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BALLAST WATER MANAGEMENT PLAN CONTENTS

California's Ballast Water Management and Control law requires that the master, owner, operator, or person in charge of a vessel maintain a ballast water management plan that was prepared specifically for the vessel (Public Resources Code Section 71204(h)).

The California State Lands Commission (the Commission) understands that many vessels are in the process of developing said plans. The following information, is intended to guide the development of your vessel specific Ballast Water Management Plan. Included below is (I) General Plan Contents, which is a simply a short list of information that a plan should contain; and (II) and a more detailed Sample Ballast Water Management Plan.

Please note that the format presented here is one example of a Vessel Specific Ballast Water Management Plan. The exact contents and format of a vessel's individual plan may vary from our SAMPLE PLAN. If you have any questions or comments about this sample plan please contact Maurya Falkner, Program Manager, at 916-574-2568 or Jackie Mackay 562-499-6312.

I. General Plan Contents

The Ballast Water Management Plan should be designed to minimize the transfer of aquatic nuisance species and be specific for each ship.

The plan should have, address, or contain the following information, at a minimum:

1. International, Federal and State Regulations
2. Discussion of how this particular vessel will comply with the California Law.
3. Schematics of the vessels ballast water system, including if possible the location of ballast water sample collection points.
4. Indicate the location, if any, of informational placards related to ballast water management
5. Information on the training program that addresses:
 - Ballast water management practices
 - Operation of treatment technology and equipment
 - Personnel who should receive training
 - Verification that personnel are trained
 - Indicates refresher training for personnel
6. A copy of the IMO Ballast Water Guidelines (Resolution A.868(20))
7. Copies of ballast water records/reports (under California law, vessels must maintain ballast water report forms for 2 years)

II. *Ballast Water Management Plan*

1 INTRODUCTION

Harmful aquatic organism invasions through ballast water are recognized as a serious threat to global biological diversity and human health. Studies carried out in several countries have shown that many species of bacteria, plants, and animals can survive in a viable form in the ballast water and sediment carried in ships, even after journeys of several months' duration. Subsequent discharge of ballast water or sediment into the waters of port states may result in the establishment of these harmful organisms creating a detriment to the marine environment. The International Maritime Organization (IMO), as well as several port state authorities, has recognized the potential harm created by the transportation of non-indigenous species through ballast water. In November 1997, the IMO issued voluntary guidelines, addressing ballast water management, which it recommended all maritime nations adopt. In January 2000, California made these guidelines mandatory for all vessels entering California waters after operating outside the U.S. EEZ. In January 2004, California further expanded this requirement to all vessels over 300 gross registered tons operating in California waters.

The objectives of this plan are to minimize the introduction of harmful aquatic organisms and pathogens from the ship's ballast water and associated sediments while protecting the ship's safety. Through the use of prescribed ballast water management practices, standard operating procedures, and training, these objectives can be safely met.

2 PRACTICES AND PROCEDURES

Every ship that carries ballast water should have on board and maintain a written, ship specific, ballast water management plan. The plan should incorporate practices and procedures that meet the requirements of port state authorities, maritime organizations, and company policies (as appropriate) to minimize the transfer of these harmful organisms. The master, operator, or person in charge of a vessel has ultimate responsibility for ensuring the safety and stability of the vessel and the safety of the crew and passengers. While developing and implementing these procedures, due consideration must be given to these responsibilities.

- The master, operator, or person in charge shall not conduct any ballast water management practice if the master determines the practice would threaten the safety of the vessel, its crew, or its passengers because of adverse weather, vessel design limitations, equipment failure, or any other extraordinary conditions. If a determination is made, all feasible measures that do not compromise the safety of the vessel should be taken.

2.1 *Ballast water management options for vessels entering California waters*

- 2.1.1 Subject to the above paragraph, the master, operator, or person in charge shall employ at least one of the following procedures for ballast water carried into the waters of California from **outside the Pacific Coast Region (Figure 1)**.

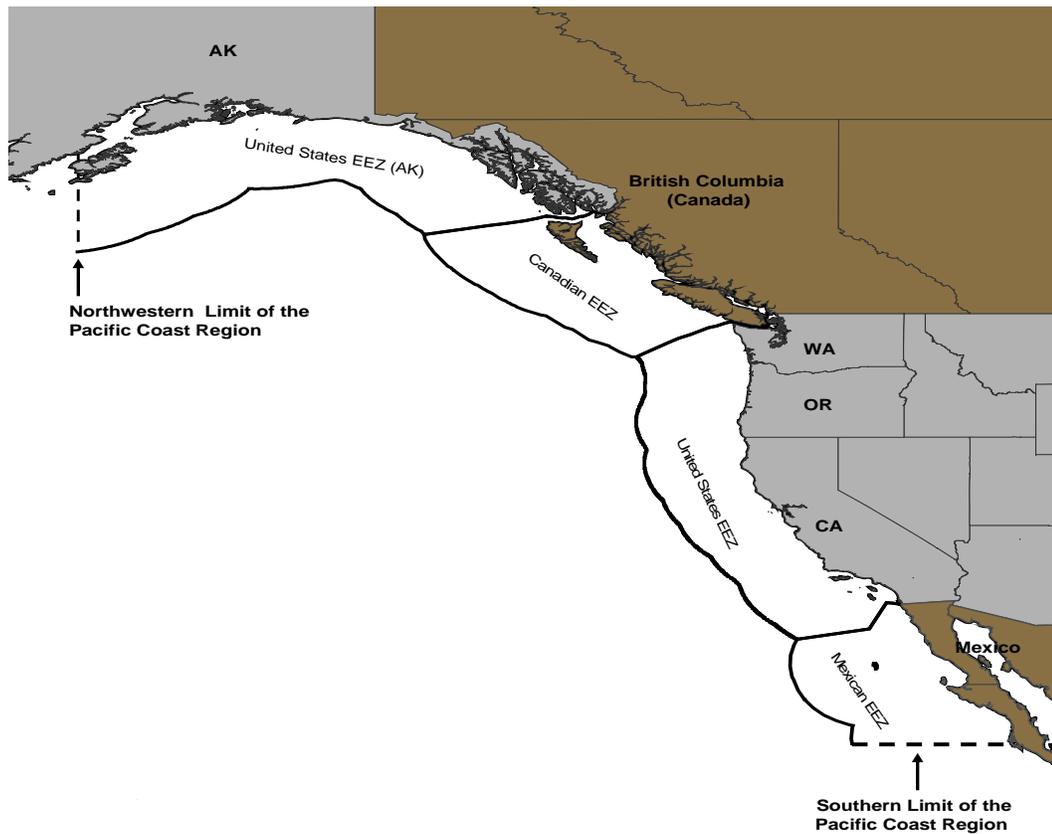


Figure 1 Exclusive Economic Zones of Pacific North America (200 nm), and the Pacific Coast Region (PCR). The PCR extends from approximately Cooks Inlet, AK (154° west longitude) to 3/4 down the Baja Peninsula (25° north latitude) and 200 nm offshore.

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- a Exchange the vessel's ballast water in mid-ocean waters before entering the waters of the state. Mid-ocean waters means waters that are more than 200 nautical miles from land and at least 2,000 meters (6560 feet, 1093 fathoms) deep.
 - b Retain all ballast water on board the vessel.
 - c Discharge the ballast water at the same location where the ballast water originated.****The Master must be able to demonstrate that the ballast water was not mixed with ballast water taken in any other area other than mid ocean waters. The same location is defined as an area within one nautical mile of the berth or within the recognized breakwater of a California port or place at which the ballast water was loaded.****
 - d Discharge ballast water and sediment to a reception facility approved by the Commission. Currently there are no "approved" facilities or guidelines as to the approval process. In the event this becomes necessary, ship's masters should work through their Agents and P&I Representatives to coordinate any additional requirements set forth by the port state authorities. .
 - e Use an alternative, environmentally sound, method of ballast water management. If suitable new and emergent technologies become available, these may replace current options. These methods are designed to "treat" the water, effectively eliminating the organisms. Such treatments could include thermal methods, filtration, chemical treatment, and ultraviolet light. Alternative methods used must be pre-approved by the port state authorities. ****This method must be approved by the Commission or the United States Coast Guard before the vessel begins its voyage.****
 - f Under extraordinary circumstances, perform a ballast water exchange within an area agreed to by the Commission in consultation with the U.S. Coast Guard at or before the time of the request. exchange may be conducted within an area agreed to by the port state authorities at the time of request. Requests should be written and detail circumstances preventing normal mid-ocean exchanges. The request should also provide operational information such as, dates, times, locations, depths, etc.
- 2.1.2 The master, operator, or person in charge shall employ at least one of the following procedures for ballast water carried into the waters of a port state from another port or place **within the Pacific Coast Region (Figure 1)**. Vessels intending to discharge ballast water from another port or place

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within the Pacific Coast region must conduct an exchange in near-coastal waters, which denotes waters that are more. This area normally encompasses the waters contained within 200nm from the base of the territorial seas.

NOTE - All ports and places in the San Francisco Bay area east of the Golden Gate Bridge, including the ports of Stockton and Sacramento, shall be construed as the same California port or place; the ports of Los Angeles, Long Beach, and the El Segundo marine terminal shall be construed as the same California port or place.

- a Exchange the vessel's ballast water in near-coastal waters before entering the waters of the state. Near-coastal waters means waters that are more than 50 nm from land and at least 200 meters (656 feet, 109 fathoms) deep.
- b Retain all ballast water on board the vessel
- c Discharge the ballast water at the same location where the ballast water originated.****The Master must be able to demonstrate that the ballast water was not mixed with ballast water taken in any other area other than mid ocean waters. The same location is defined as an area within one nautical mile of the berth or within the recognized breakwater of a California port or place at which the ballast water was loaded.****
- d Discharge ballast water and sediment to a reception facility approved by the Commission. Currently there are no "approved" facilities or guidelines as to the approval process. In the event this becomes necessary, ship's masters should work through their Agents and P&I Representatives to coordinate any additional requirements set forth by the port state authorities. .
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exchanges. The request should also provide operational information such as, dates, times, locations, depths, etc.

2.2 *Precautionary practices*

The master, owner, operator, or person in charge shall ensure the following practices are carried out to minimize the uptake and release of non-indigenous species.

- 2.2.5 Avoid uptake and discharge of water in areas that may directly affect marine sanctuaries, marine preserves, marine parks, or coral reefs
- 2.2.6 Minimize or avoid uptake of ballast water in all of the following areas and circumstances:
 - Areas known to have infestations or populations of harmful organisms and pathogens
 - Areas near sewage outfalls, dredging operations, poor tidal flushing characteristics, or where propellers may stir up sediment
 - In darkness when bottom-dwelling organisms may rise up in the water column
 - Areas known to contain toxic algal blooms
- 2.2.7 Clean ballast tanks on a regular basis to remove sediments. This can be accomplished in mid-ocean waters, at dry-dock, or other controlled arrangements in port. Ensure sediments are disposed of properly, in accordance with any port state requirements.
- 2.2.8 Take additional good housekeeping measures to minimize the risk, such as:
 - Rinse anchors and anchor chain when retrieving to remove organisms and sediment at their place of origin
 - Remove fouling organisms from hull, piping and tanks on a regular basis
 - Discharge only the minimum amount of ballast water essential for vessel operations

3 RECORDS AND REPORTING PROCEDURES

3.2 *Records*

- 3.2.5 Good record keeping is critical to the success of a solid ballast water management program. Compliance can be verified and managed more effectively if accurate records are maintained and stored in an organized manner. To facilitate the administration of ballast water management on board each ship, a responsible officer should be appointed to manage and certify appropriate records. This person would most likely be directly

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responsible for trim and stability management and oversee any ballasting operation (such as the Chief Mate or Master).

- 3.2.6 Ships records should be accessible and readily available for review by port state authorities. In the event the master is ashore, for instance, the senior officer on watch should have access to these records to minimize any problems with compliance inspections.
- 3.2.7 A ballast water log should be established to capture the origin and disposition of waters taken or discharged from ballast tanks. At a minimum, the dates, geographical locations, ship's tank(s) and cargo holds, ballast water temperature and salinity, as well as amount of ballast water taken or discharged should be recorded. A sample form can be found in Appendix 2 – Forms and Checklists.
- 3.2.8 Other records which should be maintained include:
- Any permits, certificates, exemptions, waivers, or compliance reports issued by port state authorities.
 - Records of training and qualification received by the ship's crew
 - Correspondence related to unusual circumstances or incidents where ballast water management practices could not be diligently carried out
 - Precautionary practices and preventative maintenance evolutions undertaken
 - Reports of condition, issued by Class Societies, shipyards, or repair facilities (in respect to ballast systems).

3.3 Reporting Procedures

- 3.3.5 Many port states have issued ballast water control guidelines and many others are currently developing programs. Shipping organizations and ship's managers should be familiar with current requirements and stay abreast of new and developing programs. Ships should work with managers and agents to ensure any necessary port state requirements are met prior to arrival.
- 3.3.6 Port states that have issued ballast water guidelines require ships provide information in regards to its ballast water. Specifically, the origin of and the vessel's intent to discharge ballast water may be of primary concern. Each port the vessel may call in should be listed with all pertinent information provided. This should include what information is required, any forms or permits are required and point of contact information.
- 3.3.7 Areas listed below are to be regarded as sensitive areas and have issued guidelines on ballast water control. Instructions for forms and contact information can be found in appendix 2 and 7 respectively.
- 3.3.7.1 United States, California waters - Mandatory reporting program
- U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
 - Submitted upon the vessel's departure from each port or place of call in California
 - Form must be submitted regardless of ballasting operations
 - Applies to "Qualifying Voyages" as defined in §71201 of the Public Resources Code
- 3.3.7.2 United States, St Lawrence Seaway and Great Lakes – Mandatory reporting program
- U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
 - Requirements outlined in 33 CFR 151
- 3.3.7.3 United States, all coastal waters – Mandatory reporting program
- U. S. Coast Guard Forms developed pursuant to National Invasive Species Act of 1996
 - Requirements outlined in 33 CFR 151

4 BALLAST SYSTEM DESIGN AND DESCRIPTION

The following section should be used to describe the basic ballast water system, including number of tanks, types of tanks, capacities, and pumping and piping details

5 TRAINING AND QUALIFICATION

As with any pollution prevention program, training is the cornerstone of any successful program. Training for ships masters and crew should include instructions on the application of ballast water management principles and procedures. Instruction should also be provided on the maintenance of appropriate records and logs. A brief syllabus should be included in this section, as well as the frequency of such training. The training program should address the different levels of training required for varying positions and responsibilities as appropriate.

6 APPENDIXES

APP 1 – Safety Aspects of Ballast Water Exchange at Sea

APP 2 – Forms and Checklists

APP 3 – Definitions

APP 4 – Ballast System Diagrams

APP 5 – Port State Requirements Cross Reference Table

APP 6 – IMO Guidelines

APP 7 – List of Contacts

APP 8 – Compendium of Port State Laws and Regulations

APPENDIX 1 - Guidance on safety aspects of ballast water exchange at sea (excerpted from *IMO Ballast Water Guidelines {RES. A.868 (20)}*)

1. Introduction

This document is intended to provide guidance on the safety aspects of ballast water exchange at sea. The different types of ships which may be required to undertake ballast water exchange at sea make it presently impractical to provide specific guidelines for each ship type. Ship owners are cautioned that they should consider the many variables that apply to their ships. Some of these variables include type and size of ship, ballast tank configurations and associated pumping systems, trading routes and associated weather conditions, port state requirements and manning.

Ballast water exchange at sea procedures contained in relevant management plans should be individually assessed for their effectiveness from the environmental protection point of view as well as from the point of view of their acceptability in terms of structural strength and stability.

In the absence of a more scientifically based means of control, exchange of ballast water in deep ocean areas or opens seas currently offers a means of limiting the probability that fresh water or coastal aquatic species will be transferred in ballast water. Two methods of carrying out ballast water exchange at sea have been identified;

- .1 The sequential method, in which ballast tanks are pumped out and refilled with clean water; and/or
- .2 The flow-through method, in which ballast tanks are simultaneously filled and discharged by pumping in clean water

2. Safety precautions

Ships engaged in ballast water exchange at sea should be provided with procedures which account for the following, as applicable:

- .1 avoidance of over- and under-pressurization of ballast tanks;
- .2 free surface effects on stability and sloshing loads in tanks that may be slack at any one time;
- .3 admissible weather conditions;
- .4 weather routing in areas seasonably affected by cyclones, typhoons, hurricanes, or heavy icing conditions;
- .5 maintenance of adequate intact stability in accordance with an approved trim and stability booklet;
- .6 permissible seagoing strength limits of shear forces and bending moments in accordance with an approved loading manual;
- .7 torsional forces, where relevant;
- .8 minimum/maximum forward and aft draughts;
- .9 wave-induced Hull vibrations;

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- .10 documented records of ballasting and/or deballasting;
- .11 contingency procedures for situations which may affect the ballast water exchange at sea, including deteriorating weather conditions, pump failure, loss of power, etc.;
- .12 time to complete the ballast water exchange or an appropriate sequence thereof, taking into account that the ballast water may represent 50% of the total cargo capacity for some ships; and
- .13 monitoring and controlling the amount of ballast water.

If the flow-through method is used, caution should be exercised, since::

- .1 air pipes are not designed for continuous ballast water overflow;
- .2 current research indicates that pumping of at least three full volumes of the tanks capacity could be needed to be effective when filling clean water from the bottom and overflowing from the top; and
- .3 certain watertight and weather-tight closures (e.g. manholes) which may be opened during ballast exchange, should be re-secured.

Ballast water exchange at sea should be avoided in freezing weather conditions. However, when it is deemed absolutely necessary, particular attention should be paid to the hazards associated with the freezing of overboard discharge arrangements, air pipes, ballast system valves together with their means of control, and accretions of ice on deck.

Some ships may need the fitting of loading instrument to perform calculations of shear forces and bending moments induced by ballast water exchange at sea and to compare with the permissible strength limits.

An evaluation should be made of the safety margins for stability and strength contained in allowable seagoing conditions specified in the approved trim and stability booklet and the loading manual, relevant to individual types of ships and loading conditions. In this regard particular account should be taken of the following requirements;

- .1 stability to be maintained at all times to values not less than those recommended by the Organization (or required by the Administration);
- .2 longitudinal stress values not to exceed those permitted by the ship's classification society with regard to prevailing sea conditions; and
- .3 exchange of ballast in tanks or holds where significant structural loads may be generated by sloshing action in the partially filled tank or hold to be carried out in favorable sea and swell conditions so that the risk of structural damage is minimized.

The ballast water management plan should include a list of circumstances in which ballast water exchange should not be undertaken. These circumstances may result from critical situations of an exceptional nature, force majeure due to stress of weather, or any other circumstances in which human life or safety of the ship is threatened.

3. Crew training and familiarization

The ballast water management plan should include the nomination of key shipboard control personnel undertaking ballast water exchange at sea

Ships' officers and ratings engaged in ballast water exchange at sea should be trained in and familiarized with the following:

- .1 the ship's pumping plan, which should show ballast pumping arrangements, with positions of associated air and sounding pipes, positions of all compartments and tank suctions and pipelines connecting them to ship's ballast pumps and , in the case of use of the flow-through method of ballast water exchange, the openings used for release of water from the top of the tank together with overboard discharge arrangements;
- .2 the method of ensuring that sounding pipes are clear, and that air pipes and their non-return devices are in good order;
- .3 the different times required to undertake the various ballast water exchange operations'
- .4 the methods in use for ballast water exchange at sea if applicable with particular reference to required safety precautions; and
- .5 the method of on-board ballast water record keeping, reporting and recording of routine soundings.

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APPENDIX 2 – Forms and Checklists

Ballast Water Reporting Form

OMB form Control No. 1625-0069

SAMPLE BALLAST WATER REPORTING FORM

IS THIS AN AMENDED BALLAST REPORTING FORM? YES NO

1. VESSEL INFORMATION

2. VOYAGE INFORMATION

3. BALLAST WATER USAGE AND CAPACITY

Vessel Name: PACIFIC PRINCESS	Arrival Port: New York		<i>Specify Units Below (m³, MT, LT, ST)</i>		
IMO Number: 7018563	Arrival Date: 05/14/2000		Total Ballast Water on Board:		
Owner: PRINCESS CRUISES	Agent:		Volume	Units	No. of Tanks in Ballast
Type: Passenger	Last Port:	Country of Last Port:	363.9	m3	6
GT: 20186	West End	Bermuda	Total Ballast Water Capacity:		
Call Sign: GBCF	Next Port:	Country of Next Port:	Volume	Units	Total No. of Tanks on Ship
Flag: United Kingdom	Saint George's (Bermuda)	Bermuda	363.9	m3	6

4. BALLAST WATER MANAGEMENT

Total No. Ballast Water Tanks to be discharged:

Of tanks to be discharged, how many: Underwent Exchange: Underwent Alternative Management:

Please specify alternative method(s) used, if any: _____

If no ballast treatment conducted, state reason why not: Not Capable

Ballast management plan on board? YES NO Management plan implemented? YES NO

IMO ballast water guidelines on board [res. A.868(20)]? YES NO

5. BALLAST WATER HISTORY: Record all tanks to be deballasted in port state of arrival; IF NONE, GO TO #6 (Use additional sheets as needed)

Tanks/ Holds List multiple sources/tanks separately	BW SOURCES				BW MANAGEMENT PRACTICES						BW DISCHARGES			
	DATE DD/MM/Y Y	PORT or LAT. LONG.	VOLUME (units)	TEM P (unit s)	DATE DD/MM/YY	ENDPOINT LAT. LONG.	VOLUME (units)	% Exch	METHOD (ER/FT/ ALT)	SEA HT. (m)	DATE DD/MM/YY	PORT or LAT. LONG.	VOL (units)	SALINITY (units)
DB 1	12/05/0 0	West End	28.01 m3	22 C							12/14/00	New York	28.01 m3	
DB 2	12/05/0 0	West End	28.01 m3	22 C							12/14/00	New York	28.01 m3	
DB 3	12/05/0 0	West End	28.01 m3	22 C							12/14/00	New York	28.01 m3	
DB 4	12/05/0 0	West End	28.01 m3	22 C							12/14/00	New York	28.01 m3	

Ballast Water Tank Codes: Forepeak = FP, Aftpeak = AP, Double Bottom = DB, Wing = WT, Topside = TS, Cargo Hold = CH, Other = O

6. RESPONSIBLE OFFICER'S NAME AND TITLE, PRINTED AND SIGNATURE: John Doe, Captain

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APPENDIX 3 – Definitions

- Recommend definitions from 33 CFR 151
- §71200 of the Public Resource Code
- IMO guidelines
- other pertinent definitions

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APPENDIX 4 – Vessel Specific Ballast System Diagrams

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APPENDIX 5 – Port State Requirements Cross Index

Requirement	California	USA, Great Lakes	USA, All Coastal	Other
Record keeping	Yes			
Reporting	Yes			
Exchange or Retain	Yes			
Management plan	Yes			
Record retention	2 years			
Training	Yes			

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**APPENDIX 6 – IMO Guidelines for the control and management of ships'
ballast water**

(Copy should be inserted here)

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APPENDIX 7 – List of Contacts

California - California State Lands Commission

http://www.slc.ca.gov/Spec_Pub/MFD/Ballast_Water/Ballast_Water_Default.html

For more information contact:

Maurya B Falkner

Program Manager

916-574-2568

falknem@slc.ca.gov

or

Jackie Mackey

562-499-6312

mackayj@slc.ca.gov

Oregon – Department of Environmental Quality

<http://www.deq.state.or.us/lq/cu/emergency/ballast.htm>

For more information contact:

Rian Hooff

Ballast Water Program Manager & Aquatic Non-indigenous Species Specialist

503-229-6865 (toll-free in Oregon: 1-800-452-4011 x6865)

hooff.rian@deq.state.or.us

Washington – Department of Fish and Wildlife

<http://wdfw.wa.gov/fish/ballast/ballast.htm>

For more information contact:

Allen Pleus

ANS Coordinator

(360) 902-2724

pleusaep@dfw.wa.gov

Or

Pam Meacham

ANS Assistant Coordinator

(360) 902-2741

meachpmm@dfw.wa.gov

United States – US Coast Guard

<http://www.uscg.mil/hq/cg5/cg522/cg5224/ans.asp>

Environmental Standards Division (CG-5224)

U.S. Coast Guard Headquarters

2100 Second Street, SW

Washington, DC 20593

Information Line: 202-372-1402

Email Address: environmentalstandards@comdt.uscg.mil

APPENDIX 8 – Compendium of Port State Laws and Regulations

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Assembly Bill 703 – California state law “Ballast Water Management for Control of Nonindigenous Species

33 CFR 151 –

Assembly Bill 433 – California state law “Marine Invasive Species Act