and welfare of California residents will 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 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;
  3) Academic peer-reviewed papers; and
  4) Technical and/or government reports.

The implementation of the proposed regulations may result in both costs and benefits 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. Biofouling on the hull of a vessel increases the surface roughness, leading to increased hydrodynamic drag as the vessel moves through the water. Increased drag requires the vessel to use more power and fuel to
maintain speed. Therefore, the greater the amount of biofouling on a vessel’s hull, the more fuel efficiency suffers as a result.

Improved biofouling management is therefore expected to reduce biofouling extent and increase fuel efficiency overall, reducing operational costs and greenhouse gas emissions. Staff therefore expects the proposed regulations to present a variety of benefits to both the maritime shipping industry and California, as detailed in the sections below.

**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). In most cases, the benefits of improved fuel efficiency and reduced operating costs far outweigh the costs associated with biofouling management.

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

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

**Hull Husbandry Reporting Form (2CCR§2298.5)**
The annual submission of the Hull Husbandry Reporting Form (HHRF) has been a requirement since 2008, and most vessels comply with the requirement (at least 90% each year since 2008). The proposed regulations merely change the timing of HHRF submission, so no additional costs are expected.

**Biofouling management of hulls and other wetted surfaces (2CCR§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.

The small portion of vessels operating in California (approximately 2.8% of the fleet in 2011) with coatings that have exceeded their effective coating lifespan documented in their Biofouling Management Plan will be subject to a performance standard to minimize NIS introduction risk. These vessels may have to manage their biofouling so that the macrofouling percentage cover does not exceed five percent of the investigated area (as determined by Commission staff using compliance assessment protocols). Some of the coatings on these vessels may still be functional to the point where the performance standard can be met without additional management actions. These vessels should have no additional costs to comply with this proposed provision.

Vessels that are subject to, and exceed, the performance standard will have several options to comply with the proposed regulations. The most likely option that masters, owners, operators, or persons in charge of a vessel may choose in order to remove the biofouling and comply will be in-water cleaning or in-water 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.

Another option that is available for these vessels, as a last resort due to cost, is an unscheduled out-of-water cleaning. The estimated costs associated with out-of-water cleaning range from $150,000 to $1,200,000. The estimates vary due to several factors, including:

- Location of the out-of-water cleaning facility;
• Whether a new coating is applied;
• The condition of the surface to be painted; and
• Whether other maintenance is being performed.

If the out-of-water option is selected, the owner or operator may decide to apply a new coating with a longer lifespan and specifications matching the operational practices of the given vessel.

**Biofouling Management for Niche Areas (2CCR§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 includes 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.

Another available 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 between dry dockings. Many vessels that visit California (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.

**Obviously Excessive Biofouling (2CCR§2298.6(c)) and Extended Residency Periods (2CCR§2298.7)**

Section 2298.6(c) focuses on vessels that arrive at California waters with obviously excessive biofouling and Section 2298.7 focuses on vessels that have experienced extended residency periods. Each of these provisions is expected to be applicable to only a small minority of vessels operating in California. For example, 2.82% of vessels operating in California during 2008 and 3.96% during 2011 reported a residency period at or above 45 days.

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 the likelihood of compliance when arriving at a California port or place. A typical underwater inspection ranges from $2,500 to $6,500 per inspection.

If the vessel needs to be managed to achieve compliance with these two provisions, there are two likely management options available. One option is in-water cleaning or in-water treatment to remove or treat the obviously excessive 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.

Another management option for these vessels is unscheduled out-of-water maintenance. This option is likely to be a last resort due to the costs, estimated to be between $150,000 and $1,200,000.

**Propeller Cleaning (2CCR§2298.8)**

This is merely a clarifying provision. There are no requirements associated with it, therefore no expected costs.

**Benefits**

Proper maintenance of biofouling will result in reduced fuel consumption and lower operational costs overall. Several studies suggest that the fuel savings would far outweigh the potential maintenance costs (Munk et al. 2009, Hydrex 2010, Schultz et al. 2011).
Schultz et al. (2011) determined that a decrease from light macrofouling on the hull to only microfouling (also referred to as a “slime layer”) on the hull would result in savings of approximately $300,000 to $400,000 in fuel costs per ship per year. These estimates were developed based on a mid-sized naval surface vessel (i.e. smaller and faster than typical merchant ships), so the exact savings may not be directly equivalent to the average merchant vessel. However, the principles would be similar, and the impacts of frictional resistance on drag are greater for longer ships and slower traveling speeds (IMO 2014). Therefore, there would undoubtedly be substantial financial benefits to a vessel maintained at a level of microfouling only.

Hydrex (2010) indicates that even a layer of microfouling on a typical commercial cargo vessel travelling at twenty knots would result in an additional $4,500 per day in fuel costs, above costs associated with a clean hull.

Further discussion of the benefits of the proposed regulations, including benefits to the State associated with preventing NIS introductions, is provided in the Economic Impact Assessment within the Initial Statement of Reasons.

BUSINESS REPORT
Commission staff has determined that the proposed regulations will not impose any new reporting requirements upon businesses operating in the State. The proposed regulations will modify the submission timing for an existing annual reporting requirement.

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, as 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.

CONSIDERATION OF ALTERNATIVES

In accordance with Government Code section 11346.5, subdivision (a)(13), Commission staff must determine that no reasonable alternative considered or otherwise identified and brought to the attention of Commission staff 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 initially considered a “no project” alternative, and determined this approach to be inadequate. The “no project” alternative would have left in place minimal requirements established by the Legislature, and would not have satisfied the Legislative mandate established in Public Resources Code section 71204.6.

Commission staff convened a Technical Advisory Group (TAG) beginning in August 2010 to develop the most effective and least burdensome regulations possible that would still satisfy the Legislative mandate referenced above. This TAG consisted of scientists and representative stakeholders from the shipping industry, environmental organizations, and other government agencies. Shipping industry stakeholders included:

- Ship owners;
- Shipping trade groups;
- Anti-fouling coatings manufacturers;
- Dry docking companies;
- In-water cleaning companies;
- Marine Growth Prevention System companies; and
- Ship efficiency companies.

This TAG discussed a variety of regulatory alternatives, and reviewed three drafts of the proposed regulations during four meetings between August 2010 and April 2011.
The Commission prepared rulemaking documents and published the proposed regulations in the Notice Register in September 2011 (California Regulatory Notice Register 2011, No. 37-Z). Commission staff modified the text of the proposed regulations three times throughout the ensuing rulemaking process, and the rulemaking action ended in September 2012 without final adoption.

Commission staff reconvened the TAG in April 2013 to discuss several regulatory alternatives to the previous approach. This group has reviewed and discussed three additional drafts of the proposed regulations between April 2013 and July 2014.

Commission staff published a revised draft of the proposed regulations on the Commission’s website in November 2014 to initiate an informal public comment period. The purpose of this informal comment period was to allow members of the public who had not been a part of the TAG to provide feedback on the regulatory approach outlined in the draft regulations. Commission staff also convened stakeholder meetings in southern and northern California in November 2014 to provide outreach and disseminate information about the informal comment period.

Commission staff and the TAG have now discussed and reviewed eleven drafts of the proposed regulations. Many alternative approaches have been discussed and analyzed during these review and comment periods. Specific alternatives discussed and reviewed include:

- Performance standards for biofouling percentage cover for all vessels, including vessel niche areas (standard proposed as 5% cover) and hulls (standard proposed as 1% cover).
  - These requirements were removed because of shipping industry concerns about the impacts of a perceived need to increase in-water cleaning frequency and the related impacts to the integrity of anti-fouling or foul-release coatings.
  - These standards were replaced by provisions codifying best practices (i.e. using anti-fouling or foul-release coatings within their effective coating lifespans) and allowing vessel owners/operators to identify and implement niche area management practices that they determine to be appropriate for their ships.

- Presumed compliance provisions for select maintenance practices in lieu of performance standards.
  - These provisions were removed because of shipping industry perceptions that many of the suggested options were impractical or ineffective.
These sections were replaced by provisions codifying best practices (i.e. using anti-fouling or foul-release coatings within their effective coating lifespans) and allowing vessel owners or operators to identify and implement niche area management practices that they determine to be appropriate for their ships.

- Extended residency period provisions for vessels remaining in one location for 90, 60, 45, or 30 days.
  - The 90 and 60-day thresholds were rejected because they would have been ineffective at capturing and requiring biofouling management for a large enough portion of vessels that undergo long residency periods, a practice associated with a high likelihood of biofouling accumulation.
  - The 30-day threshold was rejected because it was believed to place an extra management burden on too many vessels.
  - The proposed 45-day threshold was selected because it represented most occurrences outside of normal vessel operations, and therefore would restrict the requirements to vessels that exhibit unusual operations (e.g. long-term layup).

- Biofouling Management Plans and Biofouling Record Books that were prescriptive in describing required components.
  - These requirements were rejected because of shipping industry concerns that they were too prescriptive.
  - These requirements were revised to require alignment with the IMO Biofouling Guidelines.

Records of the TAG discussions and the various draft regulatory documents are available for public review as part of this rulemaking. These documents are listed in the Initial Statement of Reasons under “Technical, Theoretical, and/or Empirical Study, Reports, or Documents Relied Upon.” Additionally, the public has reviewed and commented on five of these drafts, allowing Commission staff to understand the priorities and concerns of the public.

Commission staff has determined that the proposed regulations now represent the most effective and least burdensome approach to satisfying the Legislative mandate established in PRC section 71204.6.

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

Inquiries concerning the substance of the proposed regulation shall be directed to:

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Or to: Mark Meier  
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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 Facilities Division  
200 Oceangate, Suite 900  
Long Beach, CA 90802-4335  
Telephone: (562) 499-6400  
Facsimile: (562) 499-6317  
Email: CSLC.MFDRegulations@slc.ca.gov
AVAILABILITY OF STATEMENT OF REASONS AND TEXT OF PROPOSED REGULATIONS

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 substantially as described in this notice. If Commission staff makes any 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 fifteen days after the date that they are made 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/Division_Pages/MFD/MFD_Home_Page.html