MAXUM PETROLEUM, INC.

WAC 173-184-130

SAFE AND EFFECTIVE THRESHOLD REPORT

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TABLE OF CONTENTS

1. Introduction

MAXUM Petroleum's Safe and Effective Threshold Report, as required by WAC 173-184-130, details the considerations that will be addressed when pre-booming fuel and lubricant deliveries.

MAXUM does not pre-boom their own vessels anywhere except their Class 1 facilities. Any prebooming done at locations other than Class 1 facilities is contracted to one of their approved booming and spill response organizations

In accordance with the Safe and Effective Threshold Determination Report Job Aid published by the State of Washington Department of Ecology, this report includes data on current, wind, and sea state for each transfer location. Data is compiled from recommended sources where applicable and other sources as noted.

MAXUM abides by the standards in "Bunkering Operations within the Waters of Puget Sound and the Straits of Juan de Fuca" section of the Harbor Safety Plan ***(see attached Appendix A)*** and the "Report to the Legislature on Columbia River Vessel Traffic Evaluation and Safety Assessment (see Appendix A). A copy of these standards are aboard each MAXUM barge and tankship operating in the waters of the Puget Sound and Columbia River.

2. Reporting

An Advance Notice of Transfer (ANT) will be submitted as required for every transfer of more than 100 gallons. ANT will be submitted at least 24 hours prior to the start of transfer. In case MAXUM is unable to provide adequate advance notice, the ANT will be submitted as soon as possible. MAXUM will use Ecology form number ECY 070-175 for these.

If the current or forecasted conditions exceed the values in this Safe and Effective Threshold report, or are deemed unsafe for MAXUM personnel and contractors, a Boom Reporting Form (BRF) will be submitted to Ecology and MAXUM management. If the conditions improve and are reasonably expected to remain safe throughout the remainder of the transfer, then the decision will be made during a transfer to complete booming.

3. Operational Factors

The following factors were considered in setting the MAXUM Petroleum Safe and Effective Threshold values:

1. Safety of MAXUM personnel, our Booming Contractors and the personnel of the vessel receiving product from the MAXUM vessel. Safety is always the top priority when assessing the deployment of boom for any given transfer.
2. Ability of the vessel deploying the boom to operate safely and deploy the boom properly in the conditions prior to the start of the delivery, as well as the conditions forecast for the duration of the delivery, and when boom is expected to be retrieved from water.

3. If the physical structure (side freeboard, stern freeboard, etc.) of the vessel performing the booming would cause difficulty and/or injuries in trying to handle boom under adverse conditions.
4. The most adverse conditions under which the boom can physically contain the oil.

The Contractor utilizes skiff vessels designed for booming and spill response. The boom used is standard Perma boom with a 24" skirt. This is at or above industry standard and designed to withstand conditions up to, and in some cases exceeding the threshold values listed below.

The Maxum Person In Charge will evaluate conditions prior to deploying the boom and will discuss with the Contractor as well. If any particular condition, or the combination of conditions, is deemed to be unsafe, the decision will be made by the Maxum PIC and the Contractor to not pre-boom and fill out an Ecology Boom Reporting Form which is submitted to the State Department of Ecology.

Should forecasts indicate worsening conditions expected to impact the transfer before completion than the Maxum PIC and Contractor may consider removing the boom while it is still safe to do so.

Should conditions, or forecasts, improve than the Maxum PIC will make the determination, in consultation with the Contractor, that boom can now safely be deployed. Maxum's goal is to boom 100% of Rate A transfers when safe to do so.

If it is deemed safe enough to deploy the boom and there are concerns the boom may be less than 100% effective in the current or forecasted conditions, the boom is still deployed. Less than 100% effective boom is better than no boom in the event of an incident.

4. Summary of Safe and Effective Threshold Values

For any MAXUM barge making a *Rate A* delivery, pre-booming will not be started and/or deployed boom will be retracted in the event any one (1) of the following limits are exceeded:

1.	WIND (knots)	>20
2.	WAVE HEIGHT (feet)	>3
3.	WAVE TYPE	Steep, choppy & breaking.
3.	CURRENT (knots) *See note below	>2.0
4.	VISIBILITY (feet)	<1000

On all deliveries requiring pre-booming, the decision to boom will be at the discretion of the contractor handling the boom and the MAXUM PIC or other MAXUM crew members. The decision will be based on a case-by-case basis with the above individual criteria or a combination of the above criteria determining whether or not to pre-boom. Additionally, at the discretion of the PIC, and with the concurrence of MAXUM Management, any *Rate A* delivery that cannot be pre-boomed can be made once the ***Dept. of Ecology's Rate A Deliverers- Boom Reporting Form (See Appendix B)*** has been submitted, made at *Rate B* or discontinued entirely based on the conditions at the location of the delivery.

IF it is determined that it is unsafe to deploy boom, Maxum Petroleum will meet the Alternative Measures Requirements outlined in WAC 173-184-115.

Note: Current speed determined by visual means:

1. *By calculating the time it takes for an object to float the length of the barge*

5. Methodology

MAXUM Petroleum makes deliveries at a large number of docks, piers, anchorages and other locations in the Puget Sound, Strait of Juan de Fuca and Columbia River. Each transfer site is unique and can have unique conditions that will affect the decision to pre-boom or not. In all cases, the contractor and MAXUM PIC utilize all equipment and resources previously noted to measure and/or quantify the conditions at the transfer site. This allows the contractor and PIC to predict when to pre-boom and when, if necessary, to retrieve boom prior to completion of the product transfer due to increasingly concerning conditions and weather developments.

For both the Puget Sound and the Columbia River, MAXUM personnel monitor reports from the USCG as well as the NWS.

MAXUM vessels and equipment are crewed by licensed, qualified individuals with extensive experience in making oil deliveries in this area. Their collective experience at each location is invaluable and will guide them in the safe and efficient use of booming.

Any time the contractor, MAXUM PIC or other MAXUM personnel decides that it will not be safe or effective to pre-boom a delivery, the information concerning that delivery will be transmitted to the Washington Department of Ecology on the "***Dept. of Ecology's Rate A Deliverers- Boom Reporting Form"(See Appendix B)***. The PIC will log the conditions and the decision to not pre-boom in the vessel logbook. During each transfer, conditions will be constantly monitored so that boom can be deployed if it has not been or boom can be retrieved early if it must for safety concerns.

Tide Data:

Downloaded Puget Sound annual data from NOAA Tides and Currents website for nearest point to each transfer location. The downloaded reports include slack tides which are removed from the data. Ebbing is reported in negative values and these are normalized to a positive value for this report. Formulas are then used to determine average, median, maximum, as well as percentage of measurements above the stated maximum threshold in this report. Values are reported in knots.

The direction of mean floor and ebb directions are downloaded from the PDF version of the same report from NOAA and noted for that particular transfer location.

Data for Columbia River was obtained from the USGS water data. Data points are downloaded for nearest monitoring location to transfer location. Average, quartiles, mean, and total occurrences above stated threshold are then calculated for this report.

Wind Data:

Wind data is collected from NOAA buoys where applicable and Weather Underground when there are no NOAA within a reasonable distance from transfer locations. The data is downloaded and then analyzed for mean, quartiles, max, and percentage of readings above the stated threshold.

Wind direction graphs are collected from windfinder.com, where available.

Sea State Values:

The only NOAA buoy near a transfer location with wave height data is located near Port Angeles. The values for that location are listed below. Analysis includes mean, max, and percentage of measurements above stated threshold.

Safety Equipment:

Maxum Petroleum uses a combination of equipment, training, and tools to ensure the safety of our crew during all transfers. Here is a list of those safety strategies:

- Marine Operational Manual
- Monthly terminal safety meetings
- Quarterly on-line safety training
- Drills such as man-overboard monthly
- Job Safety Analysis process
- Peronsal floatation devices
- Backup skiff on-board each Maxum vessel

(Reference Appendix E for details on Contractor's equipment/resources)

Transfer Rates:

Transfer rates vary depending on the delivering vessel, receiving vessel, and environmental conditions. Below are the typical ranges for each delivering vessel.

Global Pilot: 200 – 2,000 gallons per minute

Global Provider: 80 – 1,000 gallons per minute

Global Pilot: 200 – 1,800 gallons per minute

Most receiving vessels prefer transfer rates well below the 500 gallons per minute that would warrant pre-booming. Fewer than 5% of transfers are completed at rate A (500 GPM and above).

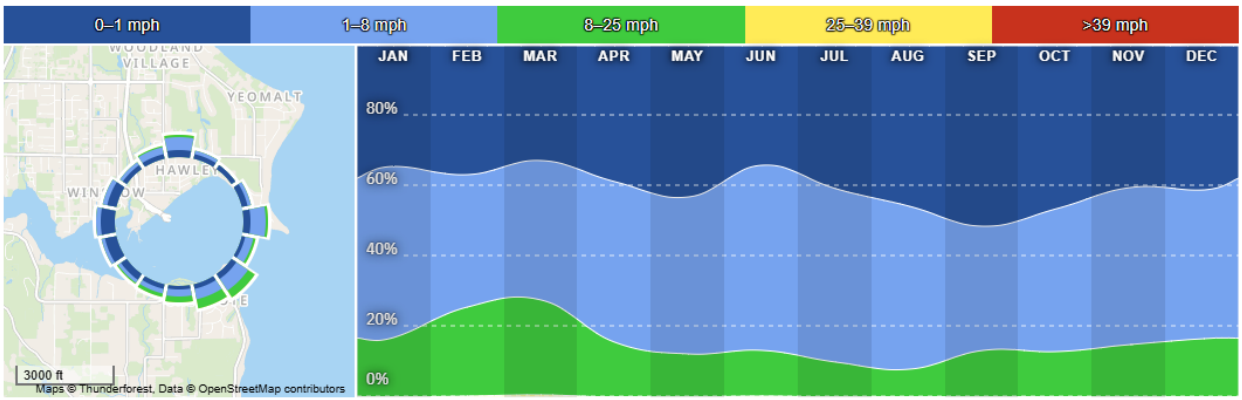
6. Common Transfer Locations

Puget Sound

Eagle Harbor

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (Weather Underground)	2.5 knots	33.6 knots	2.3%	SSE winds tend to be the strongest and affect booming most
Tidal Currents	0.2 knots	0.4 knots	0	Mean flood direction 337° Mean ebb direction 137°

Monthly wind direction and strength distribution

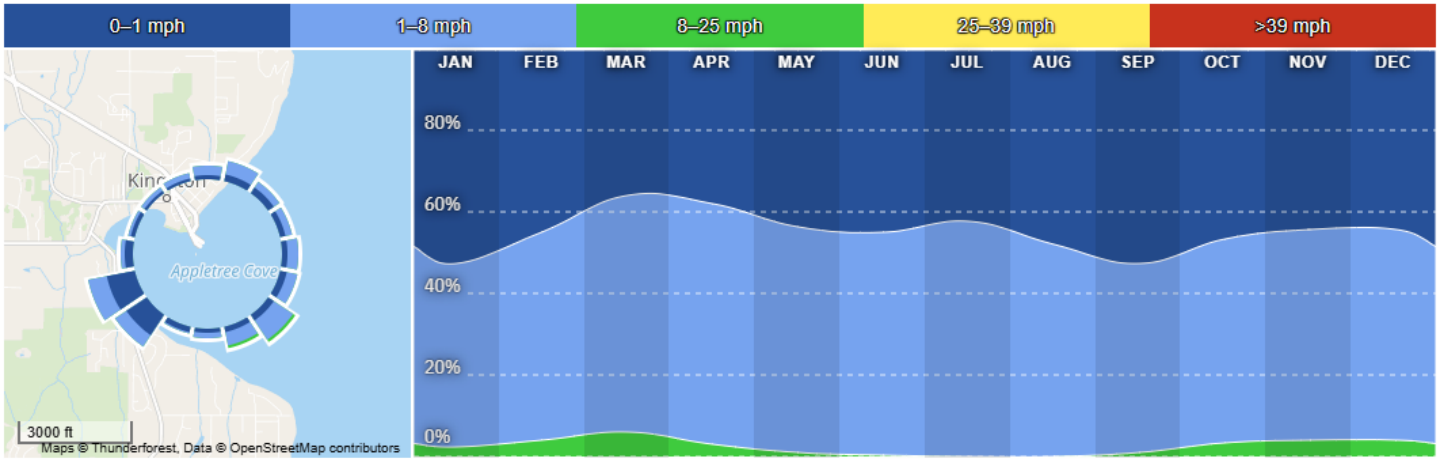


From [Wind & weather statistics Eagle Harbor / Bainbridge - Windfinder]

Kingston

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (Weather Underground)	2.0 knots	19.8 knots	0	
Tidal Currents	0.3 knots	1.1 knots	5.4%	Mean flood direction 161° Mean ebb direction 358°

Monthly wind direction and strength distribution



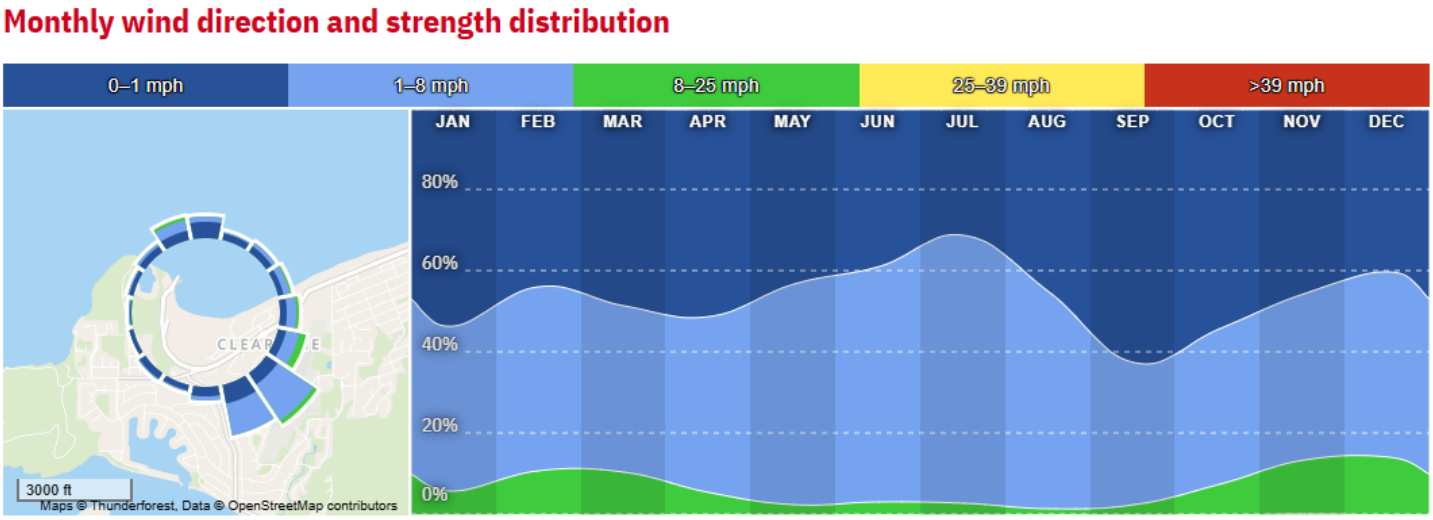
[Wind & weather statistics Kingston / Appletree Cove - Windfinder]

North Sound

MAXUM conducts a good portion of their *Rate A* deliveries in this area and hires contractors to safely and effectively pre-boom these deliveries. The conditions can be severe on occasion. Therefore, high winds in excess of 25 knots and waves higher than 1.5 feet can be expected under storm conditions. Also, under certain seasonal high water or flood conditions, the current can be in excess of 1.0 knots. If any one condition exceeds the safe and effective threshold values, or a combination of the conditions makes it unsafe to pre-boom, pre-booming will not occur. A decision will be made to submit a BOOM REPORTING FORM and continue the delivery at *Rate A,* reduce the delivery to *Rate B,* or delay or discontinue the delivery until such time as the conditions improve.

- Anacortes

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (Weather Underground)	3.9 knots	43.4 knots	11.9%	
Tidal Currents	2.0 knots	4.3 knots	82.6%	Mean flood direction 75° Mean ebb direction 268°

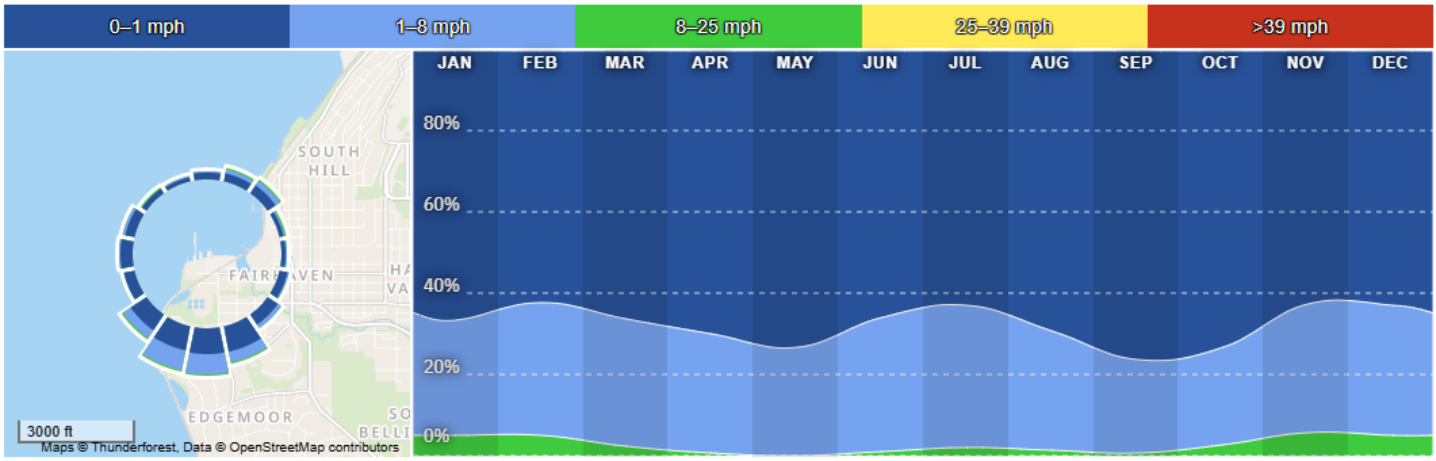


[Wind & weather statistics Ship Harbor - Windfinder]

- Bellingham

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (NOAA)	3.2 knots	101.5 knots	1.9%	
Tidal Currents	0.7 knots	1.5 knots	25.4%	Mean flood direction 324° Mean eff direction 131°

Monthly wind direction and strength distribution

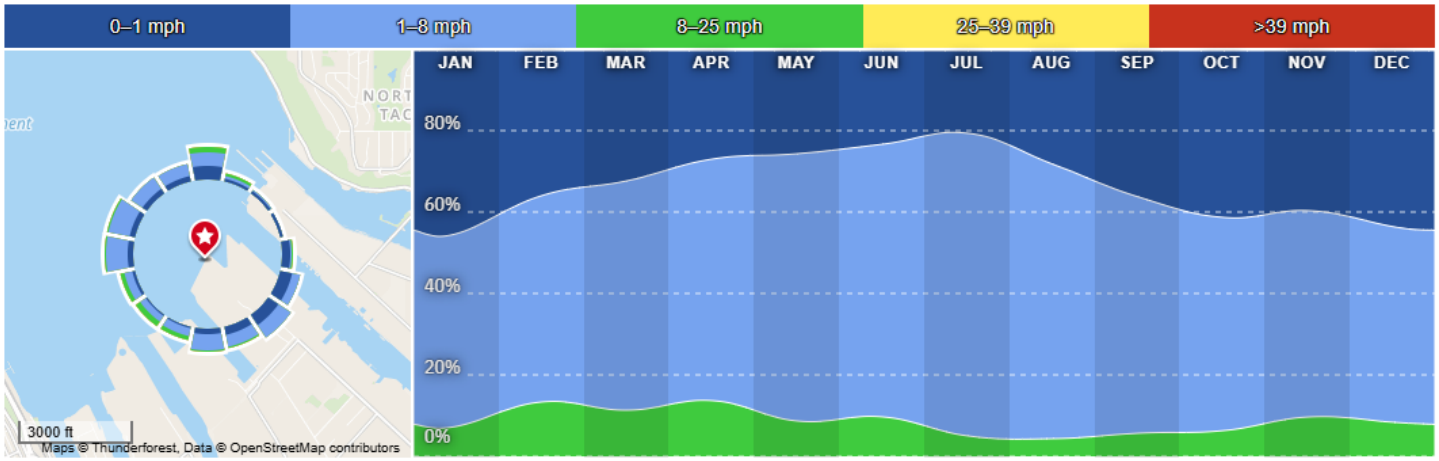


[Wind & weather statistics Bellingham Port - Windfinder]

Tacoma / Hylebos Waterway

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (NOAA)	4.7 knots	17.5 knots	0	
Tidal Currents	0.4 knots	0.9 knots	0	Mean flood direction 234° Mean ebb direction 42°

Monthly wind direction and strength distribution



[Wind & weather statistics Tacoma Port - Windfinder]

Seattle

MAXUM Petroleum does relatively few *Rate A* deliveries in this area. However, high winds in excess of 25 knots, waves higher than 1.5 feet or and currents in excess of 1.5 knots can be expected under storm conditions.

There are also man-made obstructions which would preclude MAXUM Petroleum from pre-booming. The most prevalent of these are the tribal fishing nets that, at certain times of the year, are in the East Waterway. The same decision process as above would be utilized.

- Harbor Island & Pier 90 / 91

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (NOAA)	4.1 knots	15.9 knots	0	
Tidal Currents	0.3 knots	0.9 knots	0	Mean flood direction 178° Mean ebb direction 1°

Port Angeles Anchorage

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (NOAA)	5.5 knots	33.0 knots	0.5%	
Tidal Currents	1.1 knots	2.5 knots	11.6%	Mean flood direction 89° Mean ebb direction 283°
Sea State	1.4 feet	3.2 feet	9.2%	

Columbia River

MAXUM Petroleum does relatively few *Rate A* deliveries and less than half of the deliveries occur in Washington waters.

During periods of high-water there may be excess floating debris in the river. In these cases, all efforts will be made to remove such debris from the booming area to prevent diminishing effectiveness of the boom. A determination shall be made to forego booming and /or bunkering altogether if floating debris build-up causes any threat to the safety of the transfer.

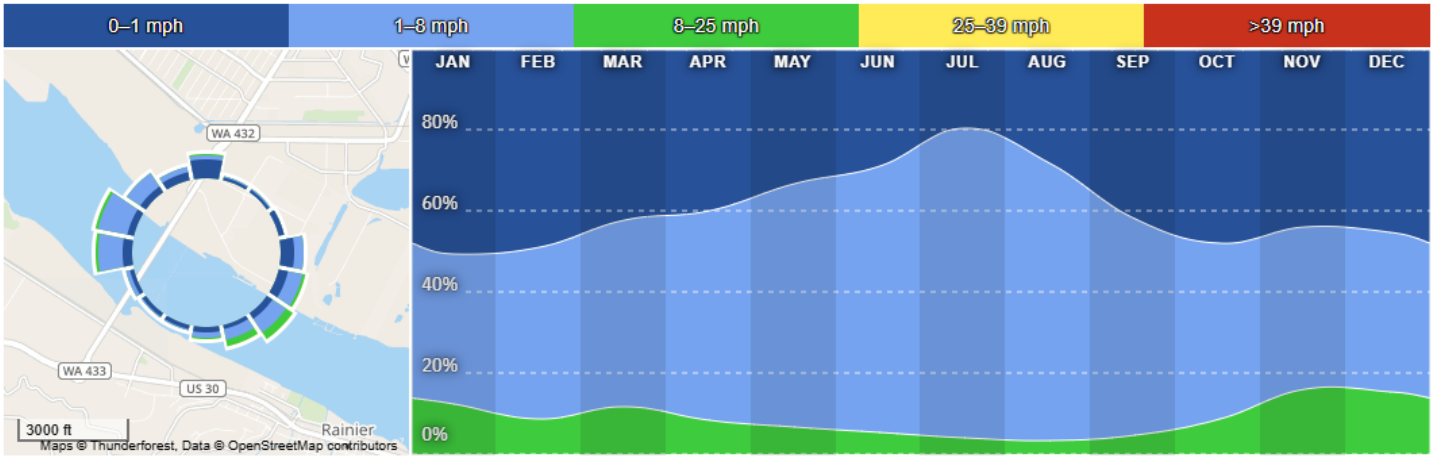
Kalama

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind	4.5	24.3	0.4%	No data available (see Longview and Vancouver for nearest station data)
Tidal Currents	N/A	N/A	N/A	No data available (see Longview and Vancouver for nearest station data)

Longview

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (Weather Underground)	0.7 knots	32.2 knots	0.2%	
Tidal Currents	1.2 knots	2.6 knots	9.9%	Generally flowing downriver

Monthly wind direction and strength distribution

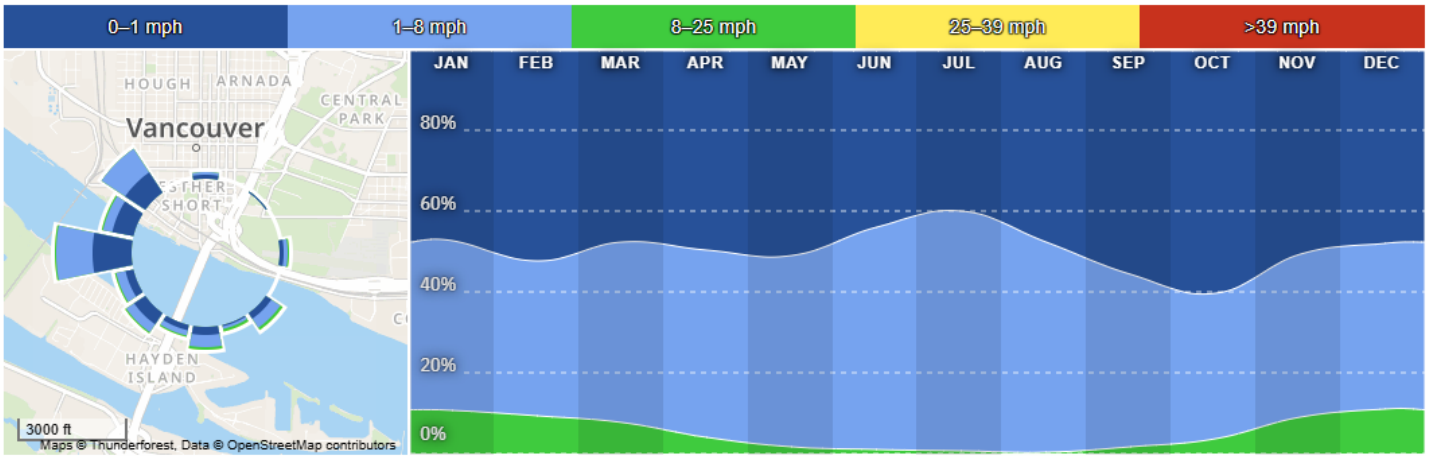


[Wind & weather statistics Longview - Windfinder]

Port of Vancouver and anchorage

Environmental Factors	Mean	Maximum	% over threshold	Comments
Wind (Weather Underground)	3.6 knots	26.1 knots	0.1%	
Tidal Currents	1.1 knots	1.8 knots	0	Generally flowing downriver

Monthly wind direction and strength distribution



[NOAA Current Predictions - Current Predictions]

7. Booming Strategies

Figure 1: Booming Pier-side Transfers Puget Sound

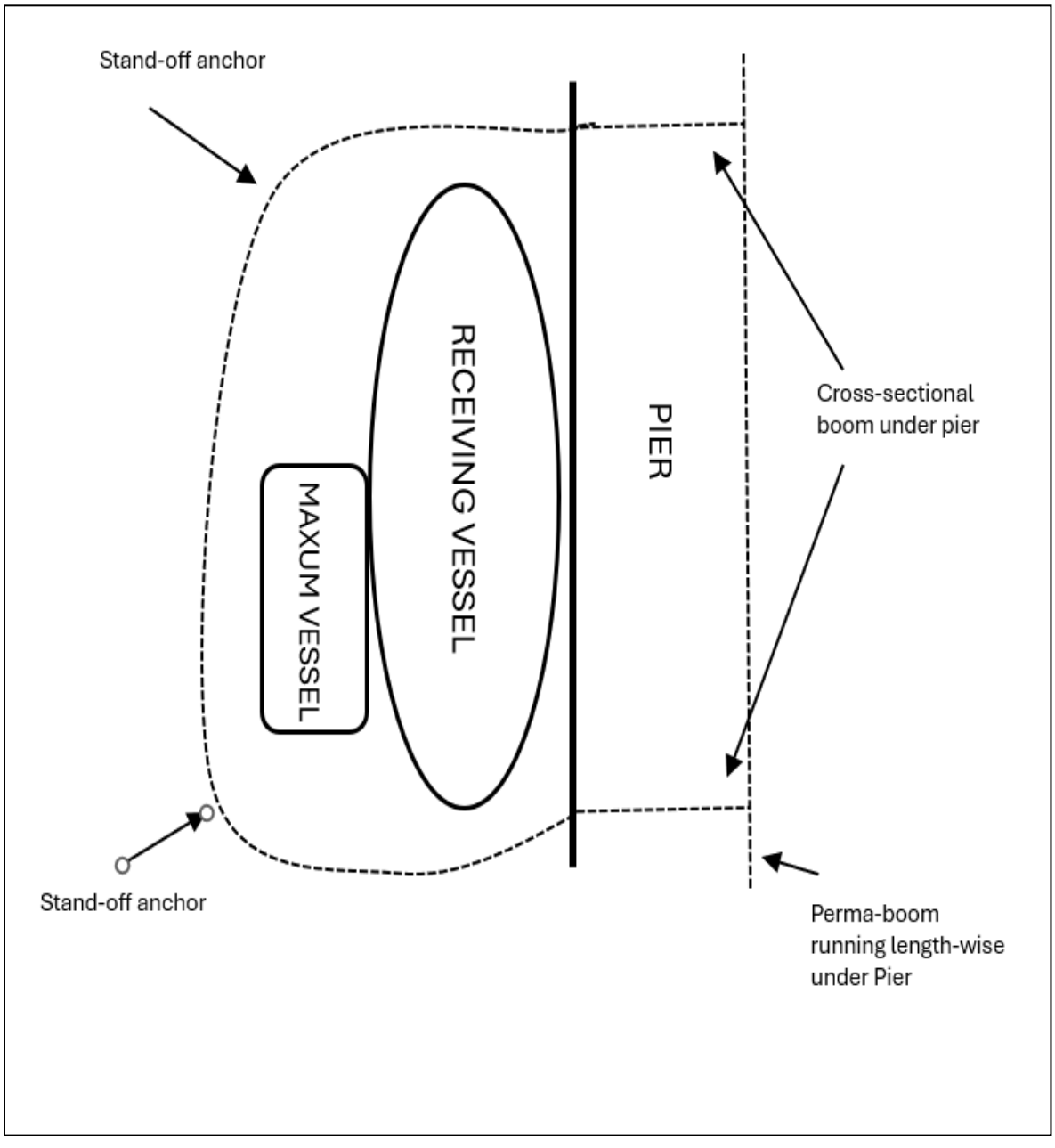


Figure 2: Booming at Anchor Puget Sound

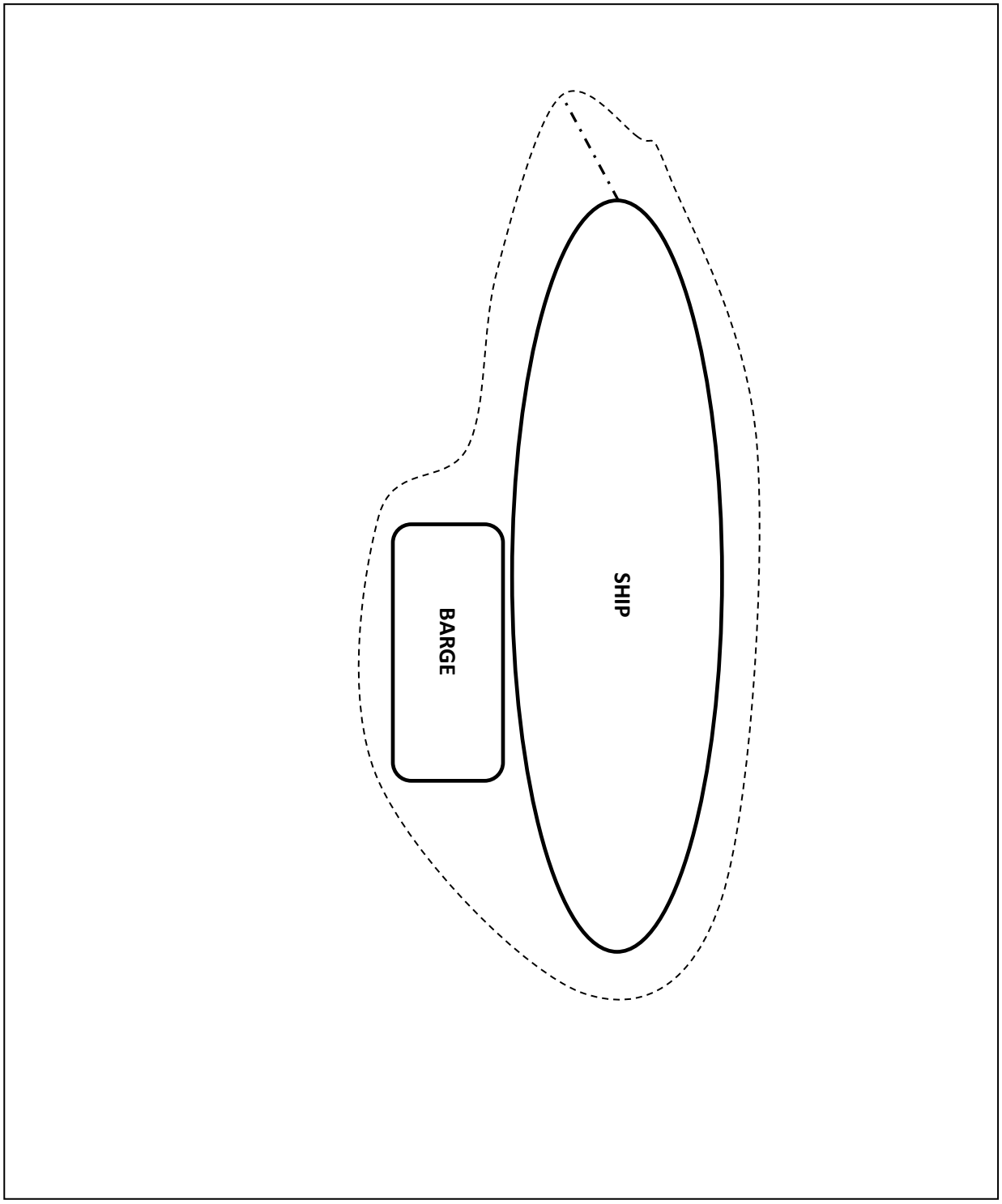


Figure 3: Booming Pier-side Transfers Columbia River

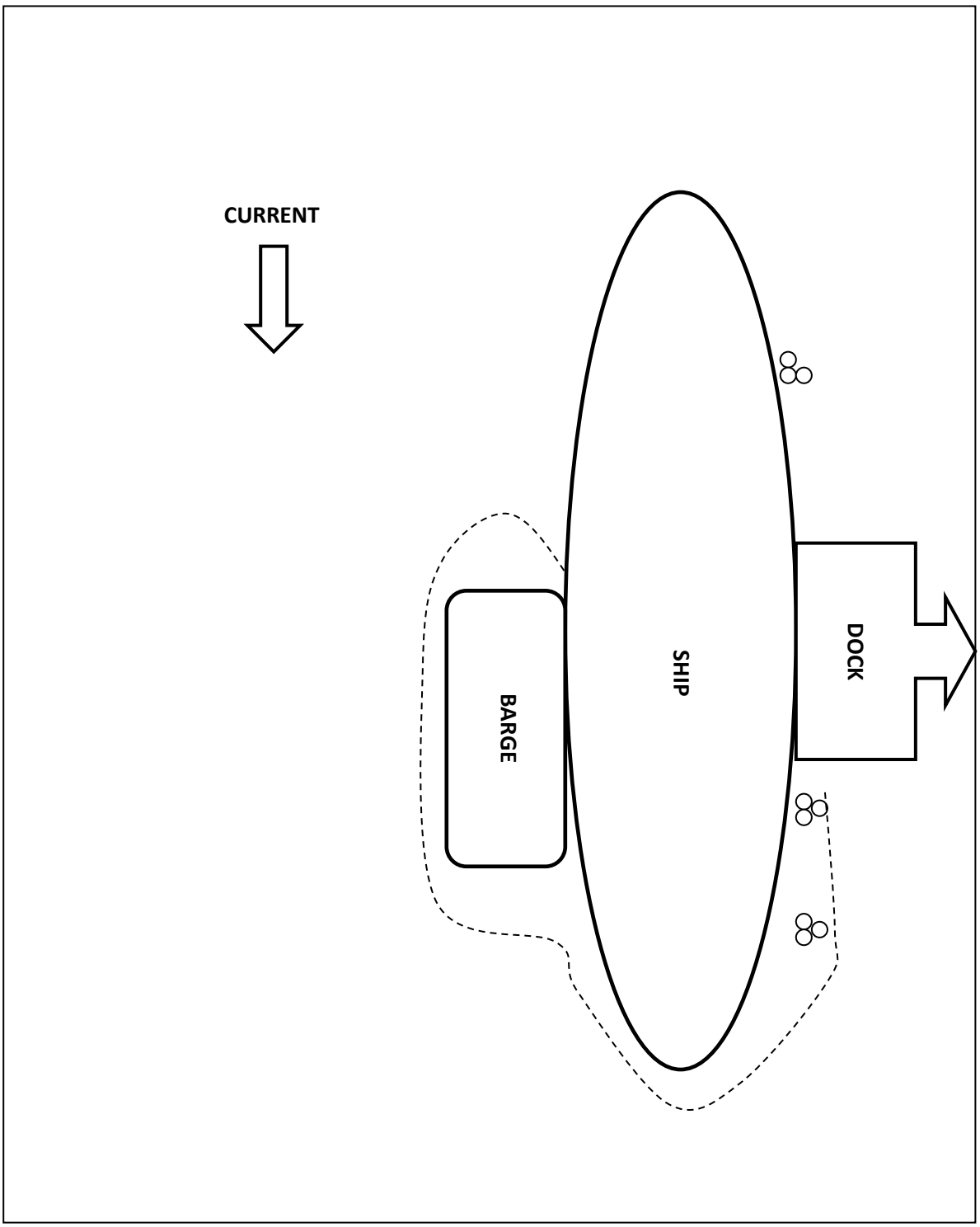
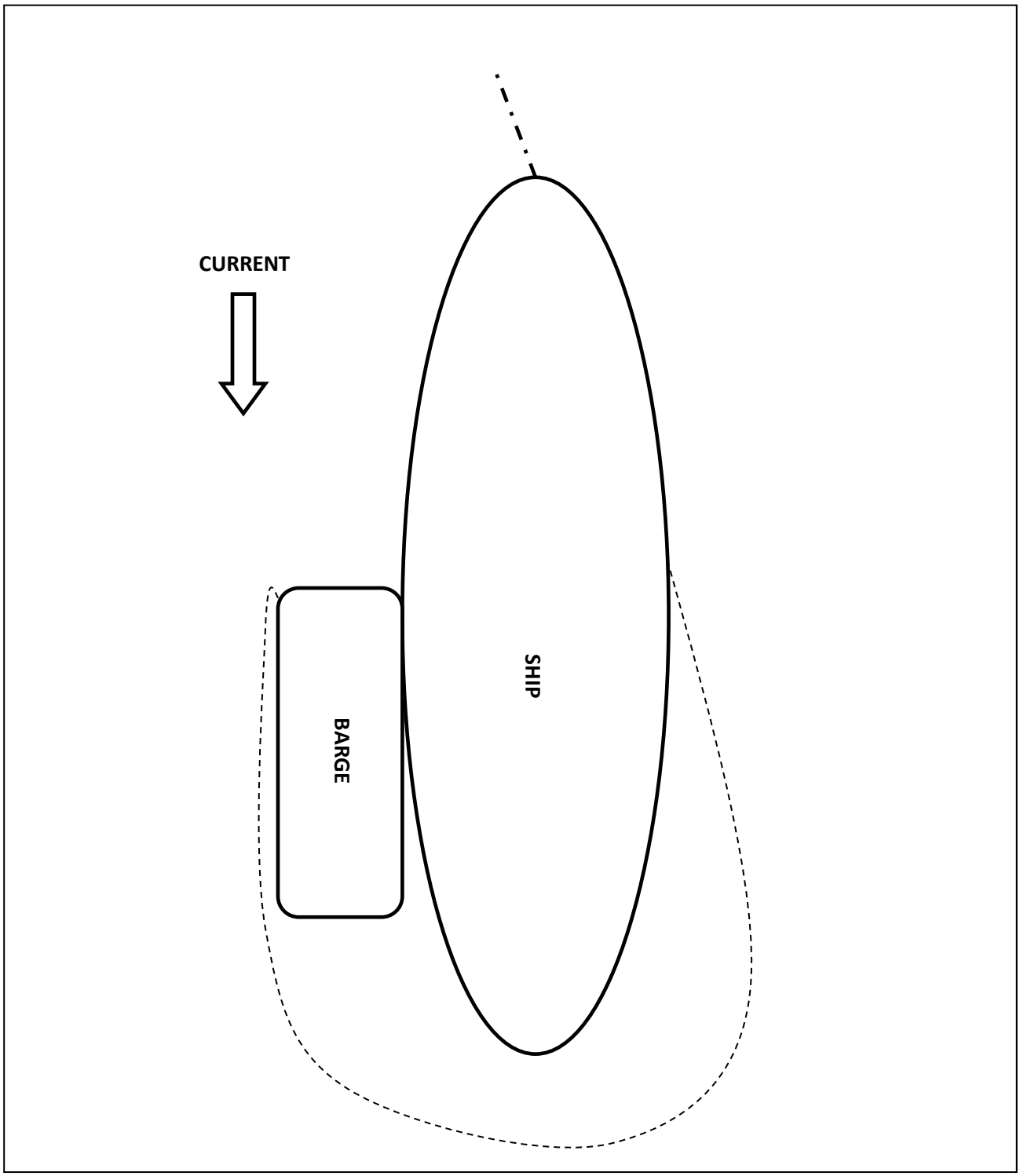


Figure 4: Booming at Anchor Columbia River



Appendix A: PSHSC Bunkering Standards of Care

OVERVIEW

- The Harbors and waters along the US Pacific Coast are an environmentally sensitive precious environmental and economic resource. Global Marine Transportation, Inc. (Global Marine) conducts many bunkering operations; while routine in many parts of the country, do in fact pose risks different than those normally expected of standard shore to ship or barge to ship refueling operations. The Coast Guard, the State and the petroleum industry have jointly developed the following guidelines to address those risks and ensure safe bunkering operations.

- Bunkering Operations are subject to U.S. Coast Guard regulations, Title 33 Code of Federal Regulations, Parts 155 and 156, and State regulations addressing oil transfer operations. Beyond the regulations, the guidelines below represent the cooperative efforts of the Coast Guard, State and industry leaders to develop the best way to further mitigate risks to the environment during bunkering operations.

- As such, it is expected that industry members follow them, educate and enforce them among industry groups and make recommendations to the Coast Guard and Harbor Safety Committees as changes are needed. Vessels intending to conduct bunkering operations while at anchor should also carefully review the guidance in the following Standards of Care.

- USCG and State inspectors frequently monitors fuel / oil transfer operations throughout Pacific Coast Operations based on the level of risk, amount of fuel / oil, familiarity with company operations, procedures and track records. Either agency may stop any bunkering operation or prohibit planned operations due to safety concerns or unacceptable risk.

- USCG will periodically review the safety record of bunkering operations and work with the Harbor Safety Committee to determine if changes are needed to promote safety. Changes could include additional guidelines or a formal regulatory initiative.

RESPONSIBILITIES

- The Director, Marine Operations is responsible for the implementation and updating of these guidelines.

- The Local Operations Managers are responsible for ensuring that all Global Marine vessel personnel are familiar with and operate under these guidelines.

- The Global Marine Masters and crewmembers are responsible for following these guidelines to ensure the safety of crew, the vessel, the cargo and the environment.

GUIDELINES

- The following **DEFINITIONS** are in addition to the terms defined in applicable federal regulations:

  (A) **Bunkering:** The transfer of petroleum base products from one vessel to another vessel for the purpose of replenishing fuel for vessel propulsion, hotel services or machinery lubrication while at anchor or dockside.
  (B) **Receiving Vessel:** The vessel receiving the fuel or lubes in a bunkering operation.
  (C) **Delivering Vessel:** The vessel delivering the fuel or lubes in a bunkering operation
  (D) **Moderate Weather:** Sustained winds from 21 to 33 knots or higher gusts (Small Craft Advisory).
  (E) **Heavy Weather:** Sustained winds from 34 to 47 knots or higher gusts (Gale Warnings).

- **STANDARDS OF CARE**
  BUNKERING IN GENERAL: HEAVY WEATHER

  (A) **Wind:** Vessels will not come alongside in preparation for bunkering at anchor or pier side if sustained winds are at or exceed 30 knots or wind gusts exceed 40 knots. If bunkering operations have already begun when sustained winds reach 30 knots or gusting over 40 knots personnel in charge of bunkering operations will continuously monitor environmental conditions and take any additional measures necessary to reduce risk of injury, vessel damage or pollution, and prepare for worsening weather. When sustained winds reach 40 knots, bunkering operations will cease and hoses will be drained and disconnected. Personnel should consult separate guidance issued by Sector Seattle and the Puget Sound Harbor Safety Committee regarding heavy weather and anchoring procedures relevant to all vessels. Underway bunkering is not considered prudent under any conditions within Puget Sound waters. (See paragraph C: Sheltered Waterway)

  (B) **Seas:** For bunkering operations from one vessel to another vessel while at anchor, operations will cease, with hoses drained and disconnected when waves or swells reach 3 ft. The wind and sea conditions criteria have been developed with industry input and are used by operating companies in the area. These standards are based on historical observations and experience in handling these vessels under prevalent conditions.

  (C) **Sheltered Waterway:** The wind and sea guidelines may not be applicable when a receiving vessel is being bunkered at a wharf or pier in a sheltered waterway. The criteria for securing a bunkering operation in these types of locations would be dependent upon adverse movement of either the receiving vessel or delivering vessel caused by the prevailing wind or sea conditions.

  (D) **Personnel / Safe Access between Vessels:** The delivering vessel and receiving vessel shall each have a designated Person in Charge (PIC) that is in charge of the transfer on their respective vessels. The receiving vessel shall provide safe access in order to facilitate face to face communications between the receiving and delivering vessels for purposes of a pre-transfer conference and other required communications.

(E) **Mooring Equipment:** All parties will use fenders of sufficient size and type to prevent steel to steel contact between the two vessels. Mooring lines will be of sufficient size number and type to hold the delivering vessel alongside the receiving vessel during expected tidal, wave, and wind conditions.

(F) **Tug Availability:** During bunkering operations in moderate to heavy weather conditions involving vessels at anchor, at least one tug will remain on scene and ready to render assistance during the entire evolution. The attending tug(s) must have sufficient horsepower to maneuver and control at least the delivering vessel involved in the bunkering operation under all conditions.

Vessel to vessel operations may take place without direct tug assistance, once the mooring portion of the operation has been completed. The attending tug or a designated tug must be on immediate standby in the area to render assistance in less than 30 minutes. This standard does not apply to delivering vessels that are self-propelled.

BUNKERING OPERATIONS AND ANCHOR MANAGEMENT

Bunkering operations are normally permitted in Anacortes, Port Angeles, Elliott Bay and Commencement Bay. Bunkering operations at Vendovi Island, Anacortes East, and Smith Cove West anchorages will only be allowed on a case-by-case basis depending on current or forecasted weather conditions. Requests to bunker in other locations should be submitted to Sector Puget Sound at least 72 hours in advance. In Port Angeles, vessels receiving bunkers will be required to be well into the harbor, west of the line drawn from the ITT Rainier Dock north to the red buoy off the tip of Ediz Hook.

On the Columbia River: High water and fast current conditions shall be regarded on a day-to-day basis. The areas of greatest concern are the anchorages and berths facing the river in Astoria, Or. In this location, the river current and wind-generated waves can combine to make for hazardous conditions for booming.

Appendix B: WADOE RATE A DELIVERERS- Boom Reporting Form

DEPARTMENT OF ECOLOGY
State of Washington

WASHINGTON STATE
Department of Ecology
Spill Prevention, Preparedness, and Response Program
Prevention Section
P.O. Box 47600, Olympia, WA 98504-7600
Office Phone: (360) 407-7455, Fax: (360) 407-6042

maxum PETROLEUM
1711 13th Ave SW Seattle, WA. 98134
206 613-1443

RATE A DELIVERERS - *BOOM REPORTING FORM*

Rate A deliverers (>500 gpm transfer rate) must complete and submit Ecology's *Boom Reporting Form* when it is not safe and/or effective to pre-boom, or when conditions develop during a pre-boomed transfer that requires removal of the boom. The completed form must be submitted prior to the transfer or immediately if conditions change requiring boom removal.

Submit completed form by fax to 1-800-664-9184 or 360-407-6042 or by e-mail to OilTransferNotifications@ecy.wa.gov
For more information about pre-booming requirements call the office phone number listed above.

Part I: Delivering Owner or Operator Information

Delivering company name: _____

Delivering facility name (if different from above) or vessel name: _____

Transfer location - address and city: _____

Person making report: _____ Phone number: (_____) _____ --- _____

Advance Notice of Transfer (ANT) number: _____

Part II: Receiving Party Information

Facility or vessel name: _____

Part III: Environmental and Safety Conditions Summary

Indicate and describe the environmental and/or safety condition(s) that exceeds the thresholds found in the company's approved Safe and Effective Threshold Determination Report.	
Significant wave height (feet):	Sustained winds (knots) of 5 minutes duration or more and wind direction:
Current velocity (knots):	Personnel safety (describe condition):
Other factors involved that exceed S&E thresholds or safety conditions - describe events and/or conditions:	

Part IV: Certification of Accuracy

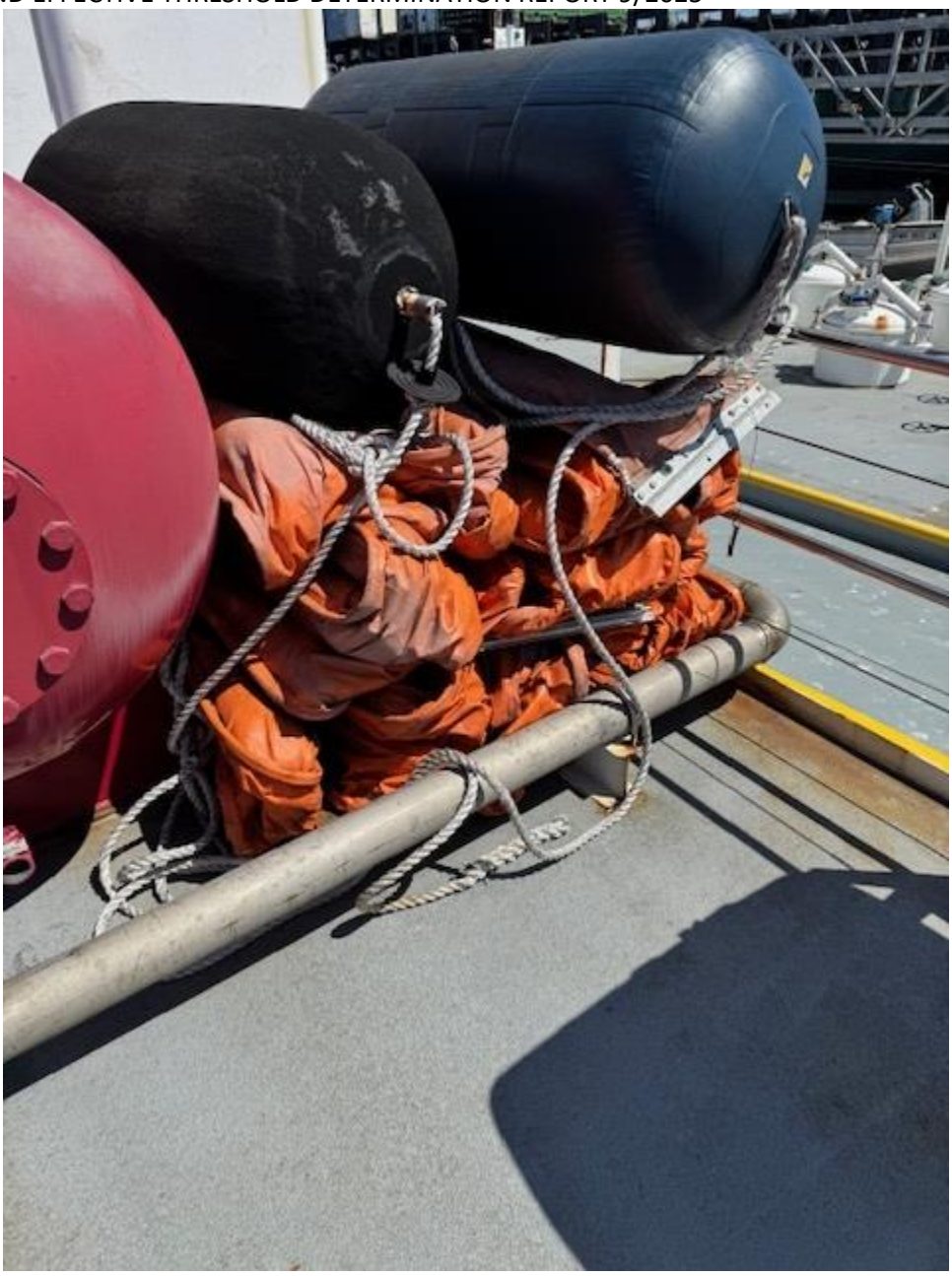
I submit that the information contained in this form is true and complete to the best of my knowledge.

_____ _____ _____
Signature of delivering facility or vessel PIC | Date | Title (if applicable)

May 2008 **ECY 070-215 (rev. 5/08)**

Special accommodations: If you need this publication in an alternate format, call the Spills Program at 360-407-7455. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

Appendix C: Maxum Equipment




STABICRAFT


SWL 2,000 LBS @ 60 FT

Appendix D – Data Sources

CO-OPS Map - NOAA Tides & Currents

NOAA Current Predictions - Current Predictions

Personal Weather Station Dashboard | Weather Underground

Wind & weather statistics Longview - Windfinder

Safe and Effective Report Job Aid

USGS | National Water Dashboard

NDBC - Historical Meteorological Data Search

Appendix E – Contractor Equipment

All pre-booming is completed by our OSRO, Republic Services. Here is a description of their equipment used:

We use Hard boom, which is called Perma boom and its 24".

For each preboom we use 800' otherwise 1200' when an ATV barge arrives but they aren't as common.

We use a 16' work skiff boat to deploy the boom while we use a 32' foot boat "Miss Stephie" to tow the boom and for the guys to be in while the transfer is in progress.

We deploy 2 Danforth anchors for the appropriate standoff during the transfer and will adjust as needed due to how the current is running and weather conditions.

On the Miss Stephanie we have sausage boom, sweep, and oil pads on aboard incase there is a spill.