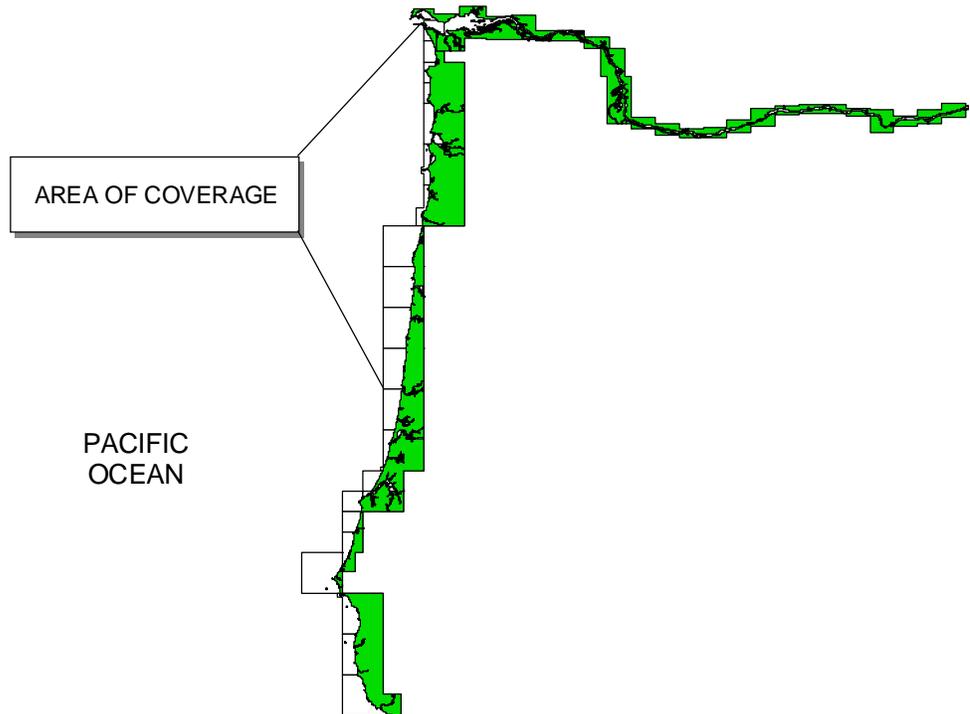




NORTH OREGON COAST GEOGRAPHIC RESPONSE PLAN (GRP)



Spill Response Contact Sheet

Required Notifications For Hazardous Substance Or Oil Spills

USCG National Response Center	(800) 424-8802
In Oregon:	
Department of Emergency Management	(800) 452-0311 (800) OILS-911
In Washington:	
Emergency Management Division	(800) 258-5990
Department of Ecology	(360) 753-2353

U.S. Coast Guard

National Response Center	(800)-424-8802
Marine Safety Office Puget Sound:	
Watchstander	(206) 217-6232
Safety Office	(206) 217-6232
Marine Safety Office Portland	
Watchstander	(503) 240-9301
Port Operations	(503) 240-9379
Pacific Strike Team	(415) 883-3311
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7021
Safety Officer	(206) 220-7242
Public Affairs	(206) 220-7235
Vessel Traffic Service (VTS)	(206) 217-6050

Environmental Protection Agency (EPA)

Region 10 Spill Response	(206)-553-1263
Washington Ops Office	(206) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/CERCLA Hotline	(800) 424-9346
Public Affairs	(206) 553-1203

National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

Canadian

Marine Emergency Ops	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

Department Of Interior

Environmental Affairs	(503) 231-6157
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U.S. Navy

Naval Shipyard	(206) 476-3466
Naval Base Seattle	(206) 526-3225
Supervisor of Salvage	(202) 695-0231

Army Corps Of Engineers

Hazards to Navigation	(206) 764-3754
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Response Contractors

Fred Devine	(503) 283-5285
Global Diving	(206) 623-0621
NRC Environmental	(503) 283-1150
US Environmental	(866) 876-7745

Washington State

Department of Ecology:	
Headquarters	(206) 407-6900
SW Regional	(206) 753-2353
NW Regional	(206) 649-7000
Central Regional	(509) 575-2490
Eastern Regional	(509) 456-2926
Department of Emergency Management	(206) 438-8639 (800) 258-5990
State Patrol	(206) 753-6856

Oregon State

Department of Environmental Quality	
Headquarters (Portland)	(503) 229-5153
Northwest Region (Portland)	(503) 229-5263
Eastern Region (Bend)	(541) 338-6146
Eastern Region (Pendleton)	(541) 278-4063
Western Region (Coos Bay)	(541) 269-2721
Western Region (Eugene)	(541) 686-7838
Western Region (Medford)	(541) 776-6010
Western Region (Salem)	(503) 378-8240
Emergency Management	(503) 378-6377
(In state)	(800) 452-0311
(In state)	(800) OILS911
Stop Oregon Litter & Vandalism	(503) 647-9855

Boldface type are 24-hour numbers

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HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this last no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' "orders" during the emergent phase of the spill. During the project phase the GRP will continue to be used, but with input from natural resource trustees.

Strategy Selection

Chapter 4.1 of the GRP contains complete strategy descriptions in matrix form and response priorities. The accompanying maps are located in Chapter 4.2. The strategies depicted in Chapter 4.2 will be implemented after reviewing on scene information including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is important to note that strategies rely on the trajectory of the spill. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and location did not warrant action in that area.

Chapter 6 outlines the sensitive resources requiring protection and the seasonality of their sensitivity. This information must be consulted before strategies are implemented as there may be flight restrictions associated with a resource. Flight restriction information is also found in chapter 6.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses strategy names defined in Appendix A (e.g. diversion booming, exclusion booming).

Response Equipment

A table outlining equipment availability and response times is being developed for this geographic response plan. In the interim, strategies will be deployed in the order equipment arrives on scene and as directed/selected by the on-scene coordinator.

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North Coast, Oregon

GEOGRAPHIC RESPONSE PLAN

1. Introduction: Scope of this Project

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. They prioritize resources to be protected and allow for immediate and proper action.

GRPs are developed for marine waters of Washington and Oregon State, the Columbia River, and the inland areas of Washington, Oregon and Idaho. They are prepared through the efforts of the Washington Department of Ecology, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, and the Environmental Protection Agency.

GRPs are developed through workshops involving federal, state, and local oil spill emergency response experts, representatives from tribes, industry, ports, environmental organizations, pilots and response contractors. Workshop participants identify resources which require protection, develop operational strategies, and pinpoint logistical support.

The first goal of a GRP is to identify resources, physical features, hydrology, currents and tides, and winds and climate that may affect response strategies. After compiling this information, sensitive resources are identified.

Secondly, response strategies are developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount and type of equipment necessary for implementation. The response strategies are then applied to likely spill scenarios for oil movement, taking into account factors such as wind and tidal conditions.

Finally, additional logistical support is identified, including:

- Location of the operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Response times for bringing equipment in from other areas.

By using this plan as a guideline, the first responders to a spill can avoid the initial confusion that generally accompanies any spill. This plan prioritizes resources to be protected and allows for immediate and proper action.

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2. Site Description

The Northern Oregon Coast addressed in this GRP includes that coastline which falls between the Oregon/Washington border and south to Florence, Oregon, a distance of approximately 150 miles. Terrain varies from sandy beaches and dunes to intermittent offshore rocks and rocky intertidal zones with steep cliffs that have limited or no access. The varied stretches of sandy beach represent significant human use area. Portions of the coastline are steep, completely inaccessible, rocky cliffs. Other areas are rocky intertidal to cobble type beaches. There are many offshore rocks that provide bird rookeries and marine mammal haulouts. Interspread along the coastline are many estuaries and small fresh water drainages. In addition to the physical characteristics, there is a variety of coastal and marine fauna that completes the habitat and nesting for many types of wildlife.

2.1 Physical Features

This GRP addresses the northern 150 miles of the Oregon coastline. The outflow from rivers with headwaters in the Coastal Range form estuaries along the coast. These estuaries are a meeting point between salt and fresh water and the surrounding land. The resulting fragile environment is characterized by highly variable physical, chemical, and biological conditions, allowing organisms from salt and fresh water and land to proliferate with abundance and diversity unknown to any other single type of environment. Components of these estuaries include tidelands, salt marshes, sandspits, uplands, and river channels, all of which interact to create the highly productive habitat. These productive estuarine habitats are home to large numbers of fresh water and marine fish, shellfish, shore birds, waterfowl, marine mammals as well as untold amounts of benthic invertebrates. In addition to the miles of sandy beaches, sensitive estuaries (from Florence north) include Necanicum River, Nehalem Bay, Tillamook Bay (see separate GRP), Netarts Bay, Sand Lake, Nestucca River, Salmon River, Siletz Bay, Yaquina Bay (see separate GRP), and Alsea Bay.

Necanicum River--The Necanicum River estuary lies approximately 16 miles south of the Columbia River mouth. The head of tide is at river mile 2.7 in the Necanicum River and at about river mile 3.8 in Neawanna Creek.

Nehalem Bay--Nehalem Bay is located about 40 miles south of the Columbia River mouth. Although a moderately large estuary, human population is sparse. The estuary is about 8 miles long and is fully exposed to waves at the throat. Tidal effects extend to mile 8.6 of the Nehalem River and 4.7 of the North Fork Nehalem River.

Netarts Bay--Netarts Bay is located 60 miles south of the Columbia River mouth, and is of medium size relative to the other estuaries. The bay has no major tributaries and is partially exposed to waves at the throat.

Sand Lake--Sand Lake is located approximately 68 miles south of the Columbia River mouth. Sand Lake is a bar-built natural estuary which receives very little freshwater inflow from a watershed of only 14 square miles.

Nestucca Bay--Nestucca Bay lies approximately 75 miles south of the Columbia River mouth. Major tributaries are the Nestucca River from the north and the Little Nestucca River from the South. The bay is fully exposed to waves at the throat and head of tide extends to river mile 7 at the Nestucca River and river mile 2.3 on the Little Nestucca River.

Salmon River--Salmon River estuary lies 85 miles south of the Columbia River mouth. The estuary is essentially part of the lower reaches of the Salmon River, and the bay is partially exposed to waves at the throat.

Siletz Bay--Siletz Bay is roughly 95 miles south of the Columbia River Mouth. The major tributary of the Bay is the Siletz River, with the head of tide at river mile 24.

Alsea Bay--Alsea Bay lies approximately 130 miles south of the Columbia River's mouth. The bay is fully exposed to waves at the throat and the head of tide is at mile 16 of the Alsea River and mile 5.5 of Drift Creek.

2.2 Hydrology

The rivers meeting the ocean drain the north coast and mid-coast drainage Basins. Depending upon their outflow, they create either a Two Layered, Partially Mixed, or Well Mixed Estuary. The estuaries and their types are as follows:

Partially Mixed or Two Layered, depending upon outflow:

Necanicum River	Nestucca River	Yaquina Bay
Nehalem Bay	Salmon River	Alsea Bay
Tillamook Bay	Siletz Bay	

Well Mixed:

Netarts Bay
Sand Lake

Additionally, Netarts Bay and Sand Lake are the only bar built estuaries in this section of the coast. The remaining estuaries are all drowned river valleys.

2.3 Currents and Tides

The nearshore current is characterized by a predominantly northern flow in the Winter months, and a southern flow in the Summer months. The beaches are subject to large wave actions and high energy environments. Within Tillamook Bay, the surface circulation is primarily wind driven. Oil spilled inside the bay depends upon the direction and magnitude of local winds, as well as influences from the Miami, Kilchis, Wilson, Trask, and Tillamook Rivers.

Along the coast, typical surface current speeds are on the order of 1/3 knot. The relatively wide and straight continental shelf off the coast tends to separate the nearshore surface current from the larger scale California Current. Winter winds, typically coming from the south, cause the southerly flowing California Current to remain offshore while nearshore, the Davidson Current flows toward the north. In the summer, northerly winds extend the southward flowing California Current over both nearshore and offshore areas. Since Spring and Fall are transitional periods, changes in the local wind field results in unpredictable current reversals.

Tides in North Coast are of the mixed semidiurnal type with paired highs and lows of unequal duration and amplitude.

2.4 Winds

The northern coast can be affected by strong winds, at times in excess of 100 miles per hour. These winds typically come from the north to northwest in the summer and the southeast to east in the winter. During the summer, the predominate wind direction is from the northwest with speeds ranging from 10 to 15 knots. However maximum peak wind gusts range from 30 to 40 knots. The mean wave heights are about 4.9 feet with maximum heights of 14.7 feet. In the winter, the winds are primarily from the east to southeast at 10 to 15 knots with maximum peak wind gusts ranging from about 55 to 65 knots. Average wave heights are 4.9 feet with maximum wave heights of 32.8 feet. In particular, the coastal mountain range deflects winds so that they tend to flow parallel to the coastline. In areas with lower mountains, this effect may not be as prominent.

2.5 Climate

The entire coast is characterized by a maritime climate with cool summers and mild winters. Air temperatures are in the mid 40's in the winter and the low 60's in the summer. Water temperatures are fairly constant, normally in the low 50's.

2.6 Risk Assessment

The primary transportation patterns for the Trans-Alaskan Pipeline Trade which affect the Oregon Coast are between Prince William Sound and Richmond, California. The routes for major shipping traffic keep the super tankers 50-60 nm off shore. This distance is believed to minimize coastal effects from a catastrophic spill. Refined product in barges and small tankers is transported close to the shoreline, as do cargo vessels with bunker fuels while in transit of the coast. Any of these could provide a spill source.

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3. Reference Maps

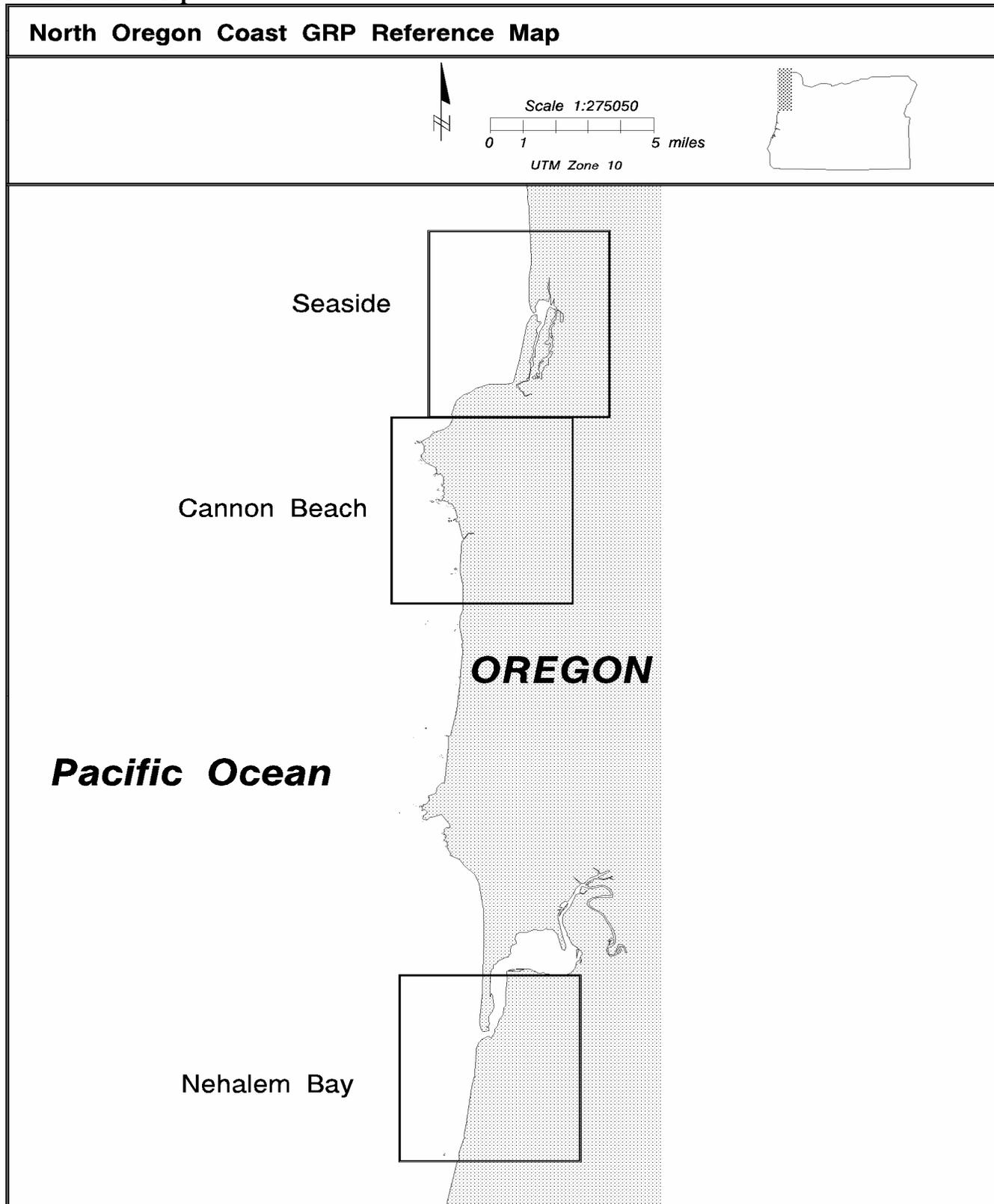


Figure 3-1. North Oregon Coast Reference Map

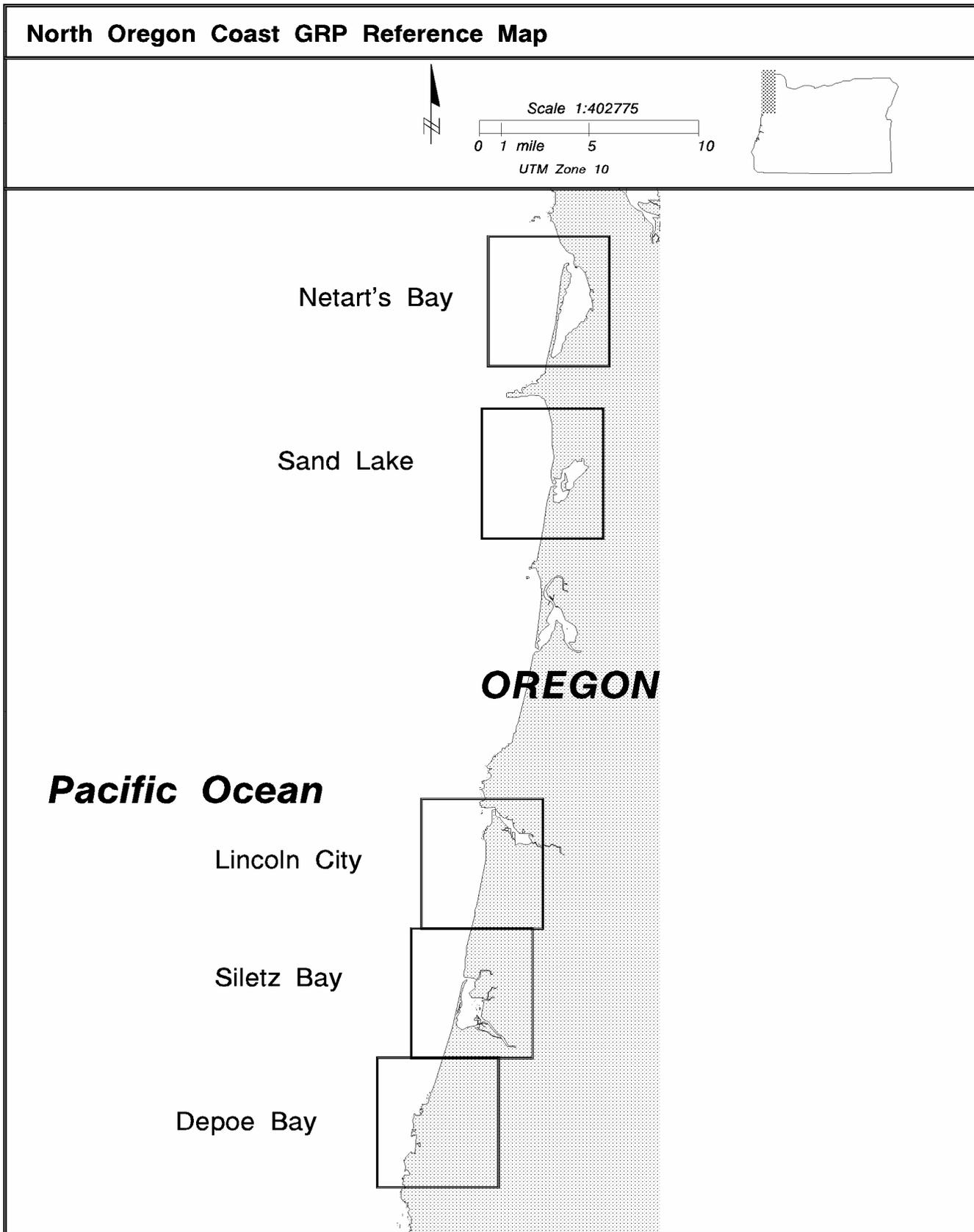


Figure 3-2. North Oregon Coast Reference Map

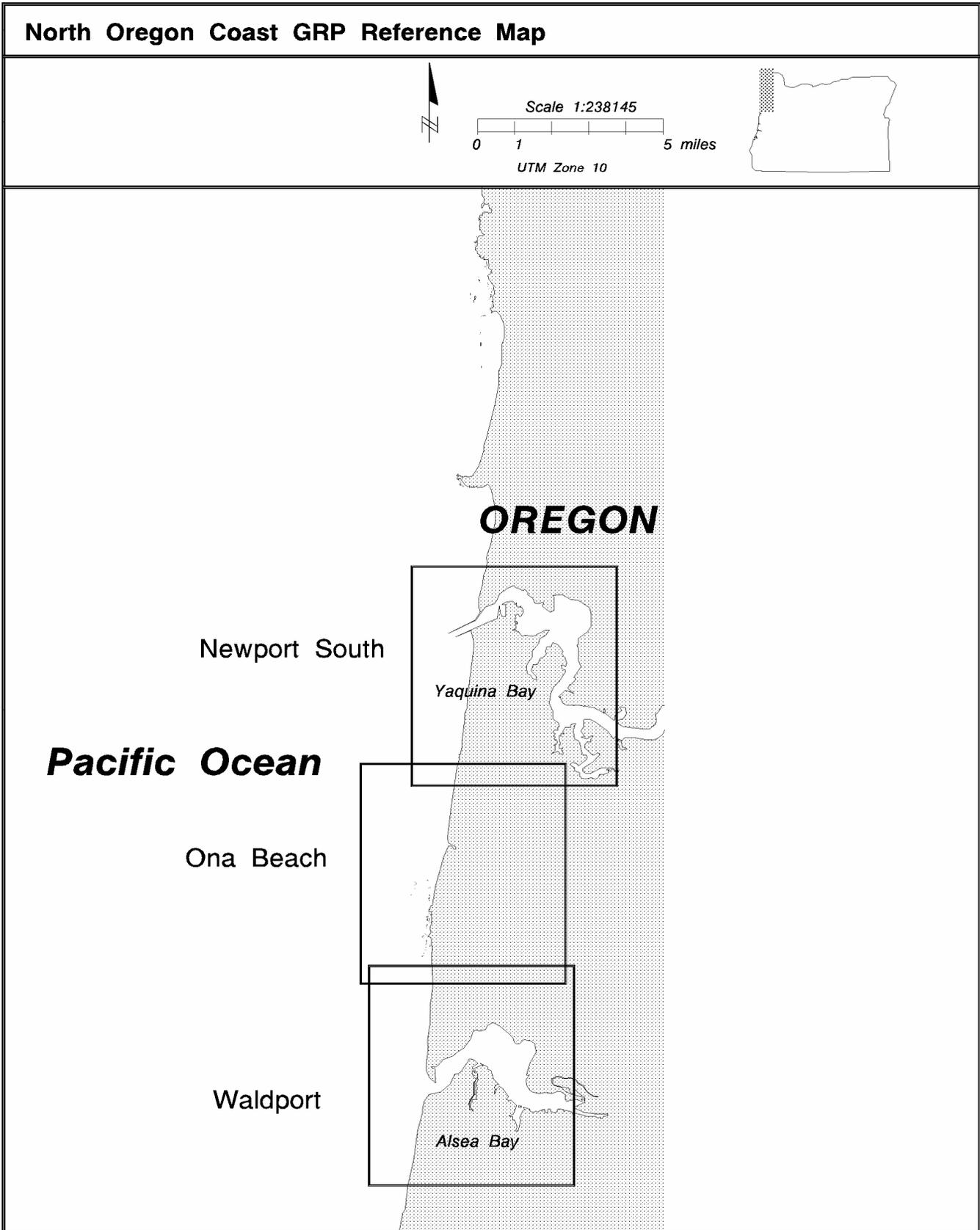


Figure 3-3. North Oregon Coast Reference Map

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4. General Protection/Collection Strategies

4.1 Chapter Overview

Control and containment

It is implied that control and containment at the source is the number one priority of any response. If in the responders' best judgment this is not feasible then the priorities laid out in the priority matrices take precedence over containment and control.

This chapter details the specific response strategies and resources to protect as outlined by the participants of the GRP workshops for each Geographical Response Area. It describes, amongst other things, the strategies determined for each area. Other pertinent information necessary for proper implementation of scenarios is found in chapters five and six. This information includes shoreline types, wildlife areas, economic areas, sensitive marine areas, archeological sites, and flight restriction zones which may be implemented by the OSC if necessary.

Sectors

Each **geographic region** is divided into smaller **sectors** as shown by the reference map in chapter three.

Maps

The maps in this chapter provide information on the specific location of strategy points. They are designed to help the responder visualize response strategies in relation to valuable wildlife and archeological locations, economic areas, and sensitive marine areas. Maps are grouped in their respective subject matter areas. The maps that are being developed will be added as they are completed and placed in their respective subject matter areas. For a complete list of all maps contained in this GRP refer to the Table of Figures on page 10.

- **Protection/Collection maps** provide information on the specific location of strategy points. These maps are designed to help the responder visualize response strategies in relation to valuable wildlife and archeological locations, economic areas, and sensitive marine areas.

Tables

This chapter contains tables which are placed in their respective subject matter areas. Some of the tables are incomplete and will be updated.

- **Scenario Response Priority Strategies** detail the order in which strategies will be implemented based on various local scenarios.
- **Response Strategy Table** describes amongst other things, the details of the response strategies, indicates the purpose of the strategy and lists special considerations that may be needed to carry out the strategies.

Major Protection Techniques

All response strategies fall into one of three major techniques that may be utilized either individually or in combination. The strategies listed in 4-2 are based on one or more of the following techniques:

Dispersants:

Chemicals can be used to break up slicks on the water. Dispersants can decrease the severity of a spill by speeding the dissipation of certain oil types. Their use will require approval of the Unified Command. Dispersants will only be used in offshore situations under certain conditions, until further determinations are made by the Area Committee and published in the Area Contingency Plan.

In Situ Burning:

If possible, an oil slick may be set on fire. Burning must be authorized by the Unified Command, who confer with state and local air and water quality authorities. This option is often preferable to allowing a slick to reach the shore. This method works on many types of oil, and requires special equipment including a fire boom and ignitors. In Situ Burning will only be allowed when consistent with the Northwest Area Contingency Plan's In-Situ Burning Policy and Guidelines.

Mechanical Recovery Strategies:

If a spill is too close to the shore to use In Situ burning or dispersants, the key strategies are to use collection, diversion, or exclusion booms to contain the slick and prevent it from entering areas with sensitive wildlife and fisheries resources. This will be attempted through the use of various booming strategies. These options are described in detail in Appendix A.

4.2 Protection/Collection Maps

Table 4-1. Seaside Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-1		Gearhart 46°00'12"N 123°55'25"W	Protection	500' x 2 sections	Protect entrance to Necanicum River			

4.2.1 Seaside

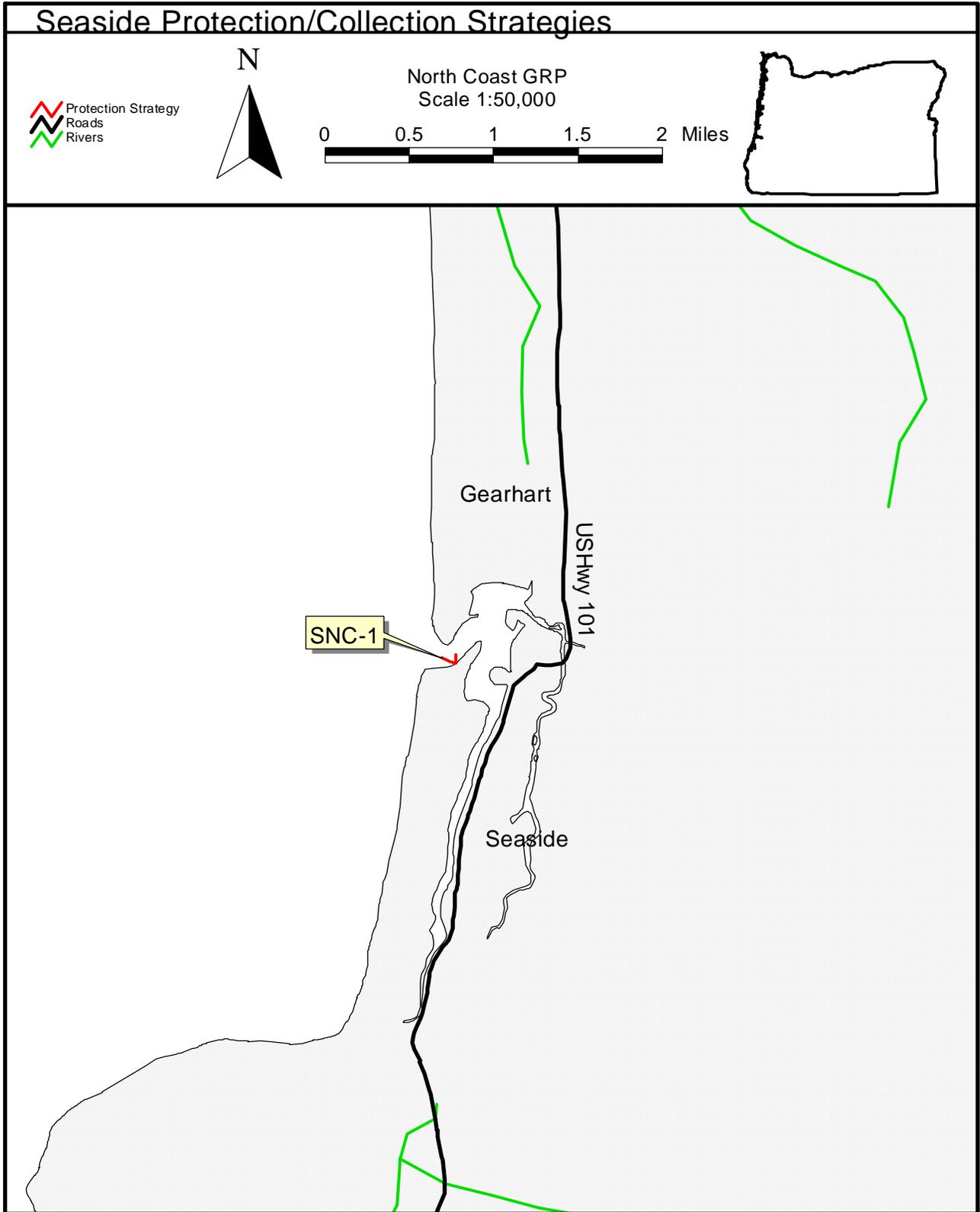


Figure 4-1. Seaside Protection/Collection Strategies

Table 4-2. Cannon Beach Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-2		Cannon B each 45°54'04"N 123°57'39"W	Deflection to collection	300'	Use deflective booming to protect Ecola Creek and recover oil			

4.2.2 Cannon Beach

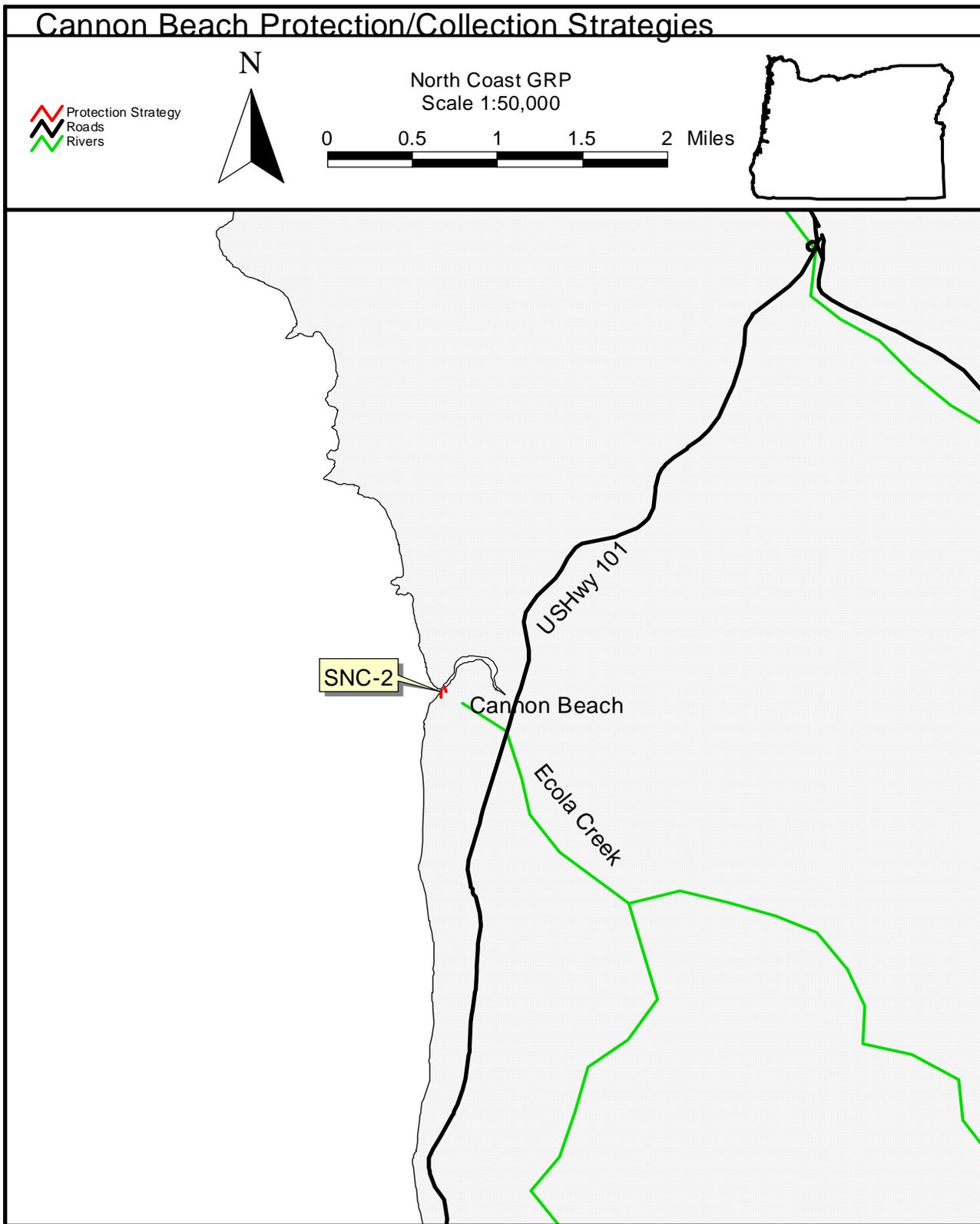


Figure 4-2. Cannon Beach Protection/Collection Strategies

Table 4-3. Nehalem Bay Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-3		Mouth of Nehalem Bay 45°39'22"N 123°56'36"W	Deflection	500' x 2 sections	If possible, attach boom to entrance buoy to direct oil away from mouth of Nehalem Bay		Need large boats to attach and tend boom	
SNC-4		Nehalem North Spit 45°39'37"N 123°55'53"W	Collection	1000' x 4 sections	Use 4 sections (1000') of boom to collect oil on flood tide		Very poor access on west side	

4.2.3 Nehalem Bay

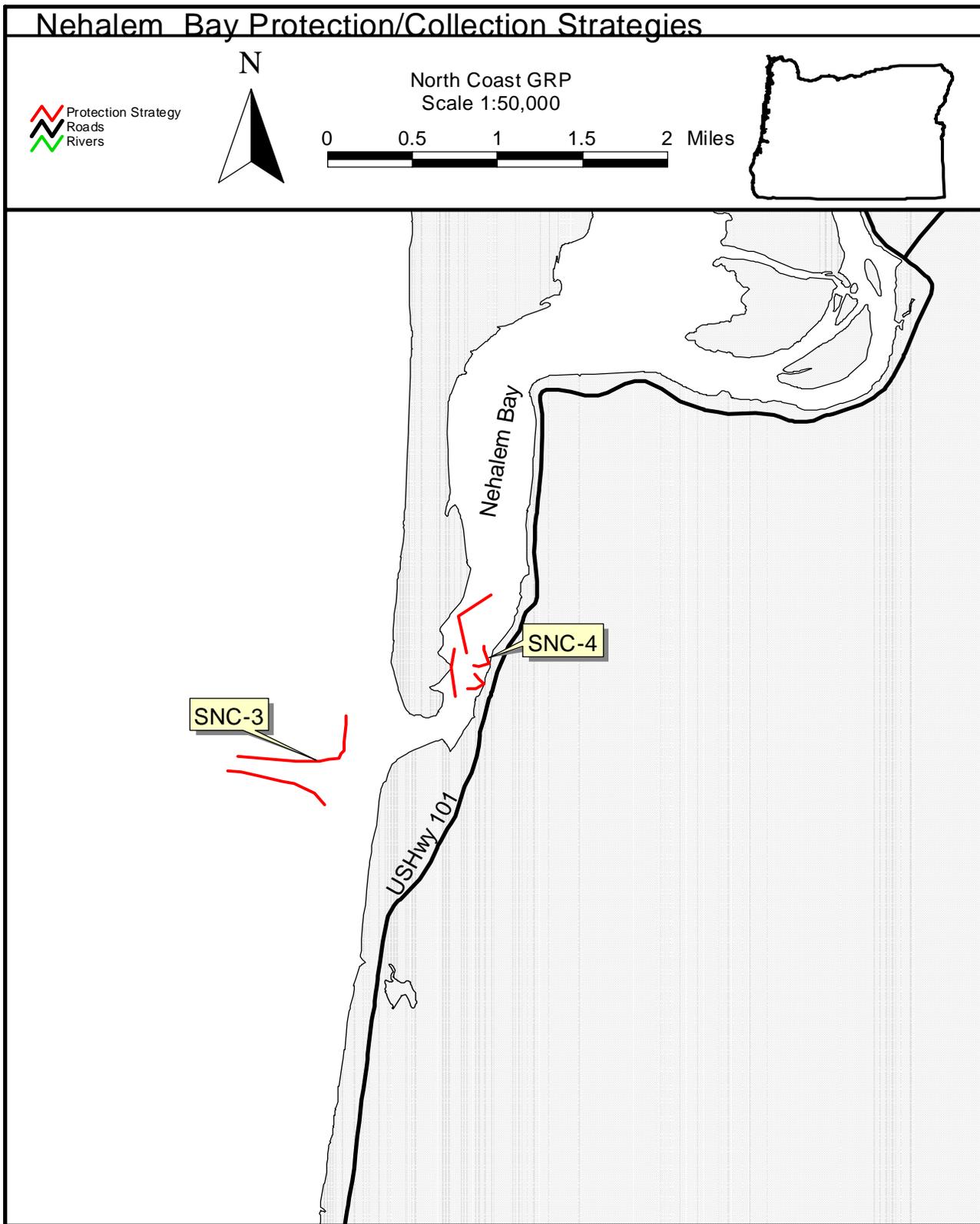


Figure 4-3. Nehalem Bay Protection/Collection Strategies

Table 4-4. Netarts Bay Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-5		Entrance to Netarts 45°26'04"N 123°57'05"W	Protection	1000' x 4 sections	Protect entrance to Netarts using cascading booming			
SNC-6		Netarts 45°24'52"N 123°56'00"W	Protection	1000'	Protect mouths of various small streams			

4.2.4 Netarts Bay

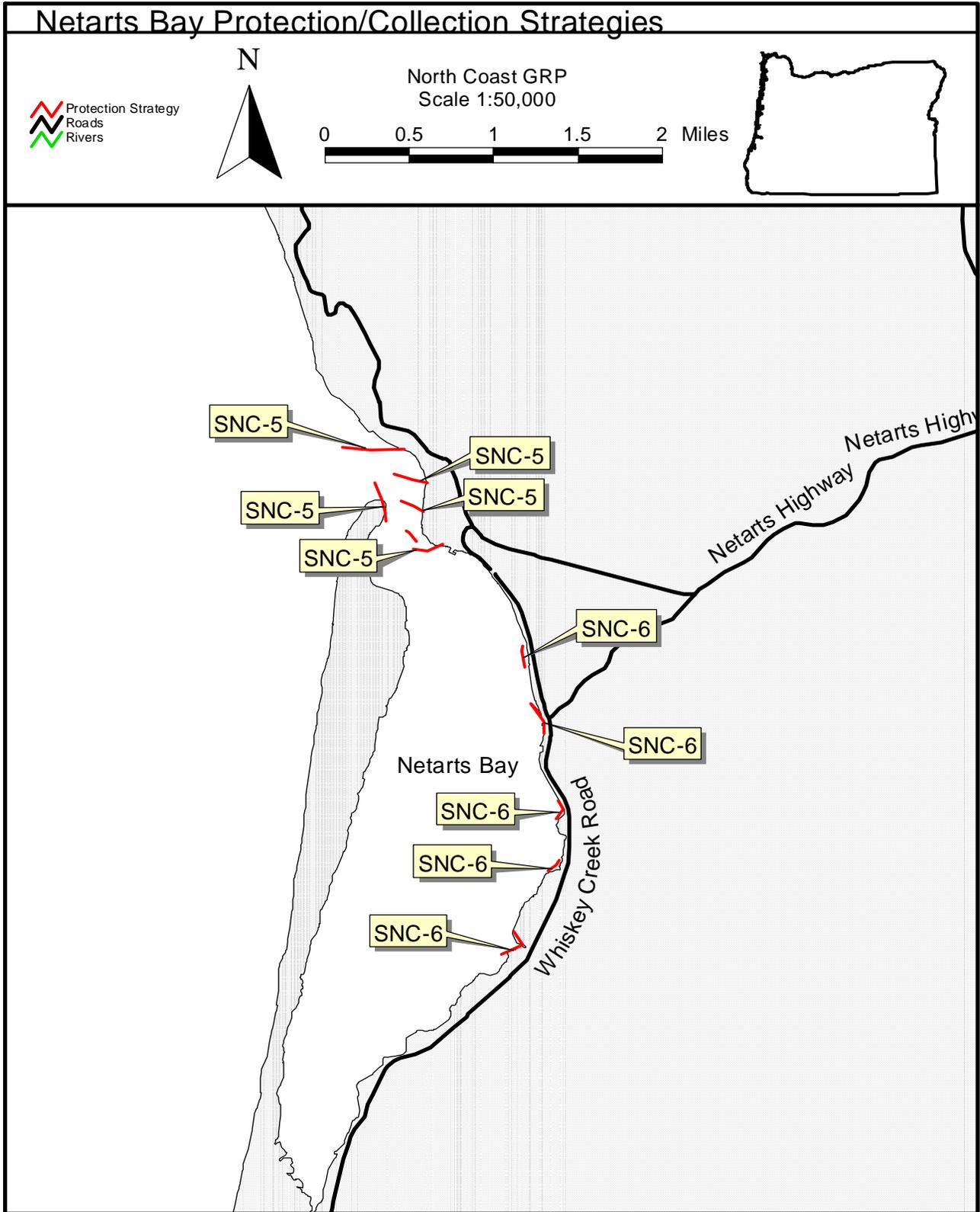


Figure 4-4. Netarts Bay Protection Collection Strategies

Table 4-5. Sand Lake Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-7		Sand Lake 45°16'25"N 123°56'44"W	Protect	1000' hard	Boom off entrances to various small creek tributaries			
SNC-8		Sand Lake 45°16'48"N 123°57'09"W	Deflection to Collection	300' x 2 sections	Deflect oil and collect near Sand Beach Campground	Sand Beach Campground		

4.2.5 Sand Lake

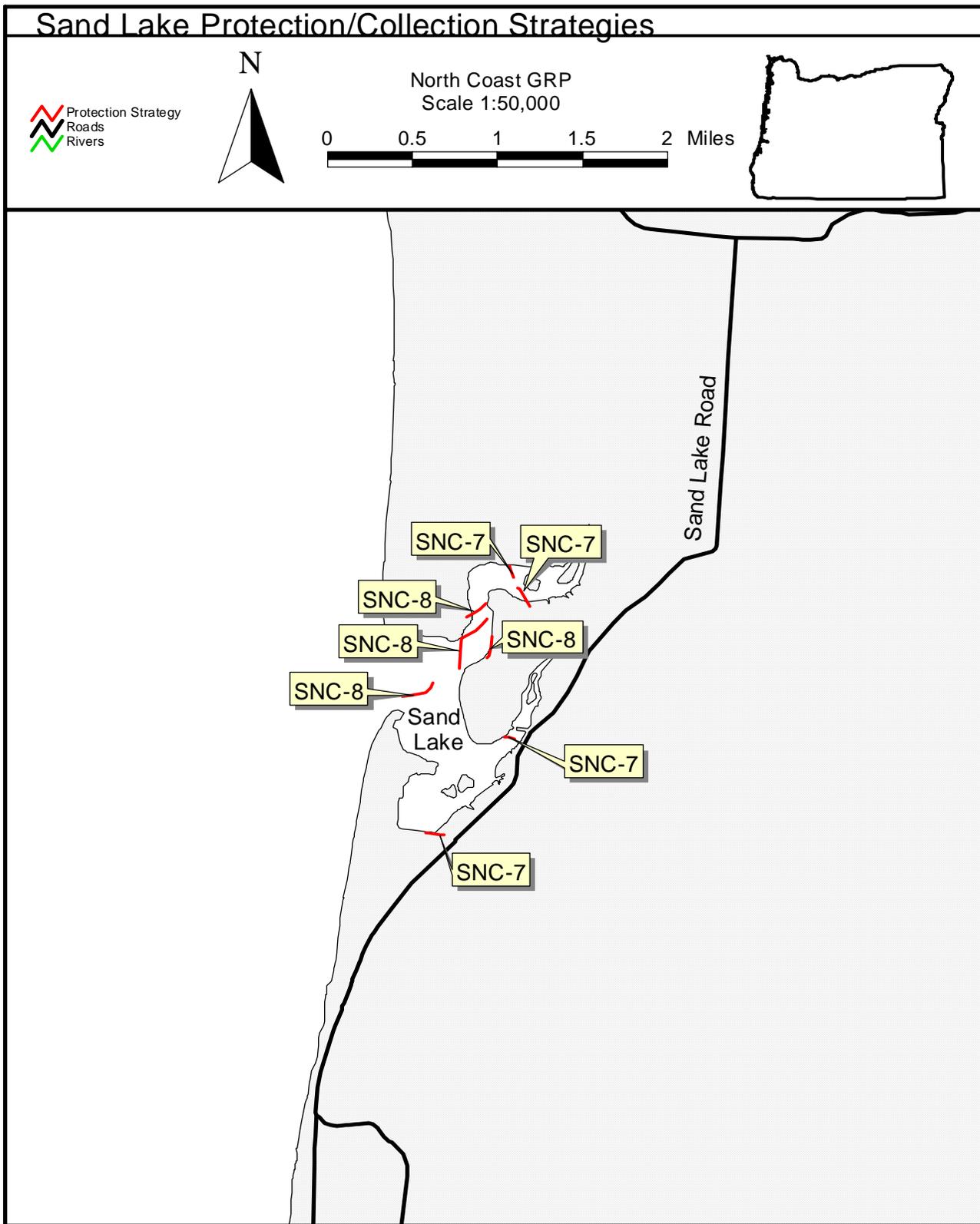


Figure 4-5. Sand Lake Protection/Collection Strategies

Table 4-6. Lincoln City Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-9		Neskowin 45°02'49"N 124°00'04"W	Deflection to collection	600' x 2 sections	Use deflective booming to protect Salmon River at entrance and recover oil			
SNC-10		Neskowin 45°02'26"N 123°59'41"W	Deflection to collection	1200' (use marsh boom if available)	Major tidal flat, try boom to collect, or protect			
SNC-11		Lincoln City 45°58'06"N 124°01'00"W	Protection	400'	Protect Devil's lake at entrance.			

4.2.6 Lincoln City

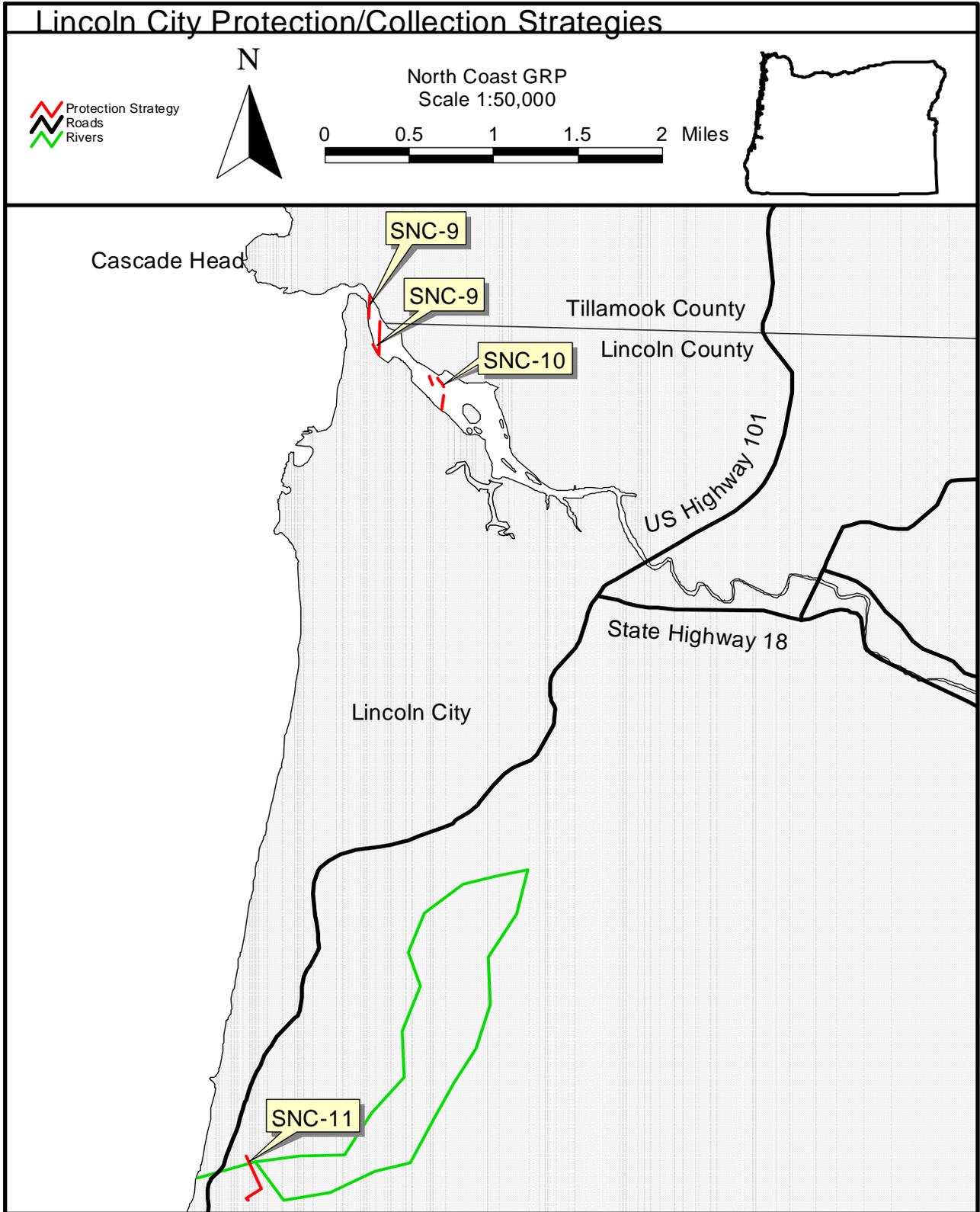


Figure 4-6. Lincoln City Protection/Collection Strategies

Table 4-7. Siletz Bay Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-12		Lincoln City 44°55'38"N 124°01'12"W	Deflection to collection	800'	Boom near Taft waterfront to divert oil and collect			
SNC-13		Lincoln City 44°55'34"N 124°00'45"W	Protection	200' x 3 sections (one for each slough)	Boom across Schooner Creek, Drift Creek, and Millport Slough to protect.			
SNC-14		Lincoln City 44°54'03"N 124°00'33"W	Collection	400'	Use boom to collect oil on flood tide at this location			

4.2.7 Siletz Bay

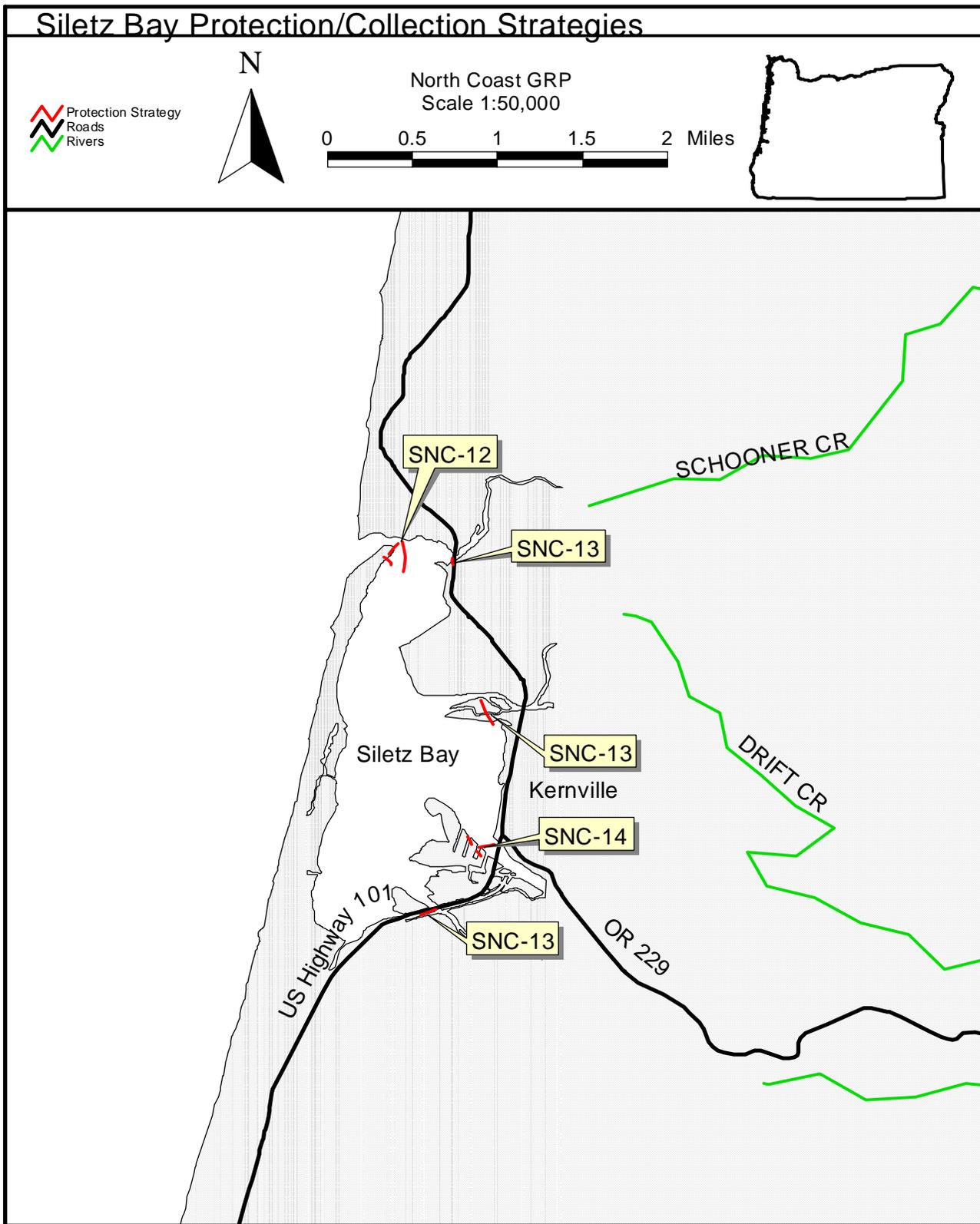


Figure 4-7. Siletz Bay Protection/Collection Strategies

Table 4-8. Depoe Bay Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-15		Depoe Bay 44°48'35"N 124°03'34"W	Protect	1000' hard	Boom marina to protect boats.	USCG Station; communications	USCG station	

4.2.8 Depoe Bay

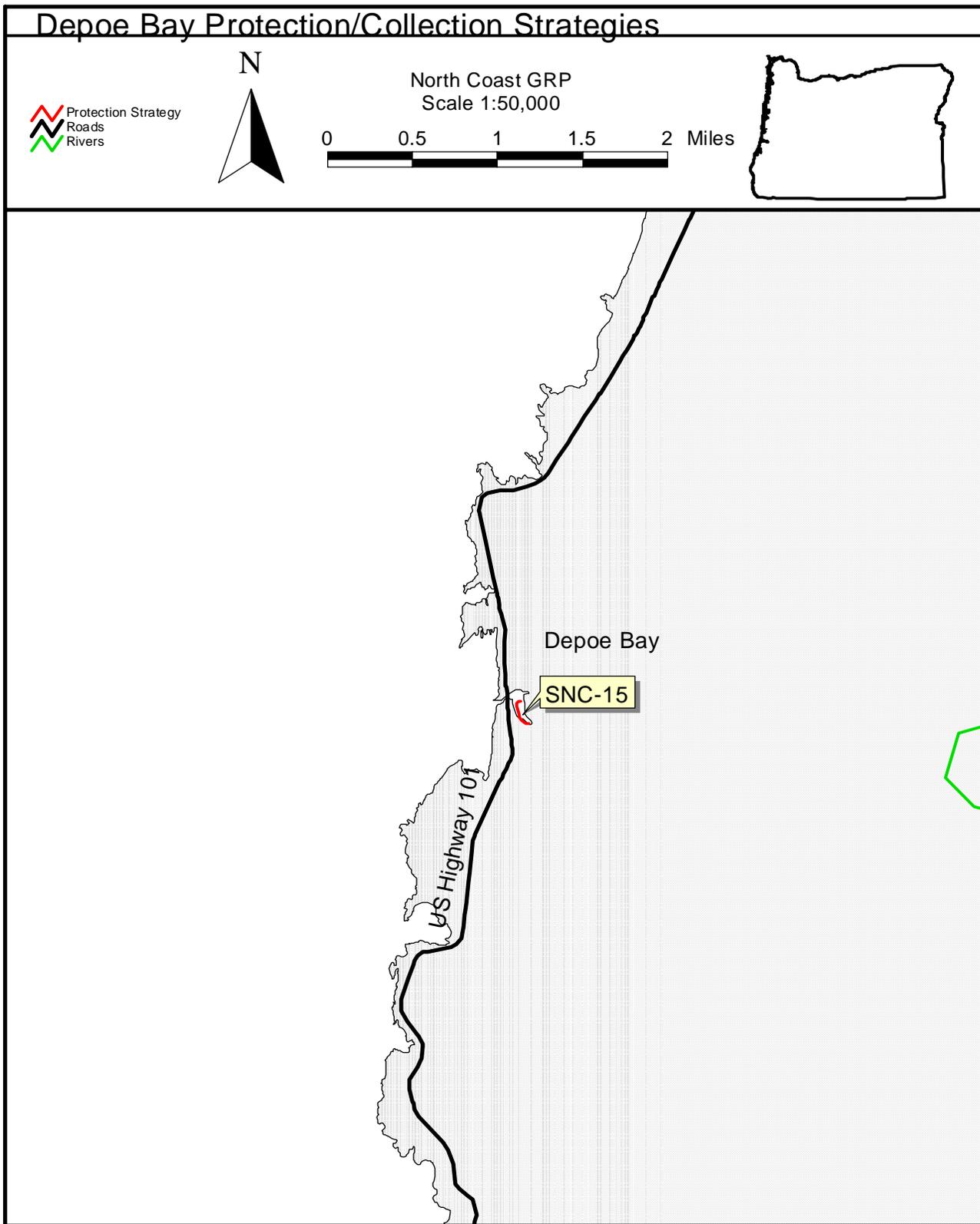


Figure 4-8. Depoe Bay Protection/Collection Strategies

Table 4-9. Newport South Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-16		Thiel Creek Head 44°33'52"N 124°04'07"W	Protection	200'	Boom off Thiel Creek to protect			
SNC-17		Small Creeks located along coast	Protection	varies for each creek depending upon season	Protect creeks from oil entering during high tides. Use expertise of OR State Parks to determine location & flow of creeks @ time of spill			

4.2.9 Newport South

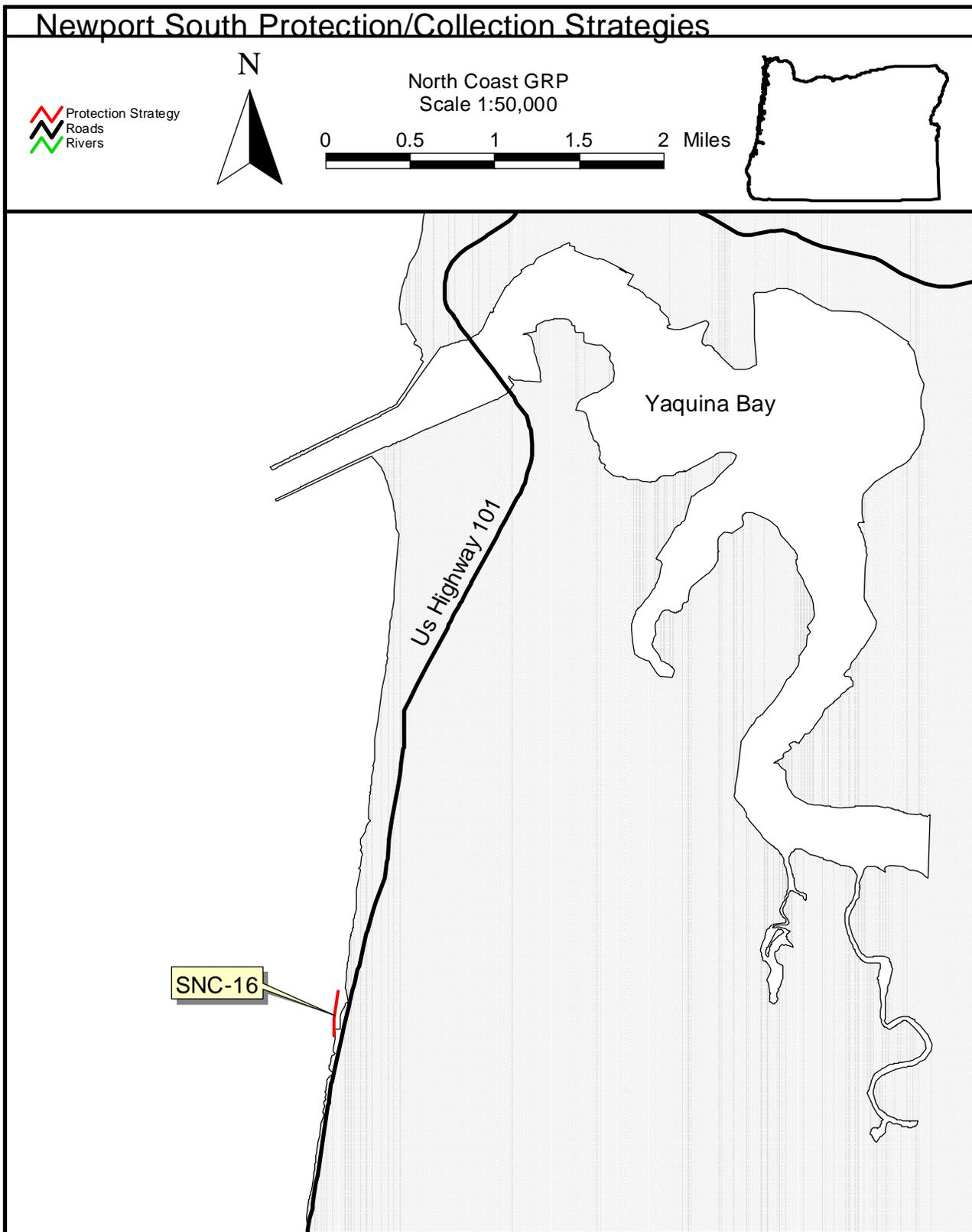


Figure 4-9. Newport South Protection/Collection Strategies

Table 4-10. Ona Beach Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-18	New Carissa 3/99 (1)	Beaver Creek Mouth 44°31'20"N 124°04'18"W	Protection	200' hard	Protect Beaver Creek by booming off entrance; anchor shore to shore	Plenty of road and parking access		
SNC-19	New Carissa 3/99 (2)	Beaver Creek first bridge 44°31'15"N 124°04'08"W	Protection	300'	Boom off Beaver Creek at first bridge to protect	Plenty of road and parking access		
SNC-17		Small Creeks located along coast	Protection	varies for each creek depending upon season	Protect creeks from oil entering during high tides. Use expertise of OR State Parks to determine location & flow of creeks @ time of spill			

Status Notes (reference M/V New Carissa Incident Action Plan, 4 March 1999)

(1) 200 feet at Beaver Creek foot bridge.

(2) 200 feet at highway bridge, Ona Beach State Park.

4.2.10 Ona Beach

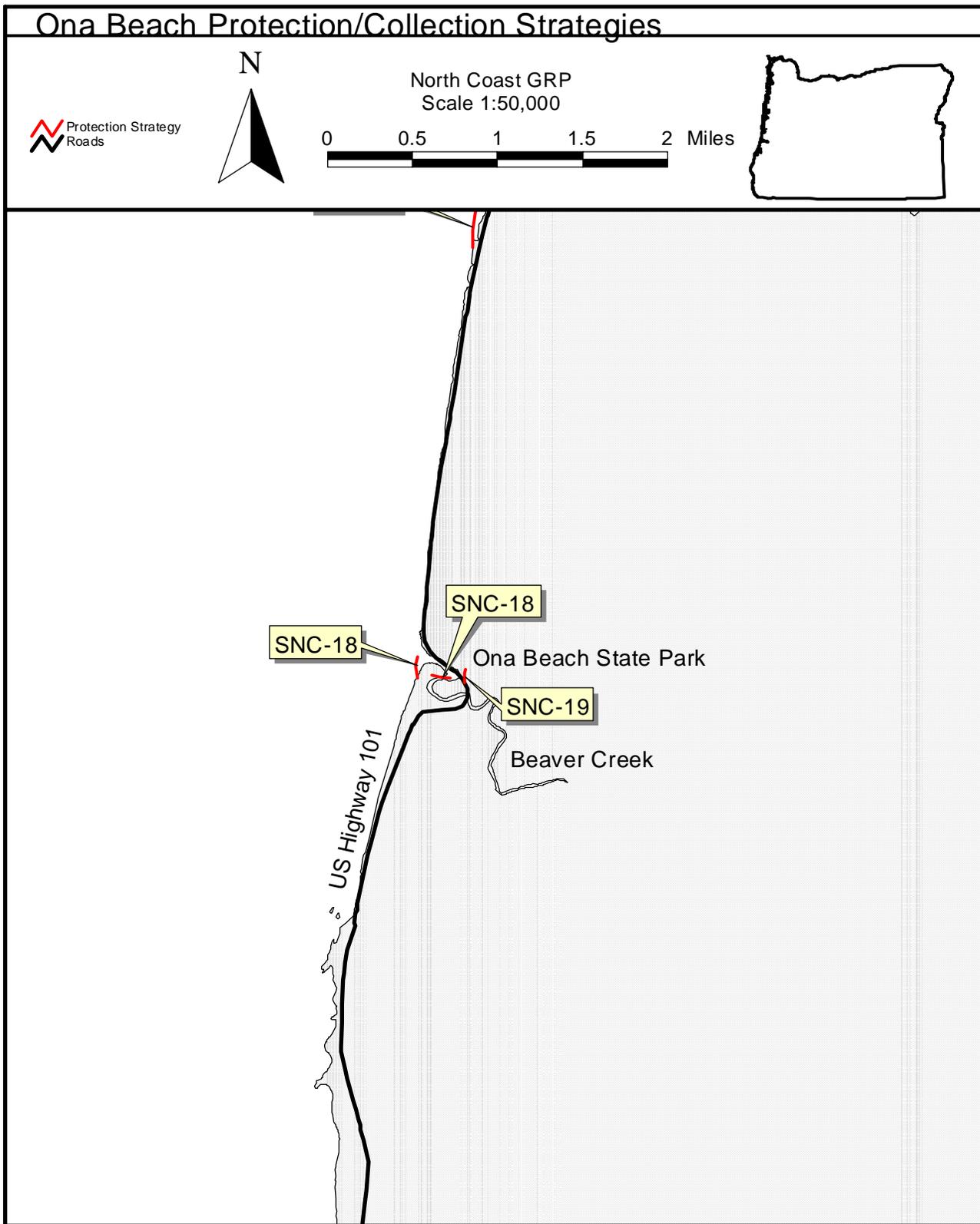


Figure 4-10. Ona Beach Protection/Collection Strategies

Table 4-11. Waldport Protection/Collection Strategies Information

Strategy Number	Status	Location	Response Strategy	Length & Type of Boom	Strategy Implementation	Staging Area	Site Access	Resources Protected (Items marked with * see Flight Restriction Zone)
SNC-20	New Carissa 3/99 (1)	Entrance to Lint Creek 44°26'00"N 124°03'15"W	Protection	100' hard	Boom off creek to protect waterfowl habitat in Lint Slough		Access by water	Waterfowl habitat in Lint Slough
SNC-21	New Carissa 3/99 (2)	North Entrance to Alsea River 44°25'21"N 124°04'31"W	Protection	1200' hard	Use step down booming to protect entrance (bay) to Alsea River. Very dependent upon winds & waves @ time of incident		Access by water	Waterfowl habitat in Lint Slough
SNC-22	New Carissa 3/99 (3)	Waldport Bridge @ Highway 101 44°25'45"N 124°03'59"W	Protection	1500'	Boom across bay at bridge to protect entire bay; definitely requires field verification.		Good access by water and road	
SNC-23	New Carissa 3/99 (4)	Eckmann Lake Bridge 44°24'59"N 124°01'55"W	Protection	1200'	Boom in Spring to protect wetland		Access by road and bridge	
SNC-24	New Cariss 3/99 (5)	Entrance to marina 44°25'51"N 124°04'42"W	Protection	200'	Boom to protect.		Good access by water and road	High value wetland

Status Notes (reference M/V New Carissa Incident Action Plan (IAP), 4 March 1999)

- (1) 300 feet across entrance.
- (2) Not attempted. Snare placed on south seawall (IAP, 6 March 1999).
- (3) 500 feet on the west side of the north end of the bridge.
- (4) 1100 feet across entrance
- (5) 200 feet across entrance.

Note: McKinney Slough - 400 feet placed across the entrance plus snare at highway bridge and along the shoreline.

4.2.11 Waldport

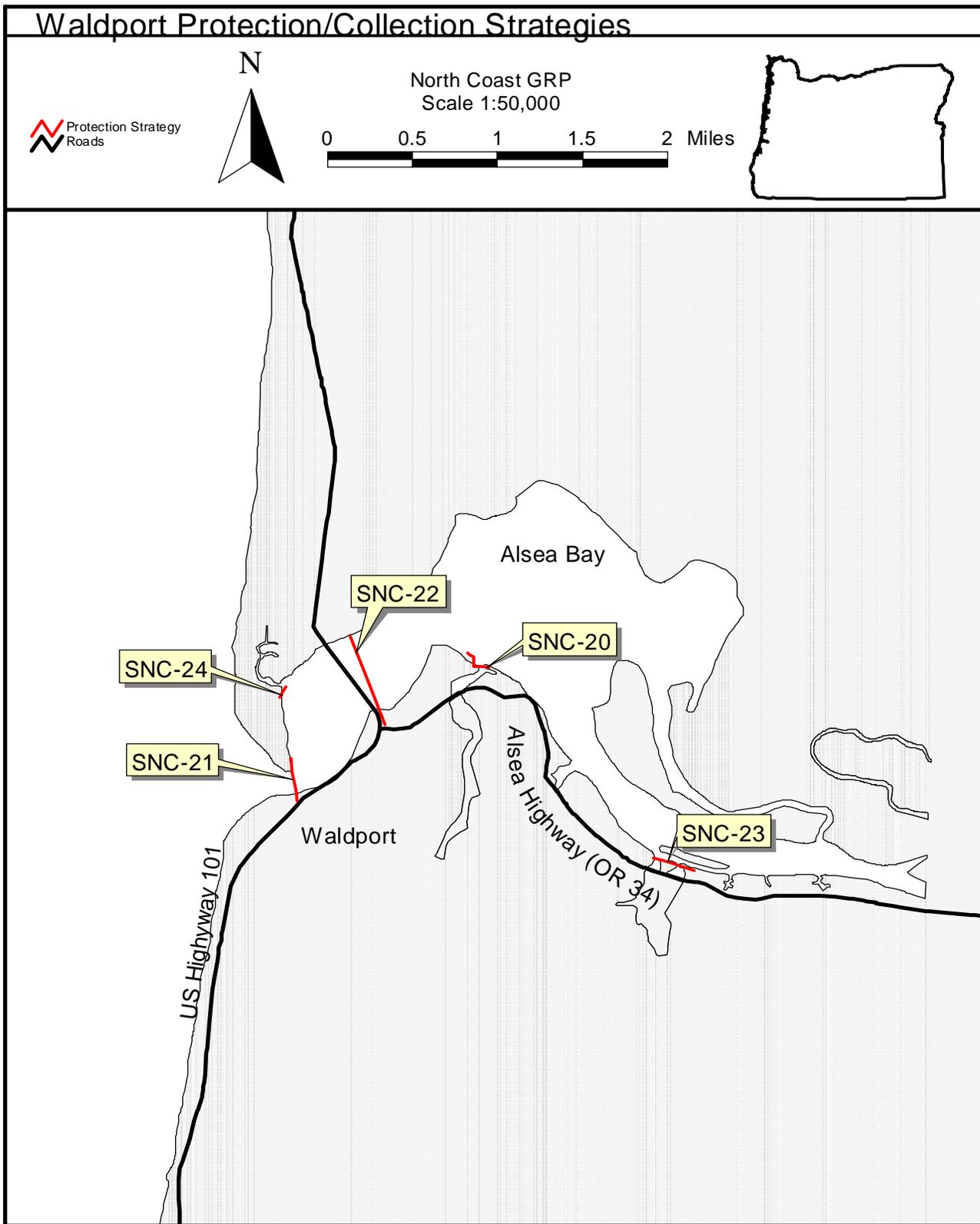


Figure 4-11. Waldport Protection/Collection Strategies

4.3 Protection/Collection Priorities for North Coast Scenarios

The Protection/Collection Priority table for scenarios 1 and 2 give a detailed list of the priorities for each scenario: oil spilled at the entrance to Depoe Bay - Incoming tide, and oil moving toward Siletz Bay - incoming tide.

Procedures:

Identify the appropriate scenario based on the available information, select the priority, identify the strategy and go to the appropriate table.

**Table 4-1. Oil spilled at the entrance to Depoe Bay, Incoming tide.
(Scenario 1)**

Priority	Strategy	Comments
1	SNC-15	

Refer to Table 4-8 and Figure 4-8 for exact location of strategy.

**Table 4-2. Oil moving toward Siletz Bay, Incoming tide.
(Scenario 2)**

Priority	Strategy	Comments
1	SNC-12	
2	SNC-13	
3	SNC-14	

Refer to Table 4-7 and Figure 4-7 for exact locations of strategies.

5. Shoreline Countermeasures

5.1 Chapter Overview

The following text and maps are in draft form, and are intended to serve as a training tool for countermeasure contingency planning and implementation for shoreline areas in Federal Region X. Shoreline countermeasure processes evolve to reflect increasingly efficient treatment techniques. Accordingly, the following information will be altered as new information is added.

5.2 Shoreline Type Maps

The shoreline types in the following maps are a modified version of the environmental sensitivity index types for the Oregon coast and estuaries. The shoreline types were regrouped into five levels of sensitivity from the original ten shoreline types. The modified types are:

1. Open water, banks, or cliffs
2. Sand or gravel beaches
3. Riprap, sandy flats, or organic debris
4. Vegetated banks or tidal mud flats/aquatic beds
5. Marsh, swamp, or rocky intertidal

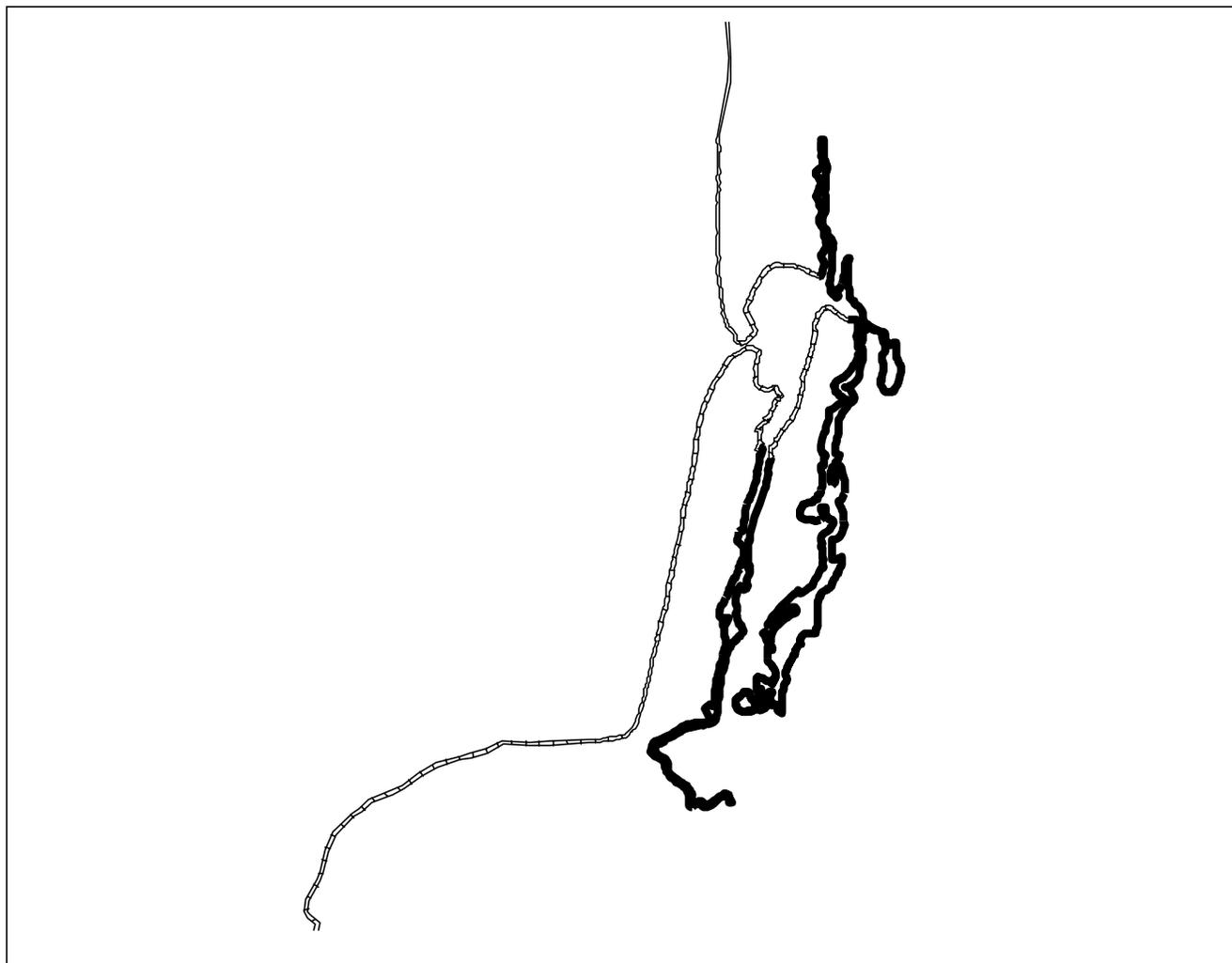
5.3 Oil Countermeasure Matrix:

The Northwest Area Committee has developed a manual and a series of matrices as a tool for shoreline countermeasure response. The shoreline countermeasures matrices and manual will be included as a technical appendix to the Northwest Area Contingency Plan.

Shoreline countermeasures following an oil spill are a critical element in determining the ultimate environmental impact and cost resulting from a spill. Local response organizations and agencies have developed mechanisms for identifying shorelines requiring treatment, establishing treatment priorities, monitoring the effectiveness and impacts of treatment, and for resolving problems as the treatment progresses.

Each section of the manual has been adapted to the specific environments, priorities, and treatment methods appropriate to the planning area. The elements provide the information needed to select cleanup methods for specific combinations of shoreline and oil types. Local information on shoreline types (discussed in Chapter 2) can be obtained from Environmental Sensitivity Index (ESI) atlases prepared by NOAA for northern and southern Puget Sound, the Washington & Oregon coast, and the Columbia River.

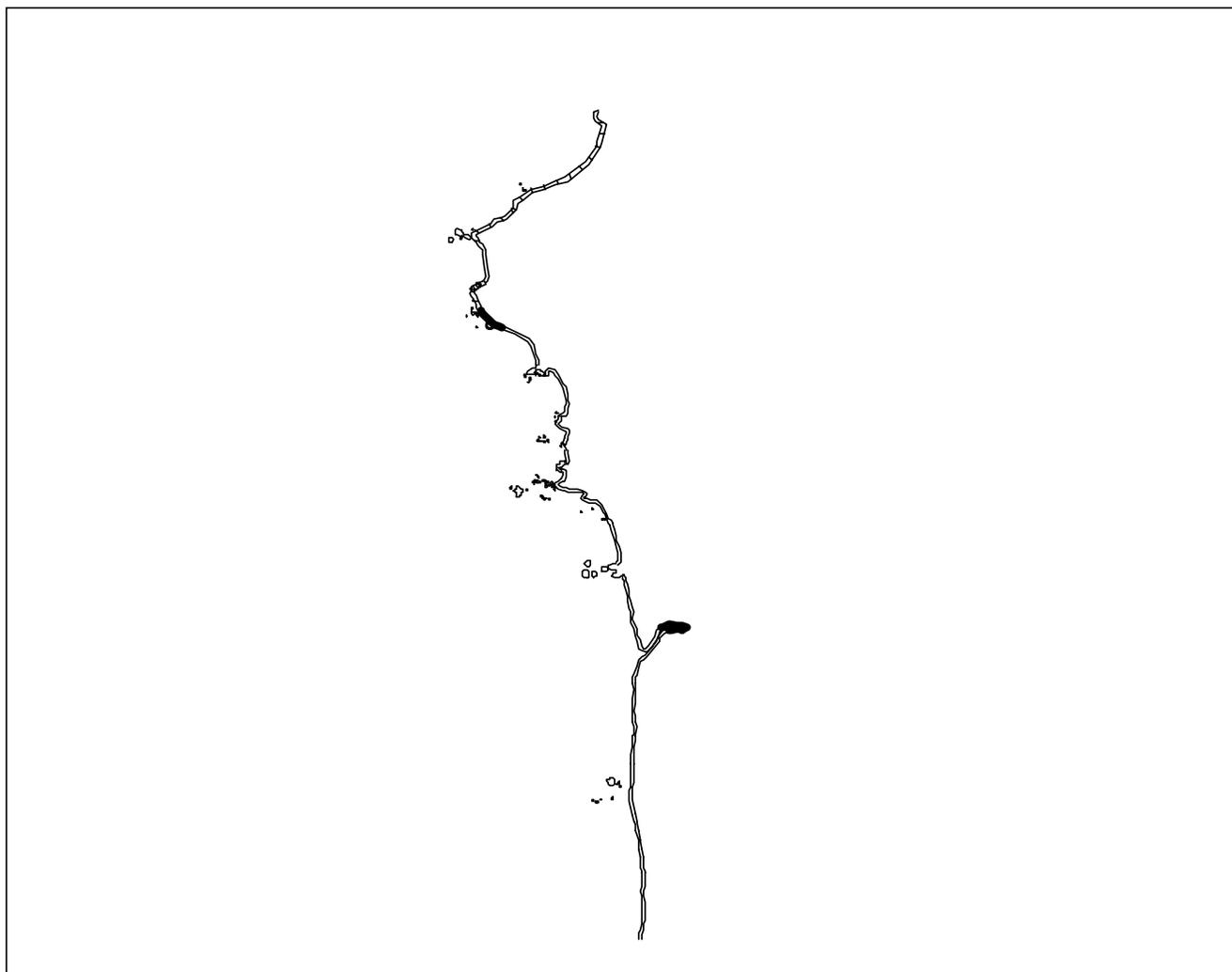
Seaside



- Shoreline Type
-  Open water, banks, or cliffs
 -  Sand or gravel beaches
 -  Riprap, sandy flats, or organic debris
 -  Vegetated banks or tidal mud flats/aquatic beds
 -  Marsh, swamp, or rocky intertidal

Figure 5-1. Seaside Shoreline Types

Cannon Beach



Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-2. Cannon Beach Shoreline Types

Nehalem Bay

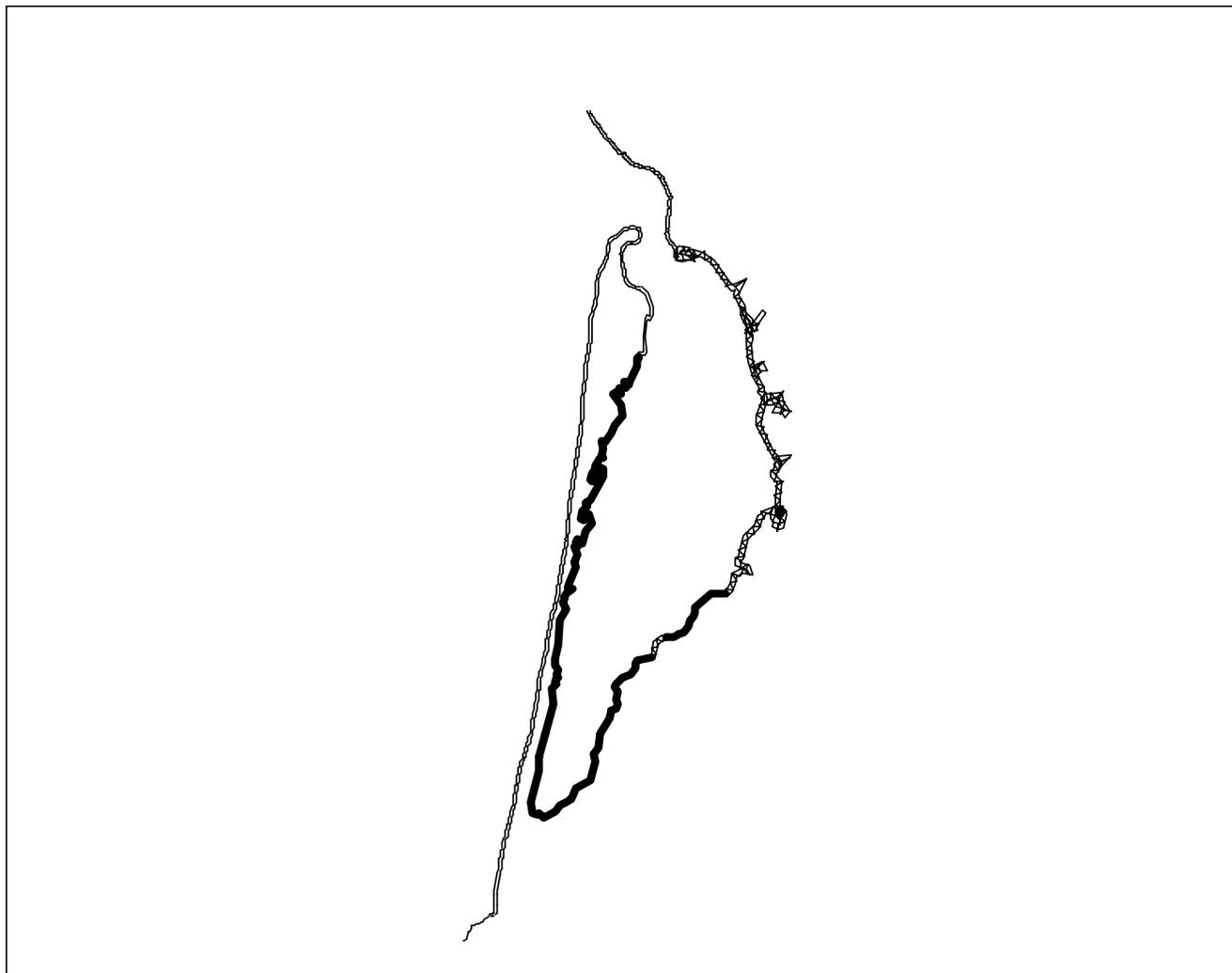


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-3. Nehalem Bay Shoreline Types

Netarts Bay

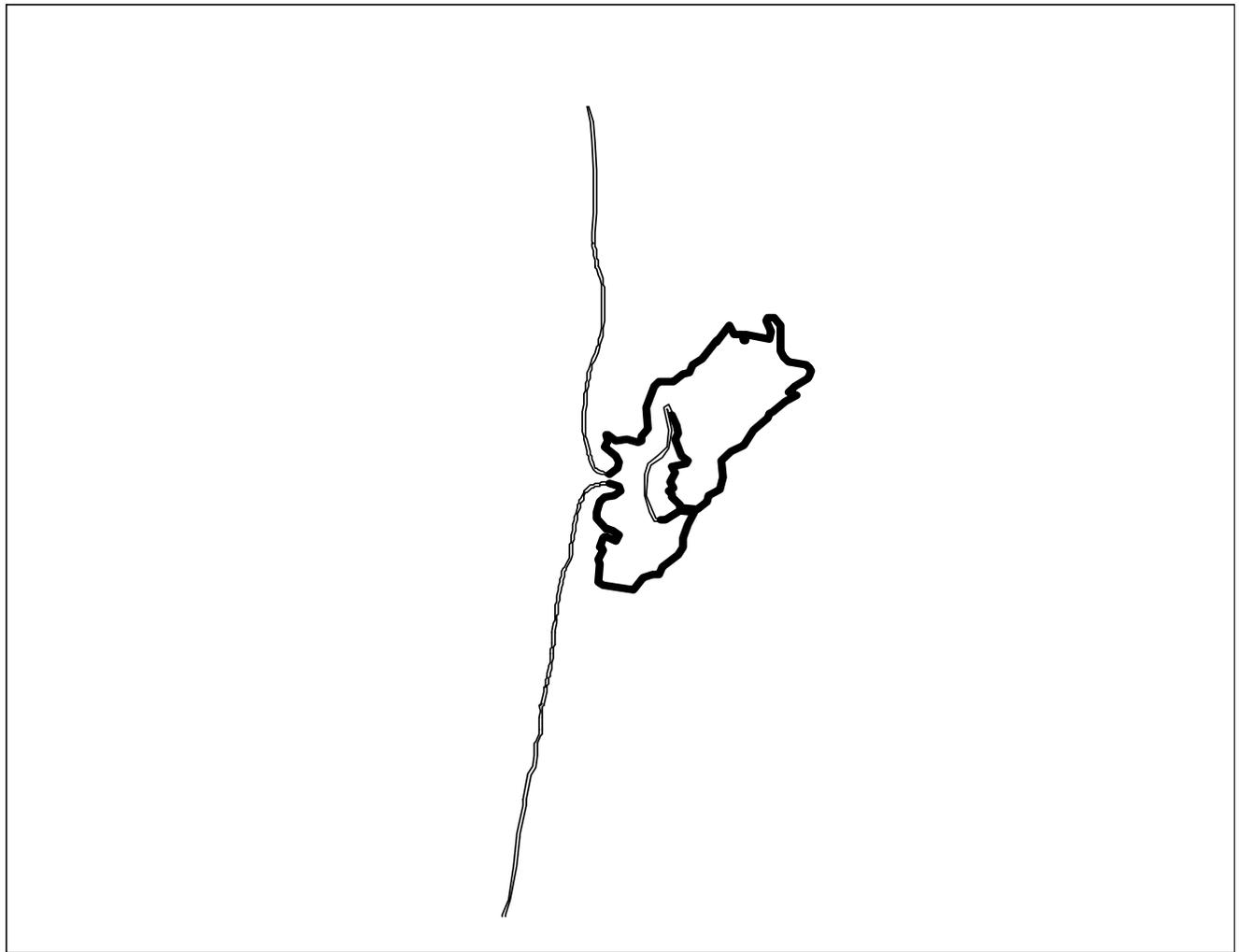


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-4. Netarts Bay Shoreline Types

Sand Lake

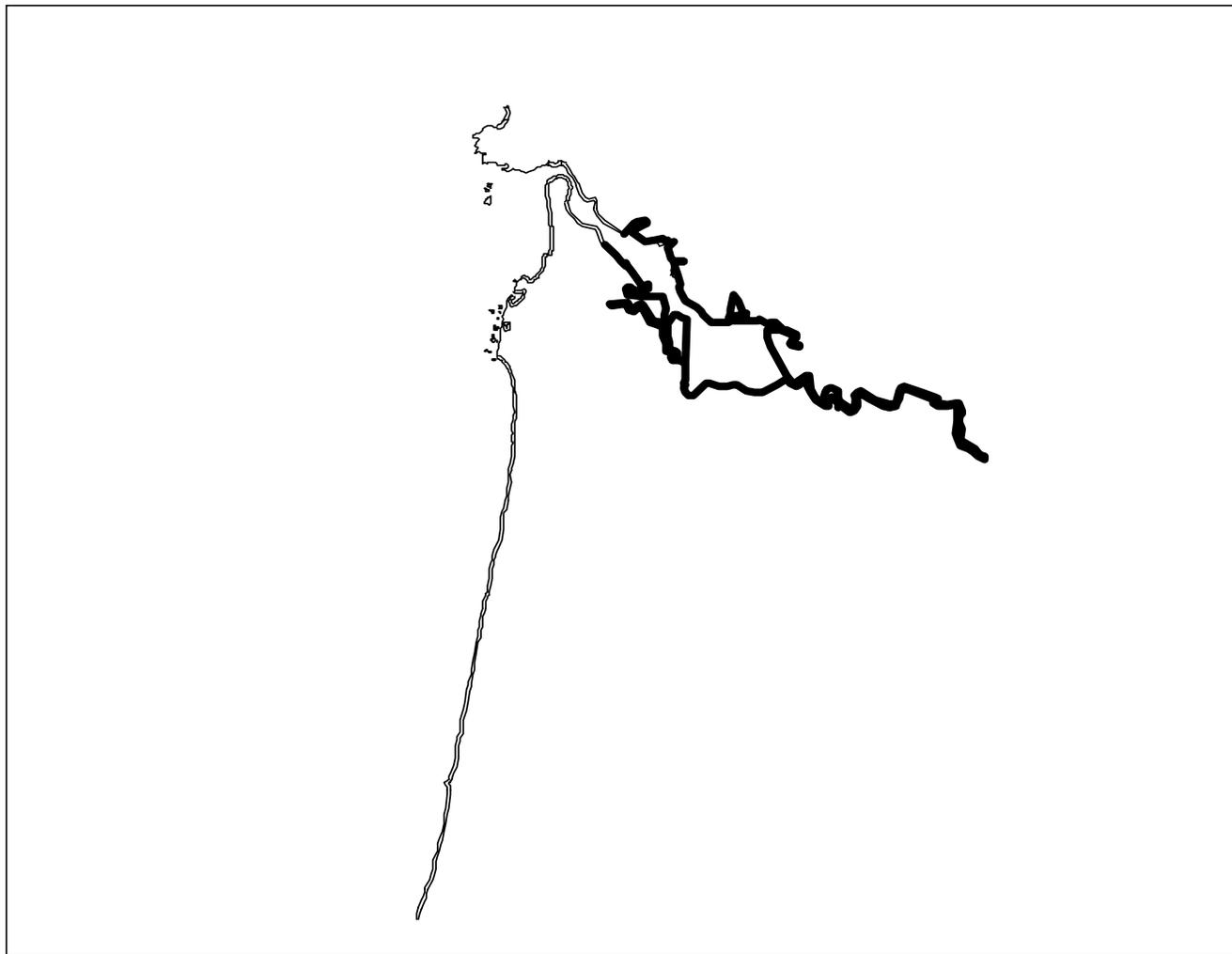


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-5. Sand Lake Shoreline Types

Lincoln City



Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-6. Lincoln City Shoreline Types

Siletz Bay

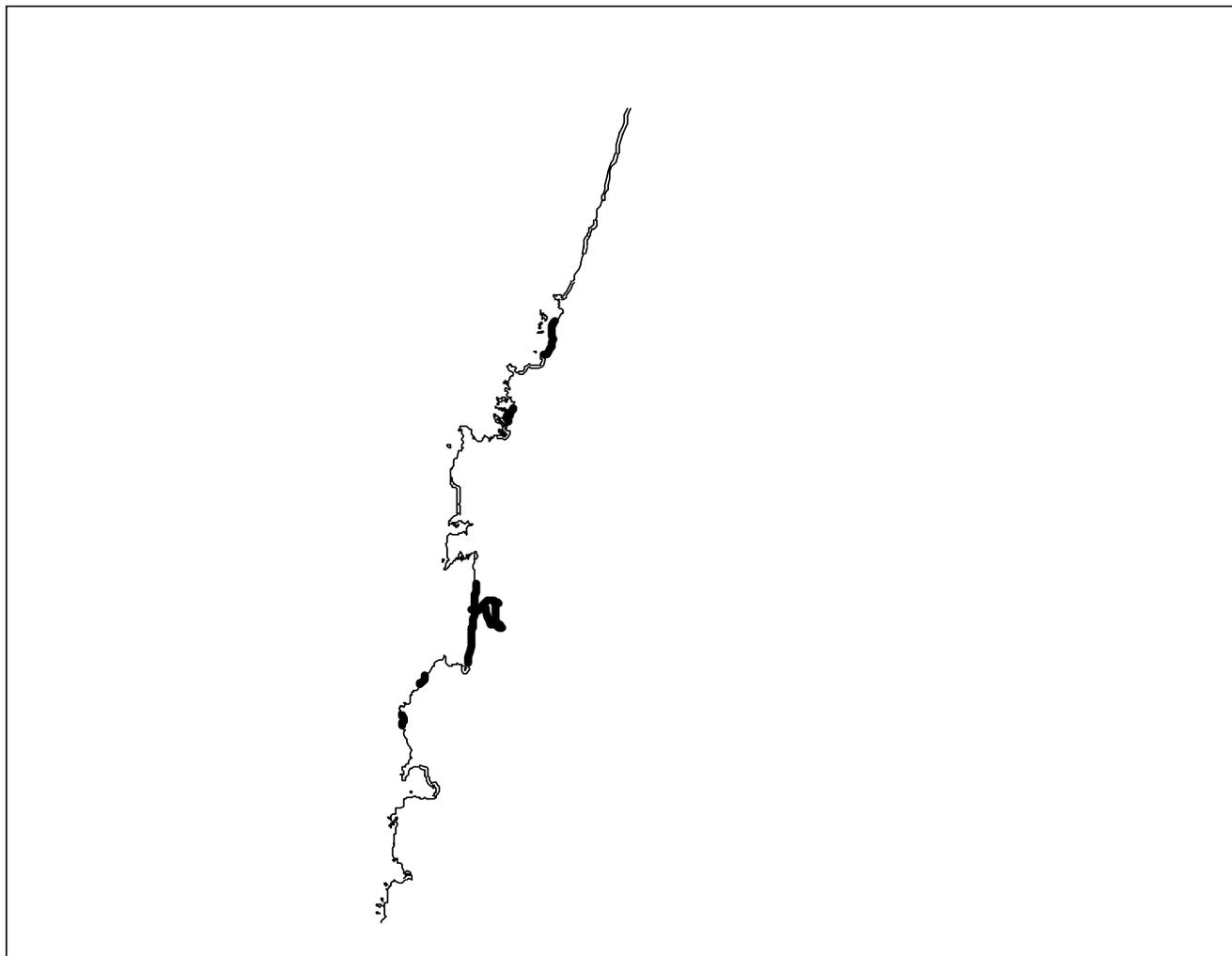


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-7. Siletz Bay Shoreline Types

Depoe Bay

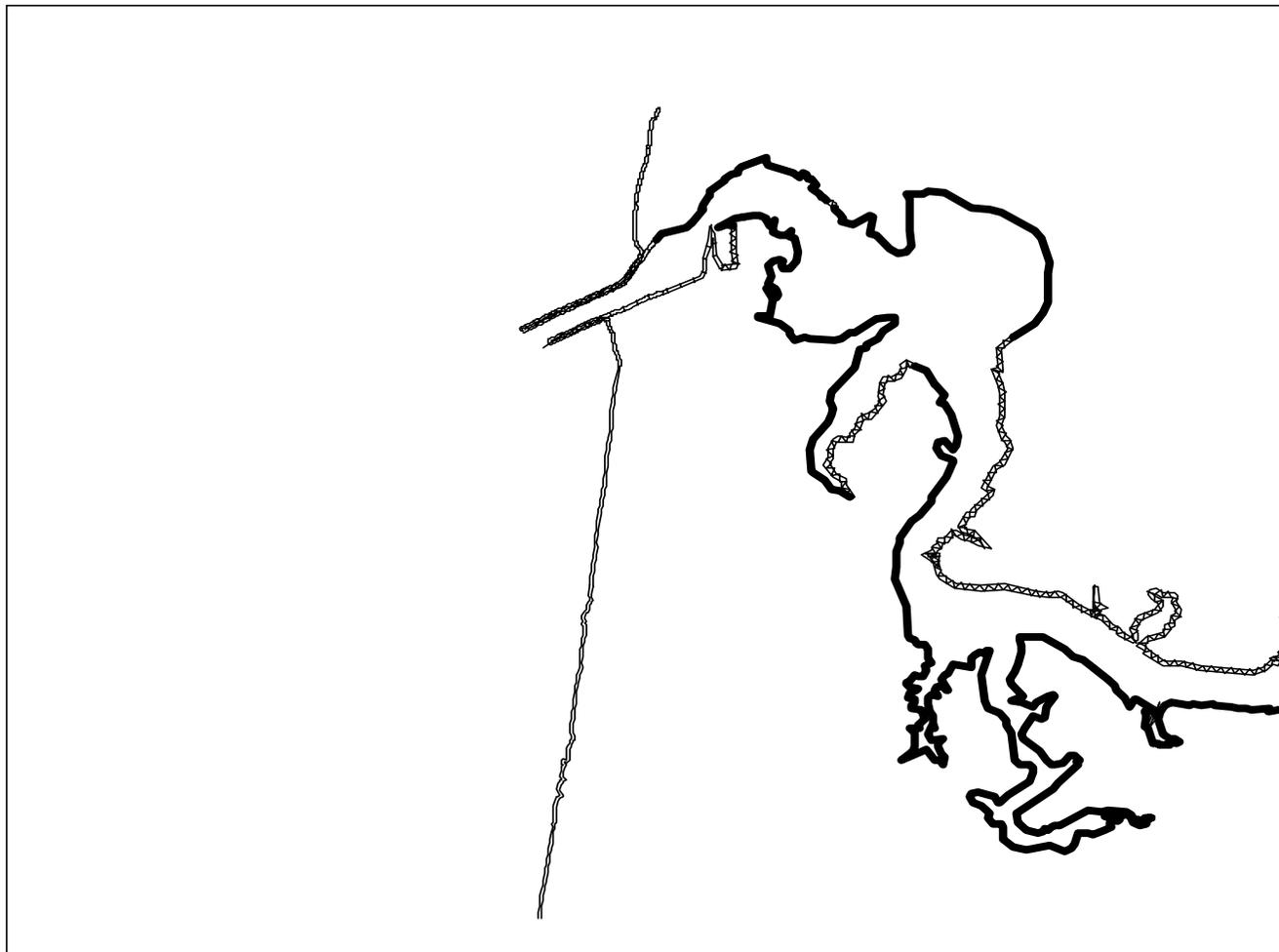


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-8. Depoe Bay Shoreline Types

Newport South

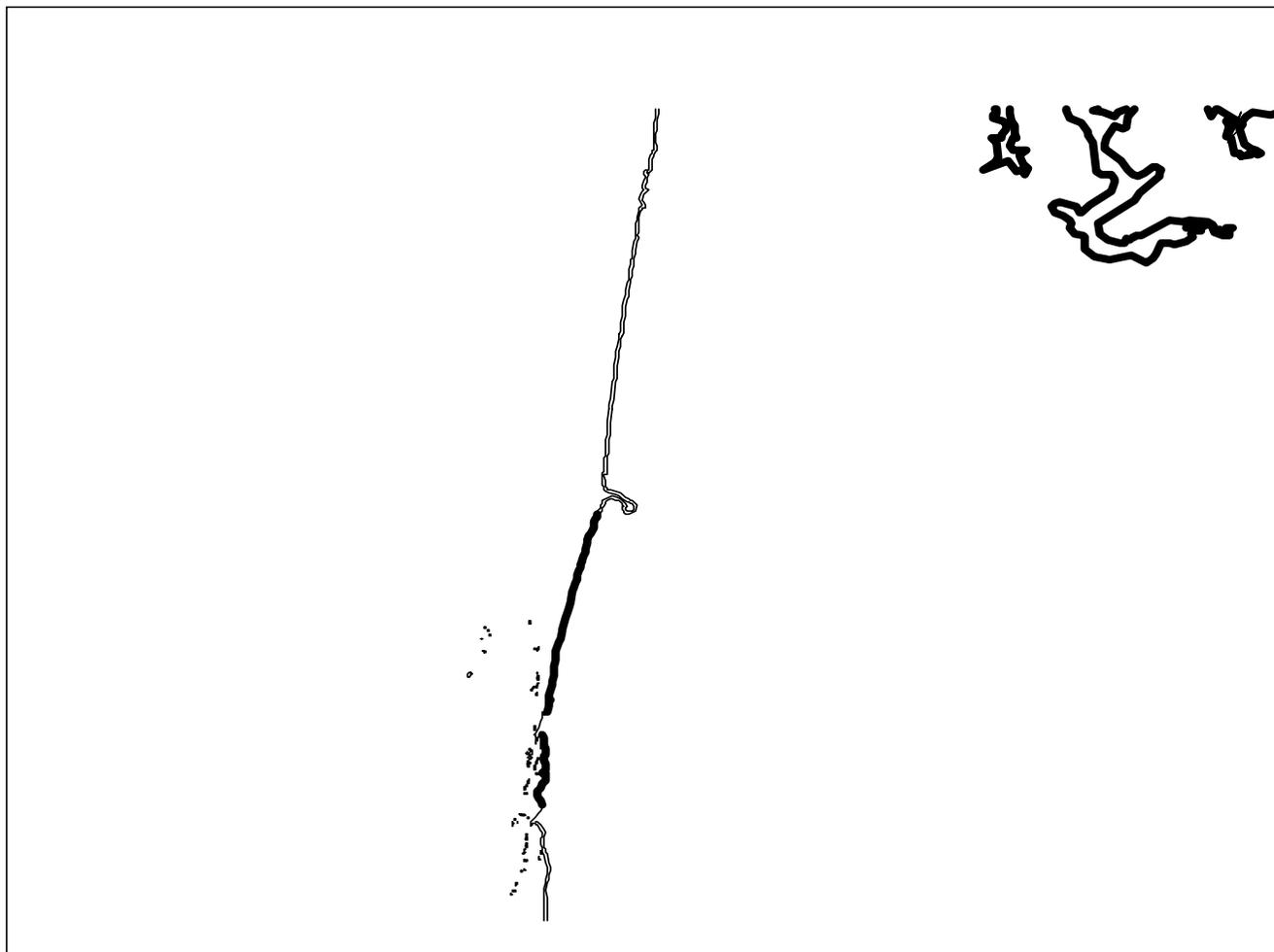


Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-9. Newport South Shoreline Types

Ona Beach



Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-10. Ona Beach Shoreline Types

Waldport



Shoreline Type

-  Open water, banks, or cliffs
-  Sand or gravel beaches
-  Riprap, sandy flats, or organic debris
-  Vegetated banks or tidal mud flats/aquatic beds
-  Marsh, swamp, or rocky intertidal

Figure 5-11. Waldport Shoreline Types

6. Wildlife Resource/Flight Restriction Information

Text provided by Oregon Department of Fish and Wildlife.

6.1 Chapter Overview

The northern Oregon coast is home to a diverse wildlife fauna including pinnipeds, seabirds, raptors, waterfowl, and shorebirds. Most of the outstanding natural areas (spits and headlands) along the coast are managed by Oregon State Parks and a few nearshore islands are managed by the United States Fish and Wildlife Service as refuges. For more site specific information, refer to the Wildlife Resource/Flight Restriction tables and figures.

6.2 Fisheries

Primarily saltmarshes and eelgrass beds as they are used for feeding by juvenile salmonids.

6.3 Wildlife

- Seabirds are common in estuaries and on ocean beaches throughout the year, and nest heavily on nearshore islands and rocks during the spring and summer.
- Raptors use the estuaries year round, and selected coastal headlands for nesting during the spring and summer.
- Waterfowl are confined primarily to estuaries during the fall, winter, and spring.
- Shorebirds are present along estuary and ocean shorelines year round.
- See the Wildlife Resource/Flight Restriction tables and figures.

6.4 Marine Mammals

Disturbance to marine mammals during oil spill response actions should be avoided at all times. Harassment of mammals by aircraft, boat and land activities causes animals to become agitated and engage in abnormal “avoidance” behaviors that are likely to increase the risk of exposure to oil contaminated areas. Of particular importance is to avoid disturbance of pinnipeds (seals and sea lions) on land haul-out areas. The more time these animals are allowed to rest on land, out of the water, the less chance for oil contamination.

Over-flights of all shoreline and nearshore island areas should be avoided as the majority of these areas are used as on-land resting areas by seals and sea lions.

6.5 Shorebirds, Waterfowl, and Raptors

- Shorebirds occur on ocean and estuary beaches year round, but are most prevalent during the spring and fall months. Low flights directly over beaches for extended periods should be avoided.
- Waterfowl occupy estuaries during the fall, spring, and especially winter months. Rafts of birds can easily be spotted from aircraft, and low flights directly over rafts of waterfowl should be avoided.
- Eagles reside in estuaries and coastal headland areas where large conifers are present. During the spring and summer, eagles are nesting and are very sensitive to nearby disturbances. During winter, birds are roosting in larger trees along estuaries.
- Peregrine falcons are nesting during spring and summer along cliffs of ocean headland areas.

6.6 Archeological Sites

Geographic Site Locations

General Resources:

Seasonal Sensitivity:

Recommendations:

6.7 Wildlife Maps

Wildlife Resource/Flight Restriction zones are designed to protect shorebirds and marine mammals from aerial disturbances common during a spill response.

6.8 Wildlife Resource/Flight Restriction Tables

The Wildlife Resource/Flight Restriction Tables details the location, protected resources, and applicable season for each flight restriction zone.

6.9 Aquaculture

Aquaculture is an important economic resource, which can be severely impacted by an oil spill. Because of the extreme sensitivity of these resources, owners and operators of these facilities should be notified if a spill threatens their resources so that they can take appropriate protective action. The following table lists aquaculture facilities within the area of the North Oregon Coast GRP.

Facility	Address	Point of Contact	Phone Number	Type
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Contact the Oregon Department of Agriculture Duty Officer through the Oregon Emergency Response System, (800) 452-0311, for current aquaculture facility information.

6.10 Wildlife Maps

Table 6-1 Wildlife Resource/Flight Restriction Table

A list of wildlife resources and any corresponding flight restriction zones is found below. Flight restriction zones are designed to protect shorebirds and marine mammals from aerial and terrestrial disturbances common during a spill response.

Code	Location	Seabird Colony	Seabird Conc.	Waterfowl Conc.	Mammal Haulout	Sensitive Nesting Species	Shorebird Conc.	Seasonality of Resource												Flight Restriction
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
W-1	Nehalem Bay			Yes				■	■							■	■	■		
W-2	Netarts Bay			Yes				■	■							■	■	■		
W-3	Alsea Bay			Yes																
W-4	Nehalem Bay				Seals			■	■	■	■	■	■	■	■	■	■	■	■	
W-5	Netarts Bay				Seals			■	■	■	■	■	■	■	■	■	■	■	■	
W-6	Siletz Bay				Seals			■	■	■	■	■	■	■	■	■	■	■	■	
W-7	Alsea Bay				Seals			■	■	■	■	■	■	■	■	■	■	■	■	
W-8	Seaside					Yes			■	■	■	■	■							
W-9	Cape Meares					Yes		■	■	■	■	■	■	■						
W-10	Netarts Bay					Yes			■	■	■	■	■							
W-11	Lincoln City					Yes														
W-12	Sand Lake					Yes		■	■	■	■	■	■							
W-13	Nehalem Bay						Yes				■	■	■	■						
W-14	Tillamook Bay						Yes				■	■	■	■						
W-15	Netarts Bay						Yes				■	■	■	■						
W-16	Sand Lake						Yes				■	■	■	■						

■ Months that resource is present in this location

All zones include a 1200 foot flight restriction and a 1000-1500 foot ground access restriction. Contact the state Department of Fish and Wildlife before entering restriction zones.

North Oregon Coast Seaside Wildlife



Figure 6-1. Seaside Wildlife

North Oregon Coast Nehalem Bay Wildlife

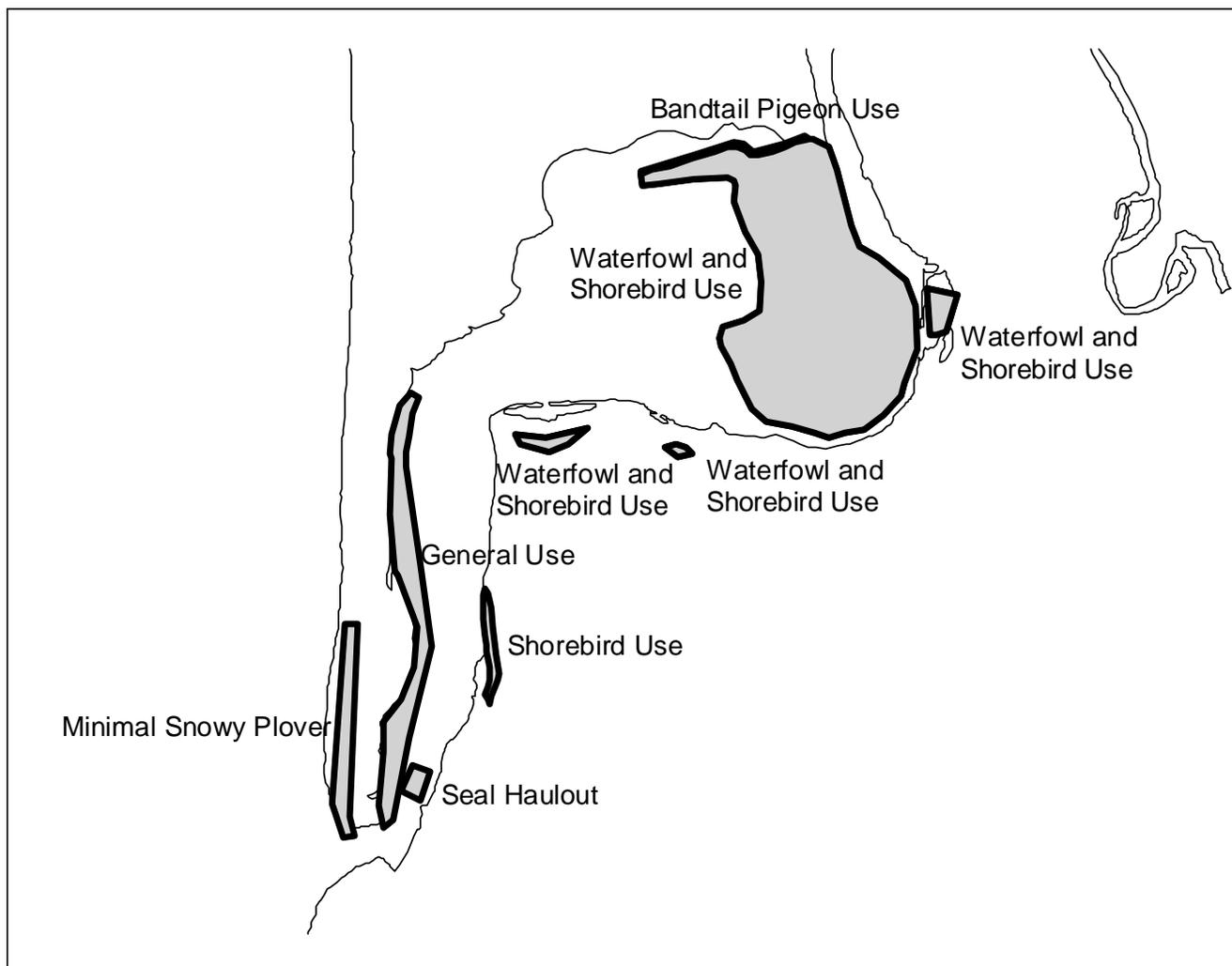


Figure 6-2. Nehalem Bay Wildlife

North Oregon Coast Bayocean Peninsula Wildlife

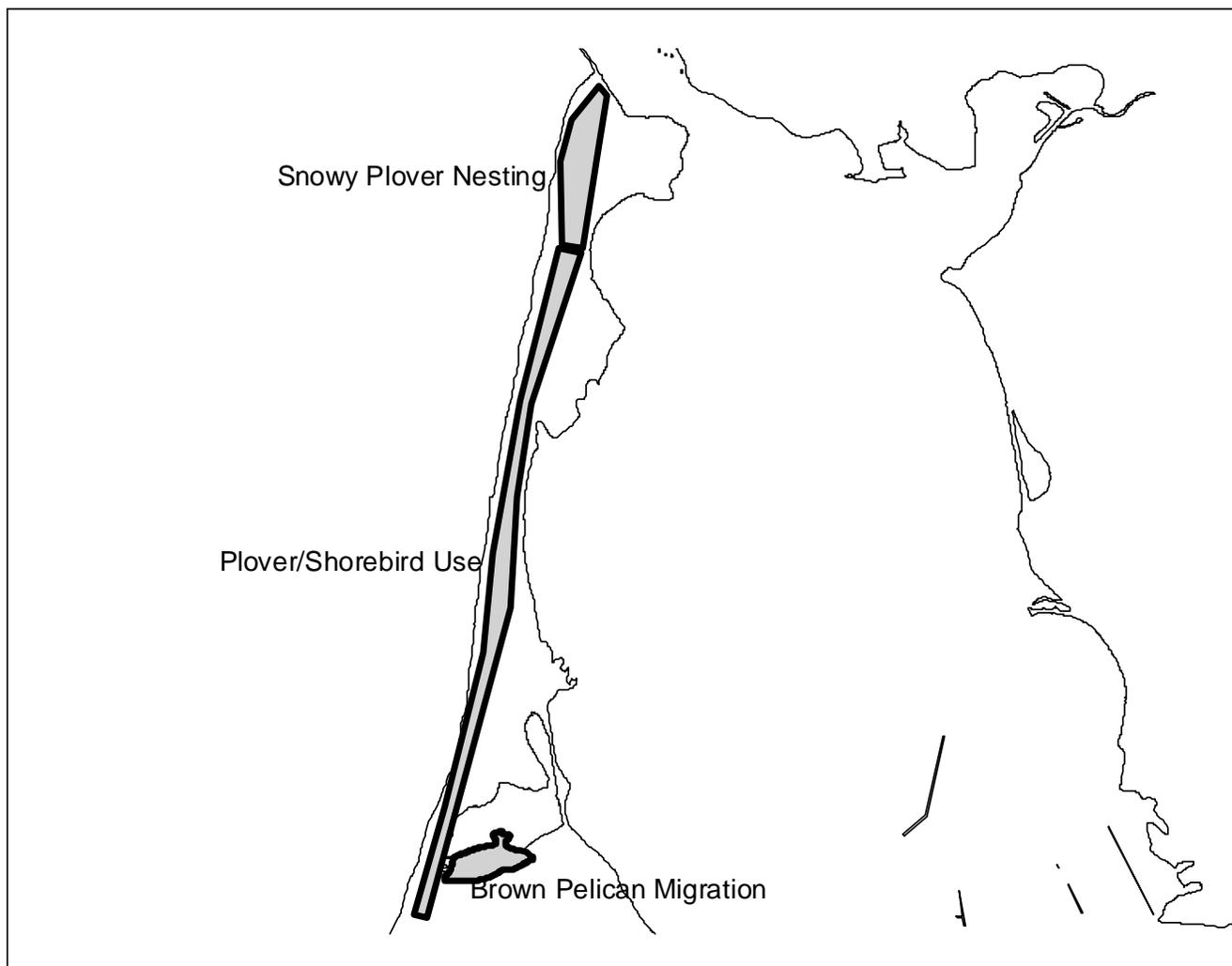


Figure 6-3. Bayocean Peninsula Wildlife

North Oregon Coast Cape Meares Wildlife

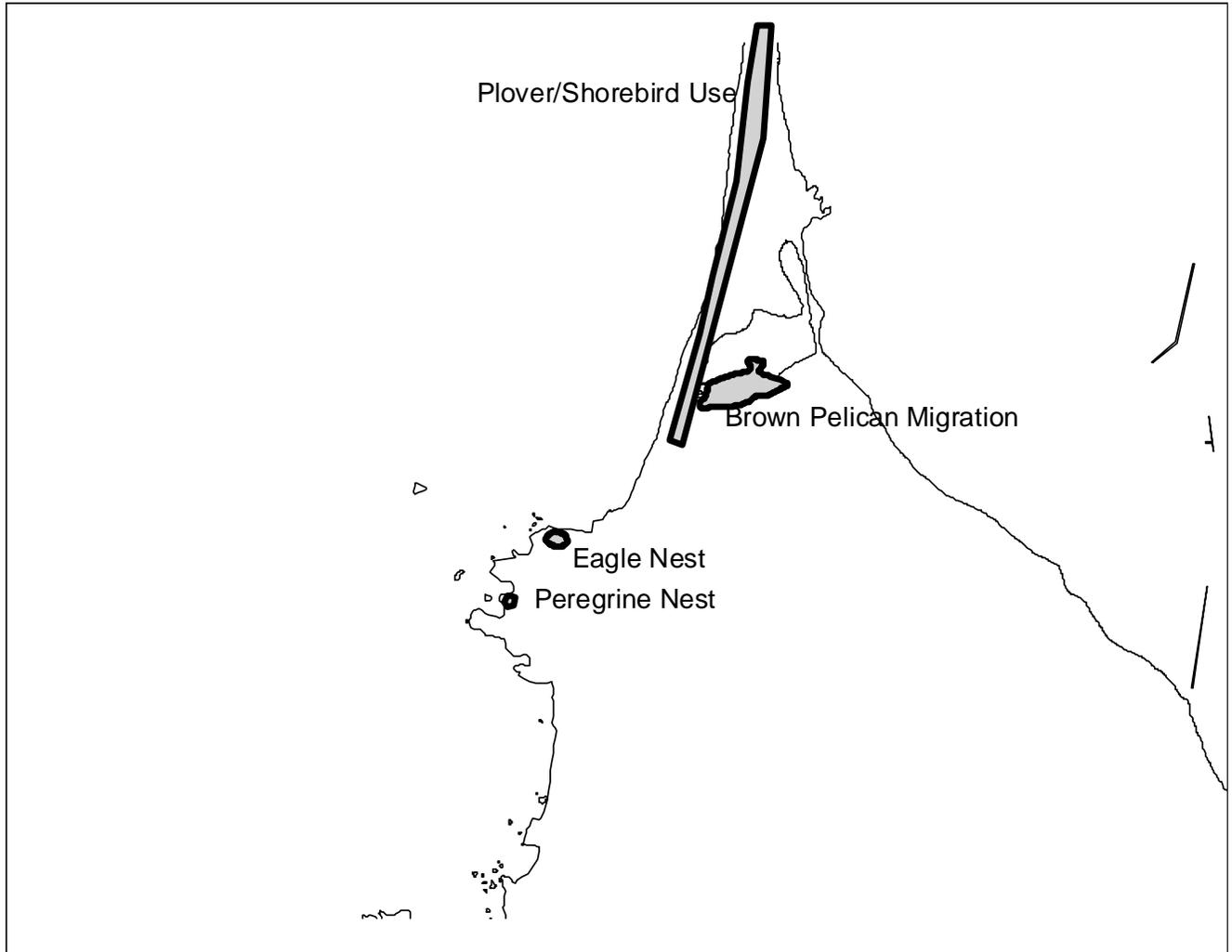


Figure 6-4. Cape Meares Wildlife

North Oregon Coast Netarts Bay Wildlife

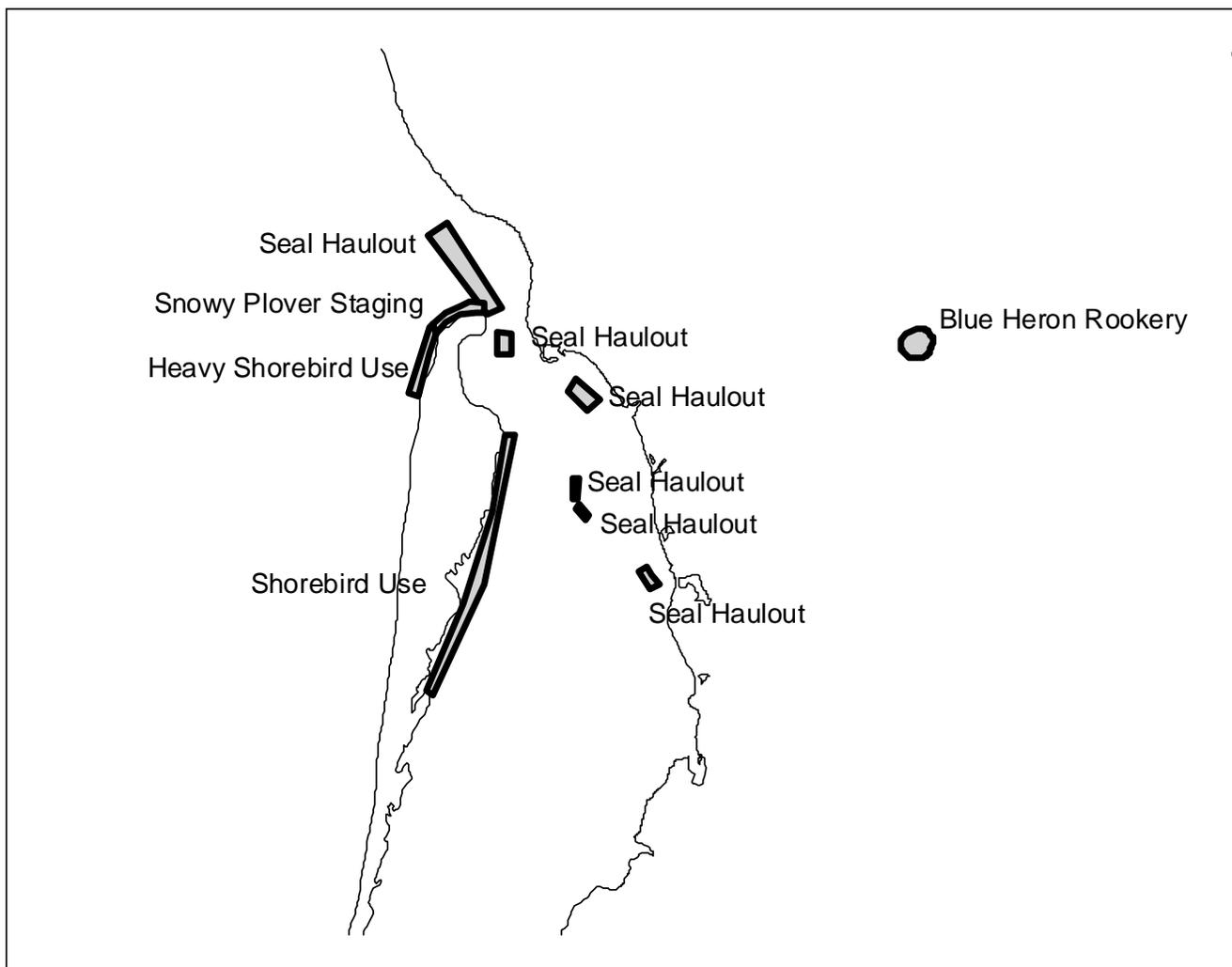


Figure 6-5. Netarts Bay Wildlife

North Oregon Coast Netarts Bay Wildlife

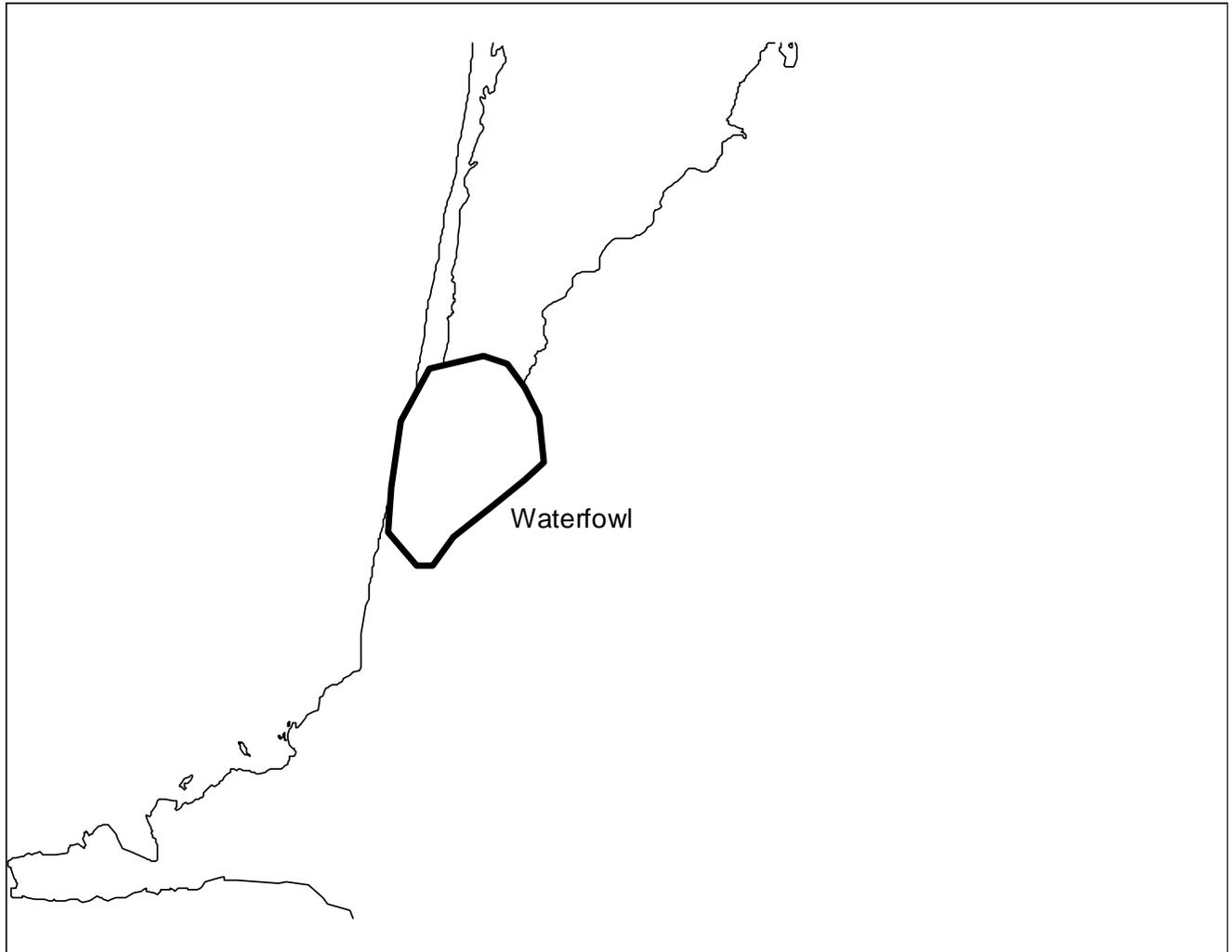


Figure 6-6. Upper Netarts Bay Wildlife

North Oregon Coast Sand Lake Wildlife

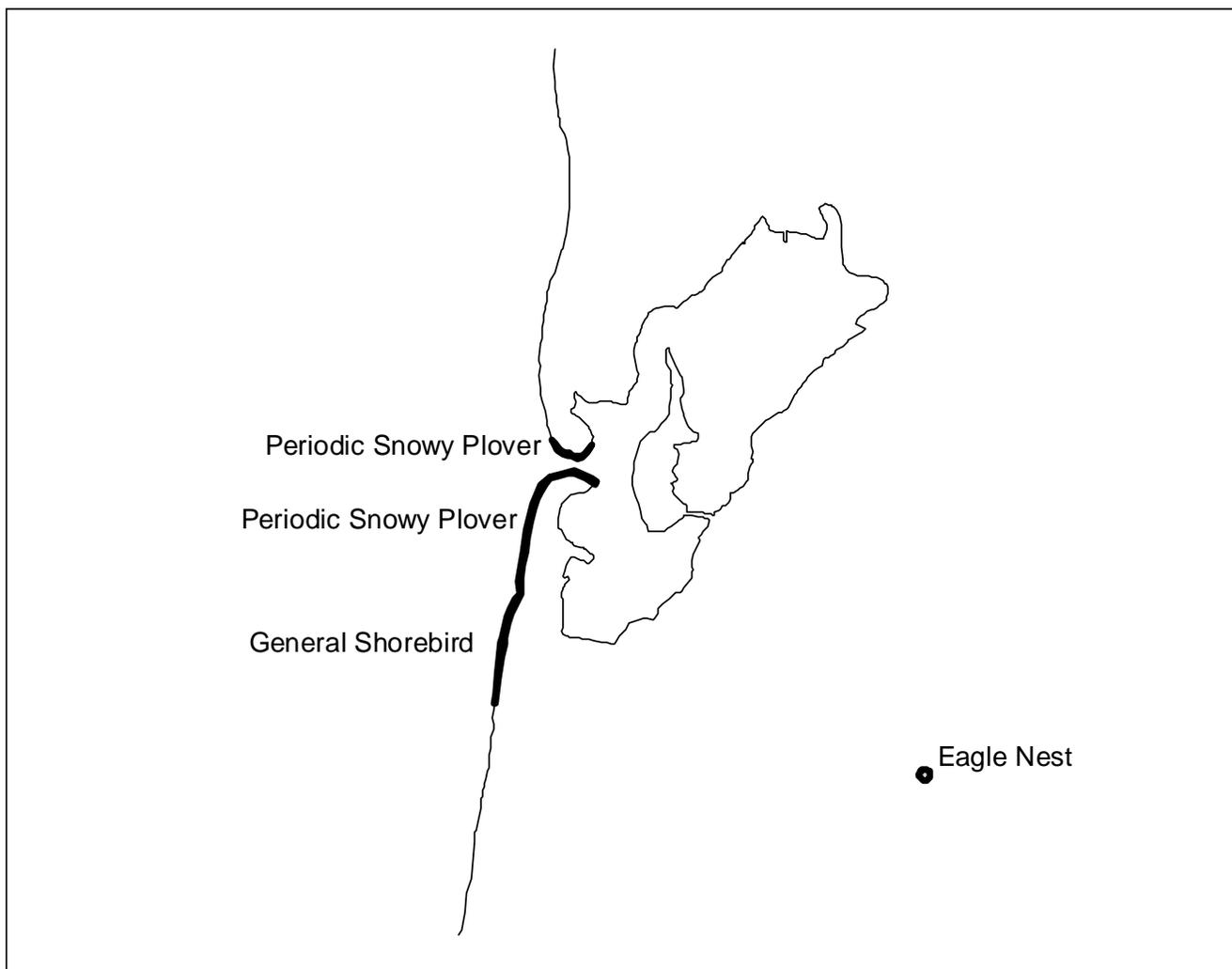


Figure 6-7. Sand Lake Wildlife

North Oregon Coast Lincoln City Wildlife

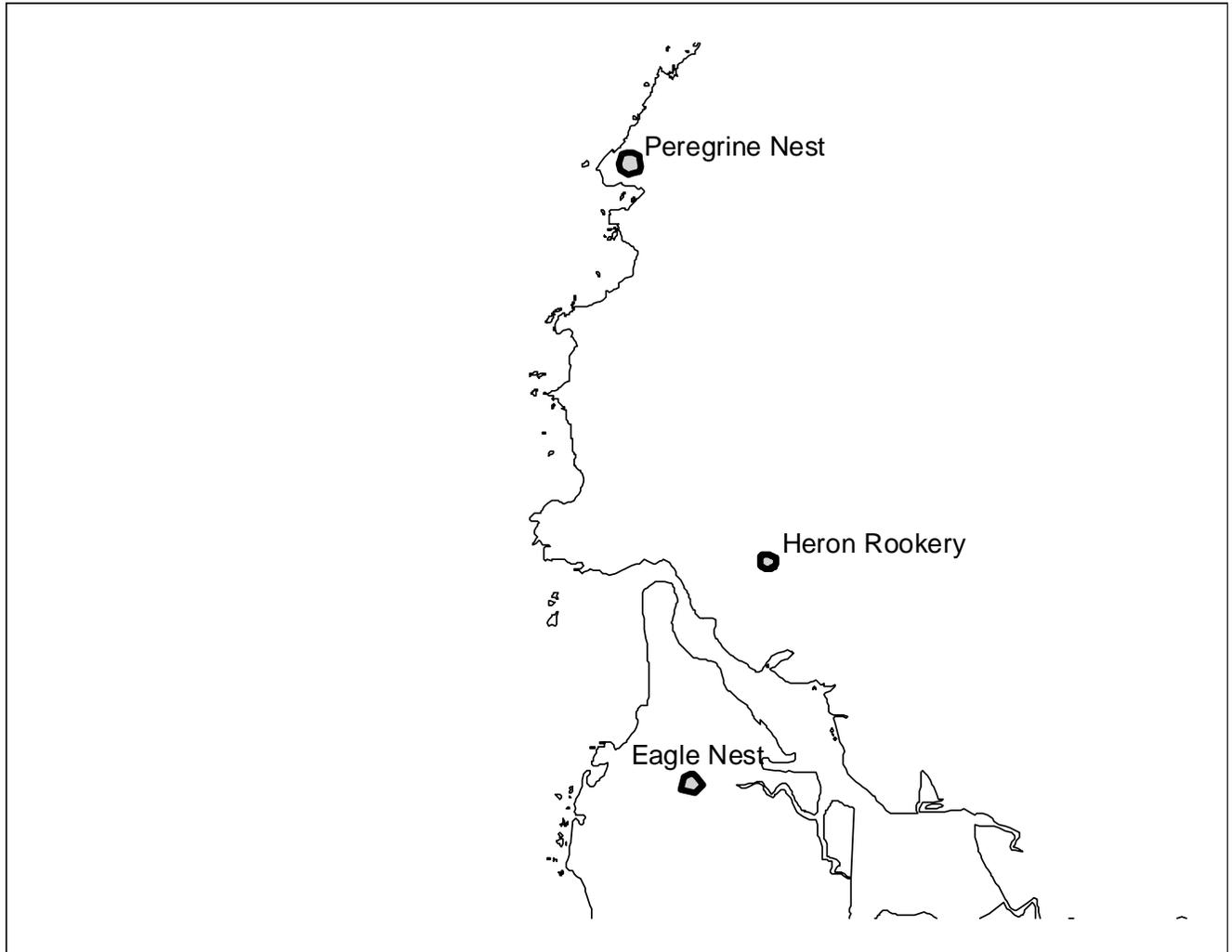


Figure 6-8. Lincoln City Wildlife

North Oregon Coast Siletz Bay Wildlife



Figure 6-9. Siletz Bay Wildlife

North Oregon Coast Waldport Wildlife

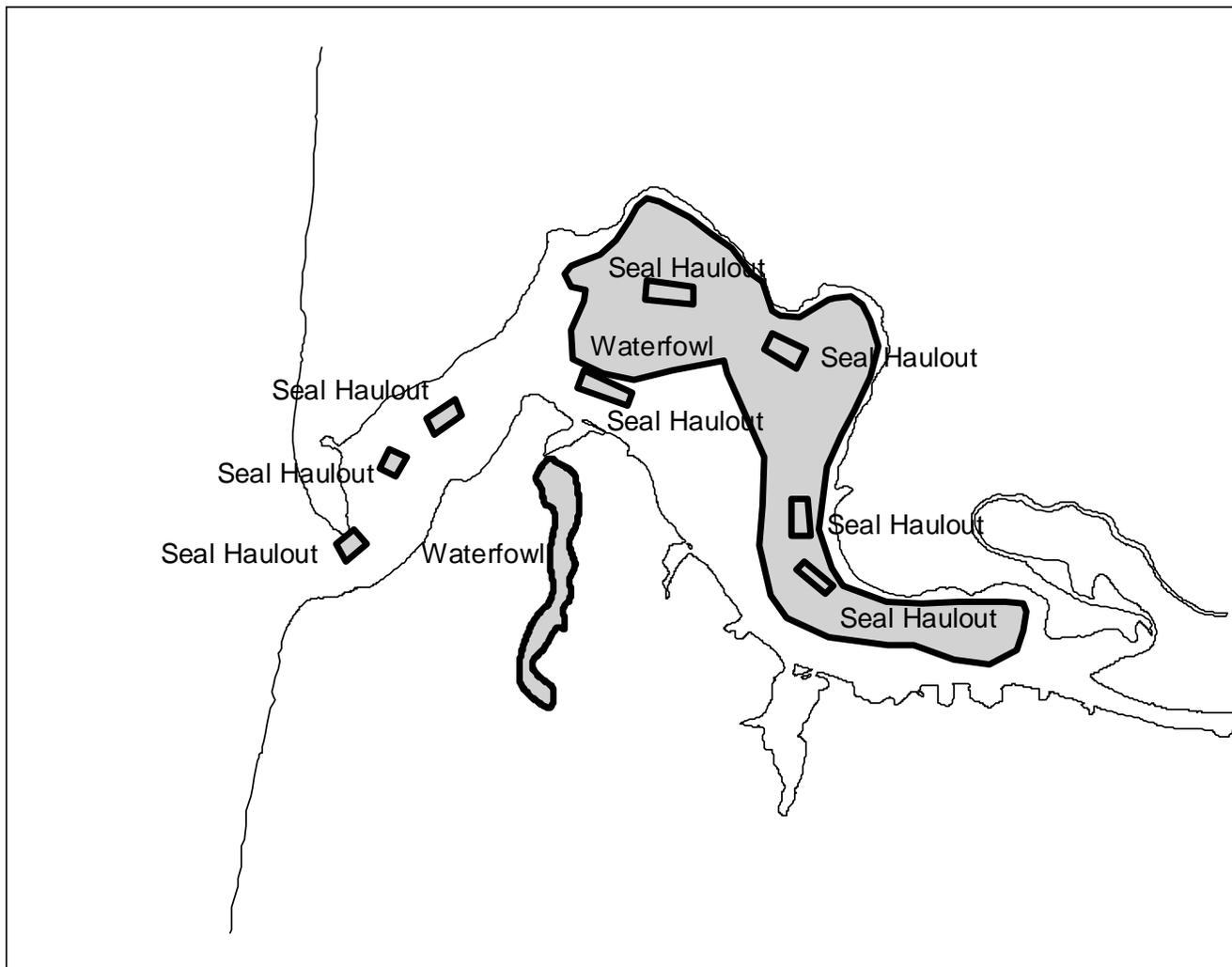


Figure 6-10. Waldport Wildlife

7. Logistical Information

The following list was compiled at the North Coast Geographic Response Plan Workshop held at Camp Rilea, OR on February 18, 1993. Areas of information include: command posts; communications; equipment cache locations; inventory of local support equipment; air support; access points; and other pertinent logistical support.

Table 7-1, Logistical Information

Subject	Name	Characteristics	Contact	Phone #
Command Posts				
Warrenton	Camp Rilea		OR National Guard	(503) 861-3835
Newport	National Guard Armory		541 SW Coast Hwy	(541) 265-2761
Warrenton	CG Airstation Astoria		CG Group Astoria	(503) 861-6211
Nehalem	Nehalem State Park			
Lincoln County	Emergency Operations Center		Lincoln City, Jim Hawley	(541) 265-4165
Various	Shilo Inns			1-800- 222-2244
Various	Doubletree			1-800- 547-8010
Newport	Hatfield Marine Science Center			(541) 867-0100
Florence	Best Western			1-800- 782-0683
Communications				
Cellular One	Cellular Phones			(541) 265-2900
US West	Cellular Phones			(800) 477-7211
Clackamas Communications	UHF Mobile Frequency			(541) 267-4931
BLM	40 trucks with communications to center		Larry Matthews	(541) 756-0100
MSRC	Mobile Communications Van			(206) 252-1300
OERS	Mobile Communications Van			1-800- 452-0311
Equipment Cache Locations				

North Oregon Coast Geographic Response Plan

Subject	Name	Characteristics	Contact	Phone #
Astoria	MSRC	VOSS/ prepositioned boom & skimmers		(206) 252-1300
Astoria	Clean Rivers	Boats, Boom & skimmers		(503) 220-2091
Astoria	Foss Environmental	Boats, Boom & skimmers		(800) FESPILL
Inventory of Local Support Equipment				
Astoria/Portland	Fred Devine	Salvage Equipment	Kerry Walsh	(503) 283-5285
Newport	Fairline Marine		Al Wehren	(541) 265-7819
Toledo	M & E Septic			(541) 563-3867
Newport	Yaquina Marine Tow & Salvage		Scott Martin	(541) 336-5205
Toledo	Kaward Crane		Bill Pankey	(541) 563-3611
Astoria	Bergerson Construction		Dennis Bjork	(503) 325-7130
Helicopter Support/Air Support				
Warrenton	USCG Airstation Astoria			(503) 861-6211
North Bend	USCG Airstation North Bend			(541) 265-5381
Newport	USCG Auxiliary			(541) 265-5381
Camp Rilea	Oregon Air National Guard		116 Air Control Squadron	(503) 861-7801
McMinnville	Evergreen Helicopters			(503) 472-9361
Astoria	Astoria Flight Center			(503) 861-1222
Access Points/Boat Ramps				
Pacific Ocean	Tolvana Park Dory Launch	Sand		
Nehalem Bay	Nehalem Bay Ramp	Concrete		
Nehalem Bay	Wheeler Ramp	Concrete		
Nehalem Bay	Paradise Cove Resort	Asphalt		
Nehalem Bay	Nehalem Bay State Park	Concrete		
Nehalem Bay	Brighton Moorage	Asphalt		

North Oregon Coast Geographic Response Plan

Subject	Name	Characteristics	Contact	Phone #
Nehalem Bay	Jetty Fishery	Concrete		
Tillamook Bay	Garibaldi Marina	Asphalt		
Tillamook Bay	Port of Bay City	Asphalt		
Cape Meares	Cape Meares Lake	Gravel		
Tillamook Bay	Memaloose Point	Concrete		
Tillamook Marina	Big Barn Marina	Gravel		
Netarts Bay	Netarts Landing	Concrete		
Sand Lake	Whalen Island County Park	Gravel		
Row River	Schwarz Park Hand Launch	Sand		
Nestucca River	Pacific City Ramp	Asphalt		
Nestucca Bay	Fisher Tract	Gravel		
Little Nestucca River	Little Nestucca Ramp	Concrete		
Salmon River	Knight Park	Concrete		
Devils Lake	West Side State Park	Gravel		
Devils Lake	Devils Lake Landing	Gravel		
Siletz River	Siletz Moorage	Asphalt		
Depoe Bay	Port of Depoe Bay	Asphalt		
Yaquina Bay	South Beach Marina	Concrete		
Alsea Bay	Port of Alsea	Asphalt		
Alsea Bay	McKinley's Marina	Asphalt		
Alsea River	King Silver	Gravel		
Alsea River	Drift Creek Landing	Concrete		
Alsea River	Fishin Hole Trailer Park	Concrete		
Alsea River	Oaklands Marina	Concrete		
Yachats River	Yachats Landing	Concrete		
Sutton Lake	Sutton Launch	Asphalt		
Property Access Information and Contacts				
Staging Areas				
Astoria	Tongue Point			(503) 861-6211
Astoria	Astoria Port Docks			(503) 861-6211
Newport	National Guard			(541) 265-2761
Warrenton	Camp Rilea			(541) 861-3835
Tillamook	County Fairgrounds		4603 Third Street	(503) 842-2272
Tillamook	National Guard Armory		1510 Third Street	(503) 842-2401

North Oregon Coast Geographic Response Plan

Subject	Name	Characteristics	Contact	Phone #
Tillamook	State Police		5995 Long Prairie Road	(503) 842-4433
Tillamook	City Police		Laurel Ave	(503) 842-2522
Recreational activities which could interfere				
Tillamook	County Rodeo		June	(503) 842-7526
Tillamook	June Dairy Parade		June	(503) 842-7526
Tillamook	Oregon Polka Festival		July	(503) 842-7526
Tillamook	County Fair		August	(503) 842-7526
Garibaldi	Fall Salmon Fishery	Intense boat traffic	Mid September-October	(503) 842-2741
Tribal Resources				
Key Local Elected Officials				
Astoria	Mayor		1095 Duane St.	(503) 325-5281
Hammond	City Manager		801 Pacific Drive	(503) 861-2712
Warrenton	City Manager		PO Box 250	(503) 861-3331
Seaside	City Manager		989 Broadway	(503) 738-5511
Cannon Beach	City Manager		163 E. Gower	(503) 436-1581
Manzanita	City Manager		PO Box C	(503) 368-5343
Garibaldi	City Manager		PO Box 708	(541) 332-3327
Tillamook	Mayor		210 Laurel	(503) 842-2472
Fire Department				
Tillamook	Fire Department		Business phone	(503) 842-7587
Garibaldi	Fire Department		Business phone	(503) 842-2172
Local Personnel Support				
Volunteers				

North Oregon Coast Geographic Response Plan

Subject	Name	Characteristics	Contact	Phone #
Statewide	SOLV		Jack McGowan	(503) 647-9855
Coos Bay	Audubon		Ray Nolan	(541) 756-2026
Newport	Red Cross			(541) 265-2182
Newport	Oregon Shores Coalition		Jeff Ouderkirk	(541) 265-8823
Marinas/Port docks				
Astoria	Port of Astoria	deep draft		(503) 325-4521
Nehalem	Port of Nehalem	shallow draft		(503) 368-5401
Garibaldi	Port of Garibaldi	shallow draft		(503)322- 3292
Tillamook	Port of Tillamook Bay	shallow draft		(503) 842-2413
Newport	Port of Newport	deep draft		(541) 265-7758
Toledo	Port of Toledo	shallow draft		(541) 336-5207
Waldport	Port of Alsea	shallow draft		(541) 563-3872
Housing/ feeding/ support				
Astoria	Chamber of Commerce			(503) 325-6311
Cannon Beach	Chamber of Commerce			(503) 436-2623
Garibaldi	Chamber of Commerce			(503) 322-0301
Pacific City	Chamber of Commerce			(503) 965-6161
Rockaway Beach	Chamber of Commerce			(503) 355-8108
Seaside	Chamber of Commerce			(503) 738-6391
Tillamook	Chamber of Commerce			(503) 842-7526
Interim storage/permits				
Astoria-Liquid	McCall Oil		Geary Powell	(503) 221-5755
Astoria-Liquid	Foss Maritime			(800) FESPILL

North Oregon Coast Geographic Response Plan

Subject	Name	Characteristics	Contact	Phone #
Newport-Liquid	Hockema Oil			(541) 265-5111
Astoria-Debris	Tongue Point			(503) 325-2211
Warrenton-Debris	Fort Stevens			(503) 861-1671
Fishing fleets & affiliated organizations*				
Boat cleaning capability*				
Garibaldi	Boatyard	Marine ways		
Newport	Fariline Marine		Al Wehren	(541) 265-7819
Newport	Riverbend Moorage		Steve Webster	(541) 265-9243
Newport	Yaquina Boat Equipment		Dale Tindall	(541) 336-5593
Safe havens				
Astoria	Port of Astoria			
Newport	Port of Newport		Don Mann	(541) 265-7758
Coos Bay	Port of Coos Bay		Allan Rumbaugh	(541) 267-7678

Appendices

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments excavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	<ul style="list-style-type: none"> • Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting 	<ul style="list-style-type: none"> • High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	<ul style="list-style-type: none"> • Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord 	<ul style="list-style-type: none"> • Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier <ul style="list-style-type: none"> • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m² • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc. 	<ul style="list-style-type: none"> • Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	<ul style="list-style-type: none"> • Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels 	<ul style="list-style-type: none"> • Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow
NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: <ul style="list-style-type: none"> • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc. 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom <ul style="list-style-type: none"> • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc. 	<ul style="list-style-type: none"> • Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m

Protection Techniques	Description	Primary Logistical Requirements	Limitations
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed <ul style="list-style-type: none"> • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable <ul style="list-style-type: none"> • Hoses - 30 m discharge • Oil storage - 2000 liters 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

Appendix B: Geographic Response Plan Contributors

Local Representatives

Industry and Response Contractors

Federal Representatives

NOAA

Dr. Sharon Christopherson

Mr. Gary May

USFWS

Ms. Colleen Henson

Mr. Roy Lowe

United States Coast Guard

LT Chris Curatilo

LT(jg) Amy Beach

State Representatives

Oregon Department of Environmental Quality

Mr. Paul Slyman

Mrs. Elizabeth Dimmick

Mr. Jack Wylie

Oregon Department of Fish and Wildlife

Mr. Herman Biederbeck

Mr. Jim Cadwell

Mr. Dave Fox

Mr. Dale Nelson

Mr. Greg Robart

Oregon State Service Center for Geographic Information Systems

Mr. Richard Crucchiola

Mrs. Patti Haggerty

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Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors with this document please notify one of the following agencies:

- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland, Planning Department
- Washington Department of Ecology, Central Programs Branch
- Oregon Department of Environmental Quality, Land Quality Division
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

You can use the tear out suggestion form or contact an agency using one of the following:

Phone Numbers:

USCG MSO Puget Sound	(206) 217-6213
USCG MSO Portland	(503) 247-4015
Washington DOE	(360) 407-6971
Oregon DEQ	(503) 229-5716
Idaho ERC	(208) 334-3263
EPA	(206) 553-6901

Internet Address:

USCG	RPMatthews@pacnorwest.uscg.mil
DEQ	Wylie.Jack@deq.state.or.us

Address:

Commanding Officer
United States Coast Guard
MSO Puget Sound
Planning Department
1519 Alaskan Way South
Seattle, WA 98134-1192

Washington Department Of Ecology
Central Programs Branch
Policy and Planning Section
P.O. Box 47600
Olympia, WA 98504

Office Of The Governor
Idaho Emergency Response Commission
1109 Main
Statehouse
Boise, ID 83720-7000

Commanding Officer
United States Coast Guard
MSO Portland
Planning Department
6767 North Basin Ave
Portland, OR 97217-3992

Oregon Department of Environmental
Quality
Land Quality Division
811 SW Sixth Avenue
Portland, OR 97204

Environmental Protection Agency
Emergency Response Branch
1200 Sixth Avenue
Seattle, WA 98101

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U.S. Department
of Transportation
U.S. Coast Guard

Marine Safety Office Portland
Planning Department
6767 N. Basin Ave.
Portland, OR 97217-3992

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

Northwest Area Committees
c/o Marine Safety Office Portland
Planning Department
6767 N. Basin Ave.
Portland, OR 97217-3992