

# Oregon Japanese Tsunami Debris

At-sea Subcommittee of the JTMD Task Force

September 22, 2014

## Overview

Japanese Tsunami Marine Debris (JTMD) is unique because of the potential size, construction, and origin. The Japanese Coast Guard has identified over 500 lost vessels that are known to be at-sea, some of which are probably still afloat. Additional items were also lost to sea during the tsunami and are unaccounted for. We know that three other dock sections similar to the one that washed ashore on Agate Beach in Newport, OR were similarly dislodged from their moorings. Vessels have washed ashore in Hawaii, Washington, and Alaska and there are pictures that clearly show large vessels among the debris in the wake of the Tsunami.

Allowing debris of this size to come ashore has potential risks. Debris that comes ashore in an inaccessible area could be difficult, if not impossible, to salvage. The potential to foul the near shore marine environment through pollution or the introduction of non-native aquatic species is a real threat.

Understanding that case-by-case decisions will have to be made when debris is identified and that agencies cannot commit resources to an unknown threat, this document represents a coordinated approach to determine the response options, required resources, and necessary approvals to respond to large debris at sea.

## Reporting

Reports of marine debris may be completed through various means including but not limited to NOAA satellite monitoring, phone calls into Coast Guard command centers, OR 211, or WA COAST numbers, emails to NOAA at [DisasterDebris@noaa.gov](mailto:DisasterDebris@noaa.gov) and [beach.debris@state.or.us](mailto:beach.debris@state.or.us). Therefore it is imperative that all reporting centers are in communication to ensure a report of debris that may be of significant interest because of the potential threat it poses to public safety, environment, or property is relayed quickly and efficiently to all potential responders.

At-sea debris may be reported through sightings by aircrafts or vessels. NOAA reports the last known position of potential and confirmed debris on the NOAA website at:

<http://marinedebris.noaa.gov/japan-tsunami-marine-debris/japan-tsunami-marine-debris-sightings>.

Once a debris object is reported, no further action is taken, unless it is identified as of particular interest. This may include the size or type of debris, and its potential impact. Additionally, NOAA will provide trajectory support for potential Japan tsunami marine debris under the following circumstances:

1. The U.S. Coast Guard, state, or other requesting agency will include a clear operational objective(s)

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that a NOAA trajectory product is expected to support;

2. The requesting agency will provide periodic on-scene/aerial observations of debris location, or buoy-tracking

AND

3. Sighted debris is either:

a. Significant by size (e.g. navigation hazard) or type (e.g., hazardous material or potential vector for invasive species\*); or

b. Significant by quantity (e.g., large concentration) AND less than approximately 50 nm from shore.

NOAA will report debris of interest to USCG, the States, and other potentially affected entities.

Notification will be provided as soon as possible.

In cases where any agency receives the first report of debris of interest, they will conduct the following notifications:

- NOAA Disaster Debris email ([DisasterDebris@noaa.gov](mailto:DisasterDebris@noaa.gov)) and by phone at 206-369-5015 (cell for NOAA Marine Debris Regional Program Coordinator) or NOAA Emergency Response Division emergency line: [206-526-4911](tel:206-526-4911).
- U.S. Coast Guard Sector Columbia River for debris that will potentially pose a hazard to navigation or pollution/HAZMAT threat: 503-861-6211
- State of Oregon for debris that will potentially impact OR Waters or shore: OERS at 800-452-0311 or contact 211 or 800-SAFENET (800-723-3638)
- State of Washington for debris that will potentially impact WA Waters or shore: 855-WACOST (800-922-6283)
- USACE for debris that will potentially impact designated navigable channels: 360-546-0162

The agency that receives the initial report will also notify the appropriate Federal, State, local, and Tribal authorities for debris that has a pollution or hazardous material threat per its standard notification process through the Northwest Area Contingency Plan.

For verified significant debris that is reported within 50nm of the Oregon or Washington Coast the agency that receives the initial report will notify the OR Emergency Response System (OERS) /211 and request a phone conference line be coordinated for potentially impacted Federal, State, and local partners within 1-hour of notification. During this phone conference the continuing method of communication (e.g. email updates or phone conferences) will be determined with a scheduled timeline for communicating news, updates, and actions.

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## Initial Actions

Following report of verified significant marine debris that includes an approximate latitude and longitude within 50nm of shore, the following initial actions will be taken:

- 1) NOAA will provide a trajectory model;
- 2) The Coast Guard will issue a Broadcast Notice to Mariners advising of a potential hazard to navigation;
- 3) The Coast Guard will determine asset availability to validate the report as operations and missions permit; and
- 4) NOAA and the Coast Guard will provide a brief to Federal, State, and local partners on findings from the trajectory model and the verification of significant marine debris report.

## Response

### Authorities

#### *National Oceanic and Atmospheric Administration - NOAA*

NOAA has federal authority for Marine Debris. (Marine Debris Research, Prevention, and Reduction Act of 2006)

#### **(a)(1) Mapping, identification, impact assessment, removal, and prevention**

The Administrator shall, in consultation with relevant Federal agencies, undertake marine debris mapping, identification, impact assessment, prevention, and removal efforts, with a focus on marine debris posing a threat to living marine resources and navigation safety, including –

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(c) development and implementation of strategies, methods, priorities, and a plan for preventing and removing marine debris from United States navigable waters and within the United States exclusive economic zone, including development of local or regional protocols for removal of derelict fishing gear and other marine debris.

#### *United States Coast Guard - USCG*

The United States Coast Guard notify mariners of the presence of tsunami debris through Broadcast Notices to Mariners under 33 C.F.R. § 72.01. Additionally, a safety zone may be established around marine debris within the Coast Guard's jurisdiction to prevent injury or damage to property or the environment that could result from vessel traffic in a particular area. 33 U.S.C. § 1225, 33 C.F.R. Part 165.

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Wrecks may be marked by the Coast Guard under 14 U.S.C. § 86. Coast Guard obstruction marking regulations at 33 C.F.R. Part 64 address the process of designating hazards to navigation. Army Corps of Engineers has authority to remove obstructions to navigations under 33 U.S.C. § 414.

Under 14 U.S.C. § 88(a)(4) the Coast Guard is authorized to destroy at sea or take under tow derelict vessels and other “floating dangers to navigation.” This authority is not limited to the navigable waters of the U.S. but also includes the high seas.

The Coast Guard is authorized by 33 U.S.C. § 1321 to respond to oil discharges or substantial threats of discharge in the navigable waters of the U.S., the EEZ, and areas that affect the EEZ. Under the National Contingency Plan, 40 C.F.R. Part 300.120, the Coast Guard is the federal on scene coordinator (FOSC) for oil discharges in the coastal zone. Coast Guard FOSCs have access the Oil Spill Liability Trust Fund in response to spills on the navigable waters of the U.S. under 33 U.S.C. §2712.

### *Environmental Protection Agency – EPA*

The EPA administers the Ocean Dumping Program pursuant to the Marine Protection, Research and Sanctuaries Act (MPRSA, 33 USC 1401 to 1445). Ocean dumping of marine debris is prohibited, except as authorized by an ocean dumping permit issued by the EPA.

### *Oregon Department of Environmental Quality - DEQ*

Oregon DEQ, in coordination with the Coast Guard has state authority for removal of hazardous debris with Oregon’s jurisdiction. Oregon Revised Statute 466.605 through 466.680 defines DEQ’s authority relating to cleanup of oil or hazardous material spilled or released into the air or into or on any land or waters of the state or that is likely to escape or be carried into the air or into or on any land or waters of the state (threat of release).

### *Oregon Parks and Recreation Department - OPRD*

Oregon State Parks has authority for the removal of any objects on Oregon’s beaches above the ordinary high waterline.

### *Oregon Department of Fish and Wildlife (ODFW)*

Oregon Department of Fish and Wildlife has authority to address fish and wildlife impacts and concerns resulting from arrival of the JTMD, and the department provides subject matter expertise in the monitoring, assessment, and response to invasive aquatic species caused by JTMD. In some cases, ODFW may provide first responder capabilities for conducting the initial risk assessment of invasive species, and removal of those species from debris that cannot be removed from the marine environment quickly and safely. ODFW also provides the lead role in outreach efforts on invasive species issues associated with the JTMD.

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### *Oregon Department of State Lands - DSL*

Oregon Department of State Lands (DSL) has authority for any debris on the seabed below the ordinary high waterline in state waters(ORS 274-Submersible and Submerged Lands).

Oregon's territorial sea is defined as the waters and seabed extending three geographical miles seaward from the Pacific coastline. The State Land Board, and the DSL as its administrative arm, have jurisdiction over the submerged and submersible land of the territorial sea. DSL has both proprietary (ownership) and regulatory responsibilities within the territorial sea.

DSL is responsible for authorizing all uses of the seabed, including placement of fiber optic cables; installation of wave and wind energy devices and research equipment; kelp removal; and exploration for minerals. DSL manages the seafloor to ensure the public has the right to use and enjoy this resource for commerce, navigation, fishing and recreation, in accordance with the Oregon Constitution and Public Trust Doctrine.

DSL has statutory authority through ORS 274 to facilitate the removal of unauthorized structures from state-owned seabed. DSL has the ability seek restitution for any costs associated with the removal of unauthorized structures and the ability to issue civil penalties, if necessary, under ORS 274.992.

### Removal Strategies

Each case is independent and will rely on federal, local, state agencies, and NGOs to coordinate to determine the best course of action. A multi-agency Incident Management Team may be established under the Incident Command System to facilitate communications, determine response strategies, and develop tactics to address significant marine debris. Potential response strategies may include the following:

#### *Removing from the water:*

- 1) Debris may be able to be hoisted onboard vessels if adequate attachment points exist or a sling or net can be rigged.
- 2) In addition to lift capacity, sea state will be a major concern for hoisting an object from the water.
- 3) Once aboard a vessel, debris can be taken ashore and disposed of in accordance with applicable regulations.
- 4) Hazardous, contaminated, and uncontaminated debris can be removed in this manner.

#### *Towing ashore:*

- 1) Objects that cannot be hoisted may be towed into protected waters for disposal on land or towed to an appropriate location for beaching.

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- 2) Certain types of hazardous debris and contaminated debris may pose an environmental threat if towed into protected waters.
- 3) Sea state may be a concern for attaching a towline and crossing a bar into protected waters.

### *Sinking a hazard to navigation*

The Coast Guard has the authority to sink a hazard to navigation under 14USC88. Coast Guard Sector Columbia River and Group North Bend will follow guidelines per Coast Guard Pacific Area and District Thirteen to seek approval from District Thirteen Commander for destruction. Coast Guard Sector Columbia River and Group North Bend will generally not destroy or sink a potential hazard to navigation without discussing with Federal partners such as NOAA, USACE, and EPA.

Sinking an object in the ocean may remove the threat of invasive species but should be considered as a last resort. Sinking the object in place or transporting it for the purposes of sinking, can involve a number of federal agencies. EPA must authorize the disposal of any debris transported for the purpose of dumping in ocean waters. If the debris is not transported but instead sunk in-place for the purpose of ocean disposal, then EPA must authorize the disposal. If debris is not transported but is sunk in place for a purpose other than ocean disposal, e.g. elimination of a navigation hazard, the U.S. Coast Guard, U.S. Army Corps of Engineers, and State of Oregon, each of which may have jurisdiction over the sinking in place, may all be involved in the decision-making.

### Towing and sinking debris

If transportation of marine debris for disposal at-sea is being contemplated, the Marine Protection, Research, and Sanctuaries Act (MPRSA) regulations may apply. Other federal authorities may apply if the debris may contain hazardous substances.<sup>1</sup> If disposal of marine debris at sea is under serious consideration, it is recommended that decision-makers contact staff<sup>2</sup> within the Environmental Protection Agency's (EPA) Ocean Dumping Program as soon as possible to consult and coordinate on the implementation of the MPRSA. The ocean dumping criteria under the MPRSA require consideration of land-based alternatives prior to authorization of ocean dumping.

The MPRSA regulates the transportation and dumping of any material into ocean waters<sup>3</sup> and prevents or strictly limits dumping into ocean waters any material that would adversely affect

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<sup>1</sup> Additional authorities may apply to the removal of marine debris. Authority to remove debris, including but not limited to Tsunami debris from open water and from shorelines, is given to the U.S. Army Corps of Engineers, pursuant to Section 19 of the Rivers & Harbors Act (33 U.S.C. § 414) where navigable waters would be obstructed or endangered by such debris. The U.S. EPA and the U.S. Coast Guard are also vested with authority where such debris is characterized as containing hazardous substances (Section 104 of CERCLA), and/or oil or pollutants or contaminants (Section 311(c)(1 & 2) of the CWA, also known as the Oil Pollution Act (OPA)). The USCG and EPA implement these authorities through the National Contingency Plan for Oil and Hazardous Substances, 40 CFR Part 300.

<sup>2</sup> Ocean Dumping Program contact for Oregon: Bridgette Lohrman. [Lohrman.bridgette@epa.gov](mailto:Lohrman.bridgette@epa.gov); 503.326.4006.

<sup>3</sup> Ocean waters are defined as, "those waters of the open seas lying seaward of the baseline from which the territorial sea is measured. This definition includes the territorial sea, the contiguous zone and any portion of the high seas beyond the contiguous zone. Ocean waters do not include internal waters, also known as inland waters, which are inside or landward of the baseline of the territorial sea. The baseline of the territorial sea is generally the low water line (i.e., Mean Lower Low Water) along the coast, except where the United States has drawn specific closing lines, such as bay closing lines, river closing lines and harbor closing lines. Such bay, river and harbor closing lines also form part of the baseline of the territorial sea, and the waters enclosed thereby are internal waters."

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human health, welfare, amenities, the marine environment, ecological systems, or economic potentialities. The MPRSA implements the requirements of the international treaty governing ocean dumping, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (also known as the London Convention). Unless authorized by permit or by regulation (or excluded from regulation by the MPRSA itself), the MPRSA prohibits the transportation of any material for the purpose of dumping.

The MPRSA and implementing regulations (40 CFR Subchapter H) prohibit the ocean dumping of the following materials:

- High-level radioactive waste
- Medical waste
- Sewage sludge, except by existing compliance agreement,
- Industrial waste, except by existing compliance agreement,
- Radiological, chemical, and biological warfare agents
- Materials insufficiently described in terms of composition and properties
- Persistent inert synthetic or natural materials which may float or remain in suspension in the ocean in such a manner that the interfere materially with fishing, navigation, or other legitimate use of the ocean
- Constituents prohibited as other than trace contaminants as defined at 40 CFR 227.6.<sup>4</sup>
- Oil of any kind or any form, insofar as such oil is not regulated by the CWA
- Known carcinogens, mutagens, or teratogens or materials suspected by responsible scientific opinion to be carcinogens, mutagens, or teratogens.

Material, as defined under this law, means matter of any kind or description. Thus, if debris, found either onshore or at sea, is to be transported for the purpose of disposal anywhere in ocean waters, the MPRSA regulations apply and a permit for at-sea disposal is required.

The EPA can issue four types of permits for ocean dumping: 1) general permits; 2) special permits; 3) research permits; and 4) emergency permits. In general, the permit processes are complex, requiring sufficient information and controls to ensure that the objectives of the MPRSA are met.

- ❖ **General permits** may be issued for the dumping of certain materials which will have a minimal adverse environmental impact. The EPA has issued general permits under the MPRSA, including a general permit codified at 40 CFR 229.3 for the transportation and disposal of vessels into the ocean which allows for limited flexibility in a declared emergency situation. General permits may include geographical areas or regions where materials may be dumped. There is no general permit for marine debris.
- ❖ **Special permits** may be issued for disposal of material in the ocean that meets the ocean dumping criteria. Areas where ocean dumping is permitted subject to specific conditions of individual special permits are designated through rulemaking. Site designations are based on environmental

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<sup>4</sup> The ocean dumping, or transportation for dumping, of organohalogen compounds, mercury and mercury compounds, and cadmium and cadmium compounds will not be approved except on an emergency basis.

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studies at each site and regions adjacent to the site, and on historical knowledge of the impact of waste disposal on areas similar to such sites in physical, chemical, and biological characteristics.

- ❖ **Research permits** may be issued for the dumping of materials into the ocean as part of a research project when it is determined that the scientific merit of the proposed project outweighs the potential environmental or other damage that may result from dumping. The designation of disposal sites is included in these permits.
- ❖ **Emergency permits** may only be used in situations where the material to be disposed poses “an unacceptable risk relating to human health and admits of no other feasible solution.” “Emergency” refers to situations requiring action with a marked sense of urgency, but is not limited to circumstances requiring immediate action. Dumping sites for materials disposed of under an emergency permit are specified as a permit condition based on an individual appraisal of the characteristics of the waste and the safest means for its disposal. If certain prohibited constituents (listed in the regulations at 40 CFR 227.6) are present in other than trace amounts, an emergency permit may be issued after consultation with Department of State with respect to the need to consult parties to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (also known as the London Convention) that may be affected by the dumping. The designation of disposal sites is included in these permits.

### **General Permit - Transport and disposal of vessels at sea**

The EPA has a general permit for the transport and disposal of vessels at sea. The regulations governing such action can be found at 40 CFR 229.3. These regulations address two situations: 1) non-emergency vessel disposal; and 2) emergency vessel disposal. For a vessel disposal to be considered an emergency by EPA, the U.S. Coast Guard or the U.S. Army Corps of Engineers must declare it an emergency (See Addendum).

### **EPA’s Ocean Dumping Permits and Invasive Species**

Specific to the issue of invasive species, the ocean dumping criteria used to evaluate permit applications for ocean dumping address non-native species in 40 CFR 227.7(c) & (e), titled “Limits for specific wastes or waste constituents.” Permits for ocean dumping of such materials must meet the following limitations to be acceptable for ocean dumping:

- (a) Wastes containing living organisms may not be dumped if the organisms present would endanger human health or that of domestic animals, fish, shellfish and wildlife by:
  - 1) Extending the range of biological pests, viruses, pathogenic microorganisms or other agents capable of infesting, infecting or extensively and permanently altering the normal populations of organisms;
  - 2) Degrading uninfected areas; or
  - 3) Introducing viable species not indigenous to an area.
- (b) Wastes containing biodegradable constituents, or constituents which consume oxygen in any fashion, may be dumped in the ocean only under conditions in which the dissolved oxygen after allowance for initial mixing, as defined in §227.29, will not be depressed by more than 25 percent below the normally anticipated ambient conditions in the disposal area at the time of dump

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Invasive species are also addressed in the regulations for designating disposal sites under 40 CFR 228.6 "Specific criteria for site selection." One of the factors that must be considered in the selection of a disposal site is 228.6(a)(10) - Potentiality for the development or recruitment of nuisance species in the disposal site.

At a minimum, the Taskforce should also anticipate that the issuance of any permit for the disposal of JTM in ocean waters is expected to include consultations with:

- a) Marine debris object's country of origin, via State Department. NOAA MDP could facilitate the process.
- b) NOAA NMFS, for impact on marine species.
- c) NOAA OR&R, for appropriate scuttling location.
- d) Industry, e.g., Oregon Fishermen's Cable Commission, for location submarine cables

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### Addendum 1

#### Conditions in EPA's General Permit for transporting and disposing of vessels under emergency and non-emergency situations.

EPA's Ocean Dumping General Permit for Vessels		
Conditions	Non-Emergency	Emergency
No later than 1 month prior to the proposed disposal date, the person desiring to dispose of a vessel shall provide the following: 1) a statement detailing the need for the disposal of the vessel; 2) type and description of vessel to be disposed of and type of cargo normally carried; 3) detailed description of the proposed disposal procedures; 4) information on the potential effect of the vessel disposal on the marine environment; and 5) documentation of an adequate evaluation of alternatives to ocean disposal (i.e., scrap, salvage, and reclamation)	√	
Transportation for the purposes of ocean disposal may be accomplished under the supervision of the District Commander of the USCG or his designee.	√	√
Appropriate measures shall be taken, prior to disposal, by qualified personnel to remove to the maximum extent practicable all materials which may degrade the marine environment, including without limitation (i) emptying of all fuel lines and fuel tanks to the lowest point practicable, flushing of such lines and tanks with water, and again emptying such lines and tanks to the lowest point practicable so that such lines and tanks are essentially free of petroleum, and (ii) removing from the hulls other pollutants and all readily detachable material capable of creating debris or contributing to chemical pollution.	√	
The dumper shall no later than 10 days prior to the proposed disposal date, notify the EPA Regional Administrator (RA) and the District Commander of the USCG that the vessel has been cleaned and is available for inspection; the vessel may be transported for dumping only after EPA and USCG agree that the requirements of paragraph above have been met.	√	
Disposal shall take place in a site designated on current nautical charts for the disposal of wrecks or no closer than 12 miles from the nearest land and in water no less than 50 fathoms deep, and all necessary measures shall be taken to insure that the vessels sink to the bottom rapidly and that marine navigation is not otherwise impaired.	√	√
Disposal shall not take place in established shipping lanes unless at a designated wreck site, nor in a designated marine sanctuary, nor in a location where the hulk may present a hazard to commercial trawling or national defense.	√	√
Disposal shall be performed during daylight hours only.	√	
The USCG Captain-of-the-Port (COTP) and the EPA RA shall be notified 48 hours in advance of the proposed disposal. In addition, the COTP and the EPA RA shall be notified by telephone at least 12 hours in advance of the vessel's departure from port with such details as the proposed departure time and place, disposal site location, estimated time of arrival on site, and the name and communication capability of the towing vessel. Schedule changes are to be reported to the COTP as rapidly as possible.	√	
The National Ocean Survey shall be notified in writing within 1 week of the exact coordinates of the disposal site so that it may be marked on appropriate charts.	√	√



### Addendum 2

#### **Sensitive and Resilient Areas (SARA): Decision-making about Potential Grounding Sites for Large At-Sea JTMD along the Oregon Coast**

The Oregon coastline contains a complex mixture of different shoreline types, including sandy beaches, cobble beaches, rocky shores, coves, cliffs and headlands, reefs and islands, boulder fields, kelp beds, rip-rap jetties and bulk-heads, river-mouths, and numerous types of shorelines located within protected estuaries. Many of these shoreline types encompass sensitive habitats and communities of organisms that are susceptible to disruption and damage by the accidental or deliberate grounding of large debris, and by the activities of response personnel, vehicles, and other equipment used to gain access and remove large JTMD items. These sensitive areas include coves, cliffs and headlands, rocky intertidal shores, shallow rocky subtidal areas, kelp beds, marine mammal haul-outs, seabird nesting and breeding areas, and snowy plover nest areas, as well as a suite of special-use areas including designated Marine Protected Areas, Marine Reserves, Marine Gardens, Research Reserves, Wildlife Refuges, and other management areas. In contrast, other shoreline types are more resistant to ecological damage and resilient to disruption due to the accidental or deliberate grounding of large debris and the activities undertaken by response personnel to access and remove large JTMD items. These include open sandy beaches, cobble beaches, and areas that have been fortified with riprap.

In the event that large at-sea JTMD items are detected while afloat in Oregon's nearshore waters, it may be possible to forecast the trajectory of drift and anticipate the location where the JTMD item will come ashore. In addition, in some cases it may be possible to deliberately direct the JTMD item to come ashore at particular locations along the coast where ecological damage will be minimal, access by motorized vehicles is good, and the feasibility for removal of the JTMD object is high. This section of the report contains guidelines for decision-making about the location along the Oregon coast of potential sites for the grounding of large at-sea marine debris items generated by the Tohoku tsunami.

The At-Sea sub-committee developed the list of Sensitive and Resilient Areas (SARA List) including the name of each section of the shoreline, a detailed listing of motor vehicles access points, designation of areas to Target/Avoid for the grounding of JTMD objects, and a description of the sensitive natural resources that occur within each section of the coast (Table 1). The SARA List was developed primarily by staff members from OPRD and ODFW who have technical knowledge of the shoreline types, ecological communities, and access points. The Oregon coastline was divided into 47 discrete sections, and each section was delineated by a prominent geomorphic feature (*i.e.*, major beach, headland, cape, estuary mouth, *etc.*; see Table 1). A total of 18 sections were designated as Target Areas (4 primary / 14 secondary) for the preferred arrival of JTMD objects. These target areas are locations along the coast where it is expected that ecological damage due to arrival of a large JTMD object will be minimal, access by motorized vehicles is good, and the feasibility for removal of the JTMD object is high. The 4

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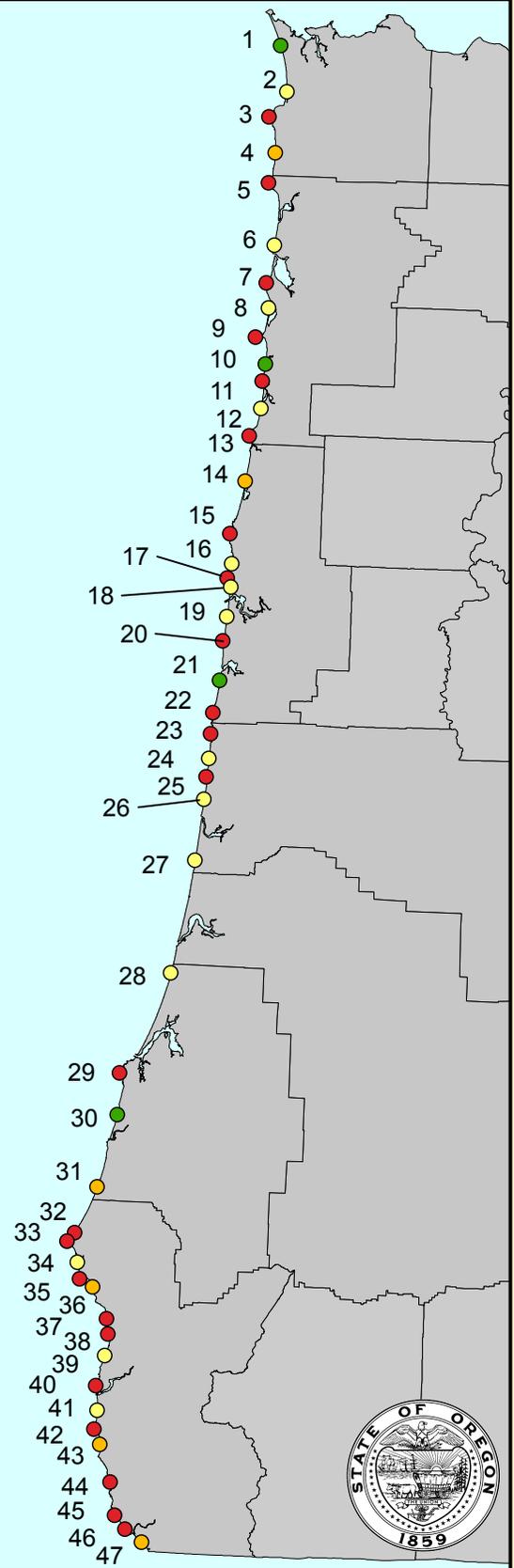
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primary JTMD Target Areas are: (1) Clatsop Beach (South Jetty to Del Rey Beach); (2) the Neskowin Littoral Cell (Cape Lookout to Cape Kiwanda); (3) the sandy beaches south of Newport (Seal Rock to Smelt Sands, Yachats); and (4) the Whiskey Run sandy beaches north of Bandon (Five-mile Point to Bullards Beach). These primary JTMD Target Areas are all large open sandy beaches with good motor vehicle access, and do not contain important snowy plover nesting areas. The series of 14 secondary JTMD Target Areas also include sandy beaches, but they may also contain some sensitive ecological resources along the shoreline or immediately offshore.

A total of 29 sections were designated as Avoid Areas (23 primary / 6 secondary) where the arrival of JTMD objects should be avoided if at all possible (SARA List; Table 1). These avoidance areas are locations along the coast where it is expected that ecological damage due to arrival of a large JTMD object will be high, access by motorized vehicles is poor or impossible, and the feasibility for removal of the JTMD object is low. The primary and secondary JTMD Avoidance Areas include inaccessible coves, cliffs and headlands, offshore rocks and islands, rocky intertidal benches, surge-channels and boulder-fields, shallow rocky subtidal areas and kelp beds, marine mammal haul-outs, seabird nesting and breeding areas, snowy plover nest areas, and numerous special-use areas including designated Marine Protected Areas, Marine Reserves, Marine Gardens, Research Reserves, Wildlife Refuges, and other management areas (Table 1).

Id	Segment	Approximate Latitude
1	South Jetty to Del Rey Beach	From 46.228924, to 46.047981
2	Del Ray Beach to Tillamook Head	From 46.045643, to 45.975343
3	Tillamook Head	From 45.974953, to 45.913913
4	Tillamook Head to Cape Falcon	From 45.911333, to 45.777102
5	Cape Falcon	From 45.774715, to 45.740165
6	Cape Falcon to Cape Meares	From 45.740165, to 45.493409
7	Cape Meares	From 45.493141, to 45.480895
8	Cape Meares to Cape Lookout	From 45.478594, to 45.354783
9	Cape Lookout	From 45.354783, to 45.33775
10	Cape Lookout to Cape Kiwanda	From 45.33775, to 45.222167
11	Cape Kiwanda	From 45.222167, to 45.217341
12	Cape Kiwanda to Cascade Head	From 45.217341, to 45.094744
13	Cascade Head	From 45.094744, to 45.048213
14	Cascade Head to Fishing Rock	From 45.048213, to 44.846316
15	Fishing Rock to Devil's Punchbowl	From 44.846316, to 44.746106
16	Devil's Punchbowl to Yaquina Head	From 44.746106, to 44.678567
17	Yaquina Head	From 44.678567, to 44.673354
18	Yaquina Head to Yaquina Bay	From 44.673354, to 44.621692
19	South Beach to Ona Beach	From 44.611666, to 44.520999
20	Seal Rock to Collins Creek	From 44.520999, to 44.483159
21	Collins Creek to Smelt Sands	From 44.483159, to 44.331554
22	Smelt Sands to Cape Perpetua	From 44.331554, to 44.276571
23	Cape Perpetua to Tokatee Kloochman	From 44.276571, to 44.209135
24	Tokattee Kloochman to Heceta Head	From 44.209135, to 44.142047
25	Heceta Head	From 44.142047, to 44.110646
26	Heceta Head to N Jetty Siuslaw	From 44.110646, to 44.018718
27	S Jetty Siuslaw to Tahkenitch	From 44.013863, to 43.796666
28	Tahkenitch to Coos Bay North Spit	From 43.796666, to 43.356508
29	S Jetty Coos Bay to Five Mile Point	From 43.350813, to 43.259126
30	Five Mile Point to Bullards Beach	From 43.259126, to 43.12432
31	Coquille Point to Blacklock Point	From 43.121629, to 42.881913
32	Blacklock Point to Cape Blanco	From 42.881913, to 42.844028
33	Cape Blanco	From 42.844028, to 42.823353
34	Cape Blanco to Port Orford Heads	From 42.823353, to 42.745961
35	Port Orford Heads	From 42.745961, to 42.738728
36	Port Orford Heads to Humbug Mt.	From 42.738728, to 42.684019
37	Humbug Mt. to Sisters Rock	From 42.684019, to 42.59535
38	Sisters Rock to Devil's Backbone	From 42.59535, to 42.577603
39	Devil's Backbone to Otter Point	From 42.577603, to 42.463358
40	Otter Point to Rogue River	From 42.463358, to 42.423268
41	Rogue River to Cape Sebastian	From 42.420576, to 42.339483
42	Cape Sebastian	From 42.339483, to 42.316045
43	Cape Sebastian to Crook Point	From 42.316045, to 42.251377
44	Crook Point to Lone Ranch Beach	From 42.251377, to 42.113007
45	Lone Ranch Beach to Harris Beach	From 42.113007, to 42.069651
46	Harris Beach to Chetco River	From 42.069651, to 42.045556
47	Chetco River to CA border	From 42.045556, to 41.998463



**SARA**

- Target (primary)
- Target (secondary)
- Avoid (primary)
- Avoid (secondary)

## Oregon Coast Sensitive and Resilient Areas (SARAs)

This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

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**TABLE 1: DRAFT List of Sensitive Areas (avoid) and Resilient Areas (target areas) for Consideration of Groundings for Large JTMD Items**

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
1	South Jetty to Del Rey Beach	MVA from Jetty Road and Ft. Stevens State Park (Iredale), Delaura Beach, Sunset Beach, Del Rey Beach	Target (primary)	Major razor clam populations and popular harvest areas; possible small section of subtidal rock off Sunset Beach.
2	Del Ray Beach to Tillamook Head	MVA at 10th and Neacoxie, E/G and Ocean in Gearhart, 12th Ave., Ave. A (Prom), Ave. U in Seaside.	Target (secondary)	Major razor clam populations and popular harvest areas; human congestion at Seaside, plover habitat (not occupied) at Gearhart, small amounts of subtidal rock reef associated with Tillamook Head near Seaside, some level I ecological resources
3	Tillamook Head to Ecola Creek	MVA not possible to very difficult; 4X4 ATV access to Indian Beach possible via trail	Avoid (primary)	Subtidal rock reef, nearshore/offshore rocks, seabird nesting areas, marine mammal haulout, rocky shore, steep cliffs, headland, level I Ecological Resources
4	Tillamook Head to Arch Cape	MVA to Cannon Beach from Monroe St., Jefferson St., Washington St., Larch Ave., Spruce St., Ecola Ct.; MVA to Tolovana from Tolovana/Warren Way; MVA to Arch Cape Beach from Leech Ave., Cove Beach/2nd St.	Avoid (secondary)	Haystack Rock Marine Garden, subtidal rocky/reef, seabird nesting, human congestion at Cannon Beach, offshore/nearshore rocks; some less-used beaches (Arcadia Beach, Hug Point, Arch Cape Beach, Cove Beach) occur at the south end of this section
5	Arch Cape, Cape Falcon, Neahkannie	No viable MVA	Avoid (primary)	Cape Falcon Marine Reserve/MPA, Rocky shoreline, human congestion at Oswald West State Park, nearshore rocks, subtidal rock reef, level 1 ecological areas, seabird nesting

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
6	Neahkahnie to Tillamook N. Jetty	MVA to Neahkahnie Beach from Ocean Rd. (N. side of Manzanita), Laneda Ave., Treasure Cove, 11th St. (Manzanita); MVA to Nedonna Beach from Section Line St., Riley St.; MVA to Rockaway Beach from 6th Ave., N. 3rd Ave and S. 1st Ave.; MVA to N. Jetty Beach from Barview Jetty Park Rd. and Jetty Rd./Cape Meares Village.	Target (secondary)	Offshore rocks (Twin Rocks), some level 1 ecological resources including potential plover habitat (future)
7	Tillamook S. Jetty to Cape Meares	MVA to Bayocean Beach from Bay Ocean Rd. W. and Meares Ave. NW.	Avoid (primary)	Rocky shoreline, headland, steep cliffs, level 1 ecological resources, nesting seabirds, offshore rocks
8	Cape Meares, Oceanside to Netarts Bay	MVA to Oceanside Beach at Oceanside Beach Recreation Area; Intermittent MVA at Happy Camp (weather/tide dependent).	Target (secondary)	Offshore rocks (3 arch rocks NWR), some rocky shore between Cape Meares and Oceanside, some subtidal rocks, Level 1 ecological, potential plover habitat at end of Spit.
9	Netarts Bay to Cape Lookout	Possible MVA to Netarts Spit from Netarts Bay State Park; no MVA to Cape Lookout	Avoid (primary)	Rocky shoreline, headland, steep cliffs, level 1 ecological resources, nesting seabirds
10	Cape Lookout to Cape Kiwanda	MVA to Sand Lake N. Beach from Sand Lake Camp Ground/Galloway Rd.; Tierra Del Mar/Pier Ave.; McPhillips Beach/Miles Creek, N Cape Kiwanda,	Target (primary)	Some subtidal rock reef
11	Cape Kiwanda	McPhillips Beach to the north of Cape Kiwanda, Cape Kiwanda boat launch to the south	Avoid (primary)	Cape Kiwanda Marine Garden, rocky shore associated with headland, offshore island (Haystack Rock), subtidal rock reef, seabird nesting, human congestion at Pacific City (including in water/surfing/boating etc.)

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
12	Cape Kiwanda, Neskowin, to Cascade Head	MVA to Kiwanda Beach from Cape Kiwanda boat launch, MVA to Nestucca Spit from Bob Straub State Park (E-access for 4X4), MVA to Kiwanda Beach (S. of Nestucca Bay) from Winema Rd.; MVA to Neskowin Beach from Mt. Angel Ave., McMineville, Carleton Way (Neskowin), Ocean Ave. (S. of Neskowin Creek).	Target (secondary)	Level 1 resources, some subtidal rock, Proposal Rock
13	Cascade Head	MVA not possible	Avoid (primary)	Cascade Head Marine Protected Area and Reserve, Rocky shoreline, steep cliffs, subtidal rock, level 1 resources, marine mammal haulouts, seabird nesting
14	Cascade Head, Lincoln Beach, Salishan Spit/Gleneden Beach, to Fishing Rock/Fogarty Creek	MVA to Roadsend Beach from NE 64th St.; MVA to Wecoma Beach from Chinook Winds Casino 40th St.; MVA to Lincoln Beach from D River, 38th St., 51 St., NW 15th St., Willow St., Canyon Dr., Jetty Ave.; MVA to Salishan Spit/Gleneden Beach from Shorepine Ct., Sijota St., Laurel St., Wallace St.	Avoid (secondary)	Cascade Head Marine Protected Area and Reserve, subtidal rock, level 1 resources, some rocky shoreline (intermittent), congestion around Lincoln City
15	Fogarty Creek, Cape Foulweather, to Devil's Punchbowl/Otter Rock	MVA not possible, boat access to shoreline via Depoe Bay	Avoid (primary)	Nearshore kelp beds, research reserves at Boiler Bay, Whale Cove Habitat Refuge, subtidal rock, rocky shoreline, seabird nesting, level 1 ecological resources, Otter Rock Marine Reserve, offshore rocks
16	Devil's Punchbowl/Otter Rock to Yaquina Head	Beverly Beach, Wade Creek (off HW 101, south of Beverly Beach) and Moolock Beach; E-access at Beverly Beach State Park and Schooner Creek Rd.	Target (secondary)	Otter Rock Marine Reserve, offshore rocks, subtidal rock, rocky intertidal near Devil's Punchbowl
17	Yaquina Head	MVA not possible	Avoid (primary)	Yaquina Head Marine Garden, rocky shore, headland, seabird nesting, marine mammal haulout, subtidal rock, offshore/nearshore rocks

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
18	Yaquina Head, Agate Beach to Yaquina Bay	MVA to Agate Beach from Agate Beach Wayside and Nye Beach Turnaround	Target (secondary)	Human congestion at Newport, subtidal rocky reef, small rocky intertidal area at Jump Off Joe
19	South Beach to Ona Beach	MVA to South Beach from South Jetty Rd./SW 26th St. (work required); possible E-access for 4X4 from South Beach State Park; Lost Creek Wayside/SE 130th Dr., Ona Beach (N. side of parking lot).	Target (secondary)	Subtidal rock reef offshore, rocky shoreline to south at Seal Rock (and offshore rocks)
20	Ona Beach, Seal Rock to Collins Creek	Curtis St.; possible E-access for 4X4 at Quail St.	Avoid (primary)	Subtidal rock reef, nearshore/offshore rocks, seabird nesting areas, marine mammal haulout, rocky shore/intertidal, level I Ecological Resources
21	Collins Creek, Driftwood Beach, Bayshore to San Marine	Quail St., Bayshore (work required); Possible E-access for 4X4 vehicles at Driftwood State Wayside; Governor Patterson State Park; Beachside State Park, Colorado St. (San Marine).	Target (primary)	Scattered subtidal rock, seabird nesting (?)
22	Smelt Sands, Yachats, to Cape Perpetua	Most of this area is rocky with pocket sand beaches. Accesses would be by foot only, with possible E-access at Spencer St.	Avoid (primary)	Cape Perpetua Marine Reserve/MPA, Cape Perpetua Marine Gardens, subtidal rock reef, nearshore/offshore rocks, seabird nesting, marine mammal haulouts, rocky shoreline, headland
23	Cape Perpetua to Tokatee Kloochman	Two small sand beaches are enclosed by rocky shores. Cummins Creek has a OPRD wayside for foot traffic to beach. Stonefield Beach has an OPRD wayside where access by 4X4 vehicle/ATV may be possible with some work to access.	Avoid (primary)	Cape Perpetua Marine Reserve/MPA, Neptune Intertidal Research Reserve, subtidal rock reef, nearshore/offshore rocks, seabird nesting, marine mammal haulouts, rocky shoreline

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
24	Tokatee Kloochman to Heceta Head	Muriel Ponsler SSV Access has beach access for foot/ATV/4X4 Truck to access approximately 2 miles of sand beach adjacent to Carl Washburne. Washburne has OPRD beach access for foot and possibly ATV.	Target (secondary)	Some level 1 resources, scattered rocky shoreline (primarily sandy)
25	Heceta Head	Beach access at OPRD Heceta Head for foot/ATV and possibly 4X4 truck with some access modification (removal of rock)	Avoid (primary)	Rocky shoreline, steep cliffs, subtidal rock, level 1 resources, seabird nesting, marine mammal haulouts, offshore/nearshore rocks
26	Heceta Head to N Jetty Siuslaw	Baker Beach USFS access is available, but has a gate requiring key. Beach access is available through Lane County Park at Heceta Beach Wayside to access entire sand beach from Baker Beach to Siuslaw North Jetty. Crossing Sutton Creek and Berry Creek may be a problem due to high water and quicksand which will limit access to northern section of beach. Baker Beach will need to be used in that case. Plover areas from Baker Beach to Sutton.	Target (secondary)	Baker/Sutton Beach has Critical Habitat for Western Snowy Plovers, scattered subtidal rock, Level 1 Marxan (likely plovers/rock)
27	S Jetty Siuslaw to Tahkenitch	Goosepasture, South Jetty ATV area, Driftwood, Siltcoos, Wax Myrtle (Key Required) for beaches south of Siltcoos River (Siltcoos Creek not crossable)	Target (secondary/contingent)	Critical Habitat for Western Snowy Plover (Siltcoos Beach/Tahkenitch), scattered subtidal rock (minimal?), Level 1 Marxan (rock/plovers?)
28	Tahkenitch to Coos Bay North Spit	Sparrow Park Road, Umpqua River ATV staging areas, Hauser after lengthy sand road drive, Horsefall, BLM Access 1, 2, & 3 (New Carissa), North Jetty Coos Bay	Target (secondary/contingent)	Critical Habitat for Western Snowy Plover (Tenmile Creek, Coos Bay N Spit), scattered subtidal rock, scattered Level 1 Marxan (rock/plovers?)
29	South Jetty Coos Bay to Five Mile Point	South Jetty Coos Bay, Sunset Bay boat ramp, Sacchi/Agate Beach/Seven Devils (private access through coded gated or around 5 Mile Point during very low tide), Whiskey Run,	Avoid (primary)	Rocky shoreline, significant marine mammal and seabird areas, subtidal rock, offshore rock, intertidal research reserve, Level 1 Ecological Resources

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
30	Five Mile Point to Bullards Beach	Whiskey Run	Target (primary)	Scattered subtidal rock (more significant as you get closer to the S end of Bullards Beach, associated with Coquille Point)
31	Coquille Point to Blacklock Point	Coquille South Jetty with removal of wood debris and boulders (foot, ATV), Tish-a-Tang (foot, ATV, 4X4), China Creek OPRD wayside with key to gate (foot, ATV, 4X4 most of year), Boice-Cope Curry County Park (foot, ATV only), Blacklock Point (OPRD access through airport gate for foot, atv, truck)	Avoid (secondary)	Rocky shoreline, seabird nesting, offshore/nearshore rocks, Level 1 resources, Plover habitat at Bandon SNA/New River/Floras, subtidal rock reef scattered south of Coquille Point and North of Blacklock
32	Blacklock Point to Cape Blanco	Refer to above-most of area is headland and rocky, but access is available as stated above.	Avoid (primary)	Rocky shoreline, level 1 ecological resources, subtidal rock, offshore/nearshore rocks, seabird nesting, marine mammal haulout
33	Cape Blanco	MVA access on the south end of the Cape	Avoid (primary)	Reefs offshore, subtidal rocky reef, offshore rocks, rocky intertidal, headland/steep cliffs, level 1 ecological resources
34	Cape Blanco to Port Orford Heads	Cape Blanco, Paradise Point Elk River plover management area (unoccupied)	Target (secondary)	Offshore rocks/reefs, subtidal rocky reef, Level 1 ecological resources offshore mostly
35	Port Orford Heads	MVA not viable. Possible access by boat at Nellies Cove (steep stairs to top)	Avoid (primary)	Reefs offshore, subtidal rocky reef, offshore rocks, rocky intertidal, headland, level 1 ecological resources
36	Port Orford Heads to Humbug Mt.	Port Beach near Port Orford docks, Battle Rock Beach to Rocky Point (foot, ATV, 4X4), Hubbards Creek (foot, ATV only), Humbug State Park campground (foot, ATV to pocket sand beach)	Avoid (secondary)	Redfish Rocks Marine Reserve, offshore rocks, rocky shoreline mixed in, subtidal rock/reefs,
37	Humbug Mt. to Sisters Rock	Rocky Shores with very small pocket beaches with limited access by foot except at Arizona Beach (foot, ATV, 4X4), Sisters Rock (foot, ATV, 4X4 with caution)	Avoid (primary)	Steep cliffs, subtidal rock/reefs, rocky shoreline, level 1 resources, seabirds, marine mammals

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
38	Sisters Rock to Devil's Backbone	Rocky Shores with very small pocket beaches with limited access by foot except at Arizona Beach (foot, ATV, 4X4), Sisters Rock (foot, ATV, 4X4 with caution)	Avoid (primary)	Subtidal rock/reef, kelp beds, rocky shoreline, level 1 ecological resources, seabird nesting, offshore/nearshore rocks
39	Devil's Backbone to Otter Point	Potential access at Ophir OPRD wayside(foot, ATV, and possibly 4X4), Nesika Beach (foot, ATV)	Target (secondary)	Scattered subtidal rock, denser near southern end
40	Otter Point to Rogue River	No access-Rocky with very narrow beaches.	Avoid (primary)	Extensive rocky intertidal, subtidal rock, offshore/nearshore rocks, seabird nesting sites, marine mammal haulouts, level 1, ecological resources, Rogue Reef offshore
41	Rogue River to Cape Sebastian	Rogue River North Jetty (foot, ATV, 4X4) to Otter Point with various other unofficial vehicle access,	Target (secondary)	Scattered subtidal rock, level 1 ecological resources
42	Cape Sebastian	MVA not viable	Avoid (primary)	Steep cliffs, headland, subtidal rock/reefs, rocky shoreline, level 1 resources, seabirds, marine mammal haulout, offshore/nearshore islands/rocks, kelp
43	Cape Sebastian to Crook Point	Some access at parking lot near the bridge (foot, ATV, 4X4 if conditions are right). Parking lot south of bridge there is access to beach fro river mouth and south depending on flood conditions. Low water access is good.	Avoid (secondary)	Rocky shore, subtidal rock, seabird nesting, kelp, level 1 ecological resources, marine mammal haulout
44	Crook Point to Lone Ranch Beach	Whaleshead and Lone Ranch foot/ATV access along pedestrian trail to beach, but sketchy due to turns on trail and impacting natural/cultural resources. Not an official vehicle trail.	Avoid (primary)	Crook Point/Mack Reef, steep cliffs, offshore rocks, subtidal rock, significant kelp, marine mammal haulouts, significant seabird nesting, rocky shoreline.

ID	Section Name	Access Point(s)	Avoid/Target	Sensitive resources
45	Lone Ranch Beach to Harris Beach	Mostly Rocky Shore and private between south border of Boardman and Harris Beach.	Avoid (primary)	Rocky shoreline, subtidal rocks, offshore/nearshore rocks, kelp beds, seabirds, marine mammal haulouts
46	Harris Beach to Chetco River	No real access to beach at Harris (foot and possibly ATV on ADA beach access, but turns may prevent good ATV turning). Mill Beach City Park has an access to the beach, but the city is working on the parking area so access by 4X4 may be limited (foot, ATV, 4X4??). We used this access for removal of boat debris after the tsunami, but it may have changed or will be changed.	Avoid (primary)	Harris Beach Marine Garden and Brookings Intertidal Research Reserve, rocky intertidal, subtidal rock, offshore/nearshore rocks (including Goat Island), kelp, seabird nesting significant on Goat Island, harbor seal haulouts
47	Chetco River to CA border	Sporthaven Beach/South Jetty Chetco ATV/4x4 access at jetty between some boulders or remove boulders (permission of Port of Brookings). Best Western on south end of Sporthaven has 4X4 access with permission. Crissy Field has beach access for foot/ATV/4X4 located adjacent to host sites on south end of park.	Avoid (secondary)	Intertidal and subtidal rocky shore/rock mixed with sandy beaches, patchy ofshore kelp beds, offshore rocks