

# Prince William Sound Alaska

## POTENTIAL PLACES OF REFUGE and RISK FACTORS

### RISK SYMBOLS

- Potential Places of Refuge
- Response Equipment Depot
- Response Barge
- Seasonal Response Barge
- Tanker Route
- Secondary Tanker Route
- Cruise and AMHS Ship Traffic
- Small Cruise Ship Traffic
- Secondary Ferry Route

Cruise and AMHS Ship Ports of Call

#### BULK FUEL STORAGE SITES

- .5k-10,000 bbl.
- 10k-39,999 bbl.
- 40k-99,999 bbl.
- 100k-299,999 bbl.
- 300K-500,000 bbl.
- more than 500,000 bbl.

PWS SUBAREA SPILLS >999 gallons 1989-2004

- = Persistent = Non-Persistent
- 1K-2,999 gal.
- 3K-5,999 gal.
- 6K-8,999 gal.
- 9K-11,999 gal.
- 12K-14,999 gal.
- 15K-17,999 gal.
- 18K+ gal.

Lingering Oil from 1989 Exxon Valdez Oil Spill

- Frequent Fishing Vessel/Tramper Offload Activities
- Key Nearshore Fishing Grounds
- Hatchery
- Remote Release Site

Bulk Fuel Storage	Owner	Qty. Bbl.
Chenga Bay	Village Council/School	1,714
Cordova	Orca Fuel/USCG	1,952
Tatitlik	Village Council/School/DOT	833
Whittier	Shoreside Petroleum	1,143
Valdez	PetroStar Refinery	170,000
Valdez	Valdez Petroleum Services	154,500
Valdez	Alyeska Pipeline Terminal	9,183,167

Reference - Alaska Department of Environmental Conservation, AK GRS Fuel Terminals, provided by E. Breitenberger  
 Reference - U.S. Environmental Protection Agency-Record of Alaskan Facility Response Plans and Activity Status-4/05/04

### Locations of Bulk Fuel Storage



Produced by: P.O. Box 175  
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Figure H-1. Locations of Bulk Fuel Storage.

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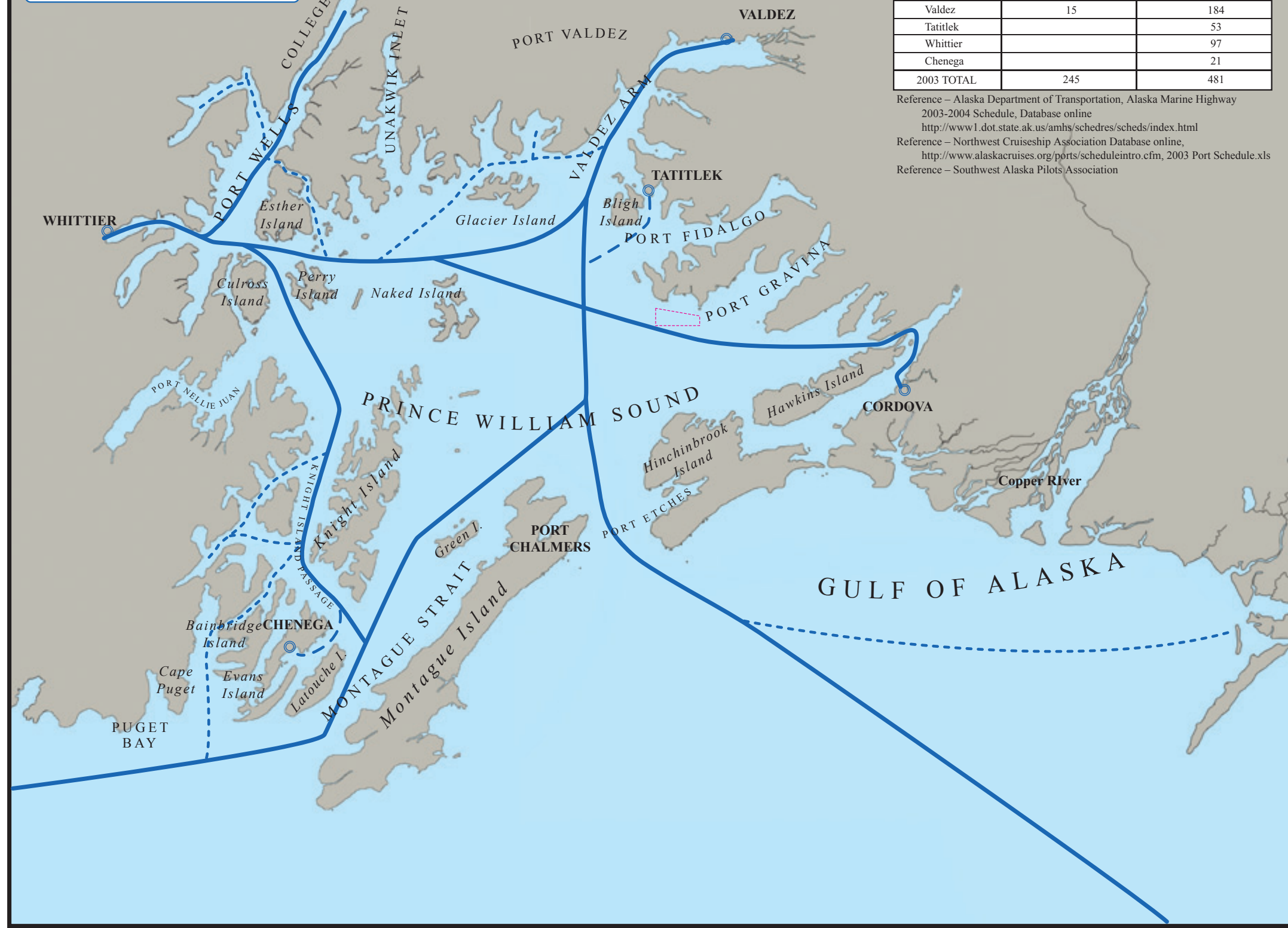
### RISK SYMBOLS

- Anchorage
- Dock
- Mooring
- Grounding
- Potential Places of Refuge
- SERVIS Response Equipment Depot
- RADAR Response Equipment Depot
- USCG Response Equipment Depot
- DEP Response Equipment Depot
- Response Barge
- Seasonal Response Barge
- Tanker Route
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- Cruise and AMHS Ship Ports of Call
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- Remote Release Site

Port	# of Cruise Ship Visits	# of Ferry Vessel Visits
College Fiord	129	
Cordova	1	126
Seward	100	
Valdez	15	184
Tatitlek		53
Whittier		97
Chenega		21
2003 TOTAL	245	481

Reference – Alaska Department of Transportation, Alaska Marine Highway 2003-2004 Schedule, Database online  
<http://www1.dot.state.ak.us/amhs/schedres/scheds/index.html>  
 Reference – Northwest Cruiseship Association Database online,  
<http://www.alaskacruises.org/ports/scheduleintro.cfm>, 2003 Port Schedule.xls  
 Reference – Southwest Alaska Pilots Association

### Primary Traffic Routes for State Ferries & Cruise Ships



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Figure H-2. Primary Traffic Routes for State Ferries and Cruise Ships.

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## POTENTIAL PLACES OF REFUGE and RISK FACTORS

### RISK SYMBOLS

- Anchorage
- Dock
- Mooring
- Grounding

- SERVIS
- RADAR
- USCG
- DEP

- Response Barge

- Seasonal Response Barge

- Tanker Route

- Secondary Tanker Route

- Cruise and AMHS Ship Traffic

- Small Cruise Ship Traffic

- Secondary Ferry Route

- Cruise and AMHS Ship Ports of Call

- BULK FUEL STORAGE SITES**
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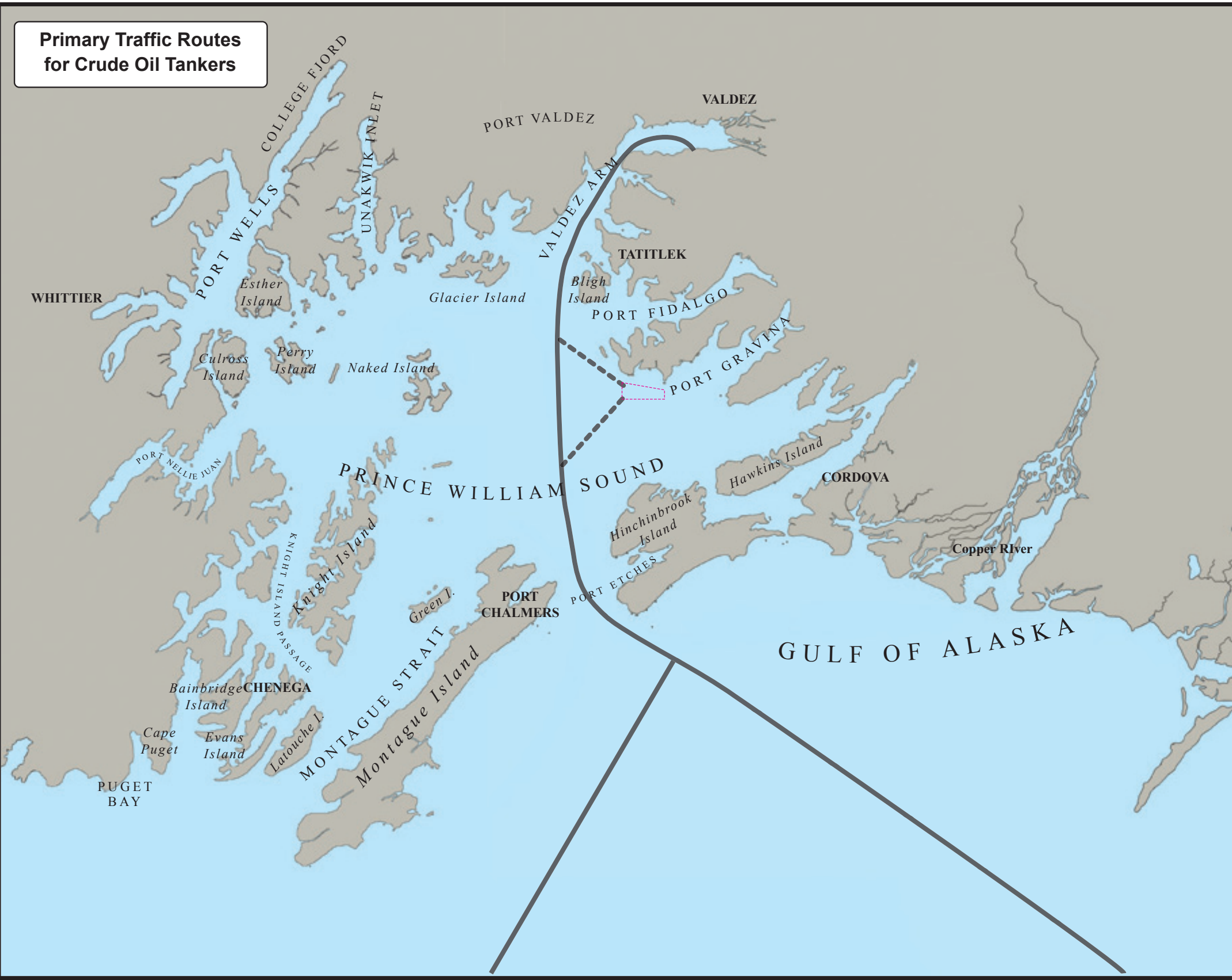
- Linger Oil from 1989 Exxon Valdez Oil Spill

- Frequent Fishing Vessel/Tramper Offload Activities

- Key Nearshore Fishing Grounds

- Hatchery

- Remote Release Site



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Figure H-3. Primary Traffic Routes for Crude Oil Tankers.

# Prince William Sound Alaska

## POTENTIAL PLACES OF REFUGE and RISK FACTORS

### RISK SYMBOLS

- Anchorage
- Dock
- Mooring
- Grounding

- SERVIS
- Star
- USCG
- DEP

- Response Equipment Depot

- Response Barge

- Seasonal Response Barge

- Tanker Route

- Secondary Tanker Route

- Cruise and AMHS Ship Traffic

- Small Cruise Ship Traffic

- Secondary Ferry Route

- Cruise and AMHS Ship Ports of Call

- BULK FUEL STORAGE SITES**
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- Linger Oil from 1989 Exxon Valdez Oil Spill

- Frequent Fishing Vessel/Tramper Offload Activities

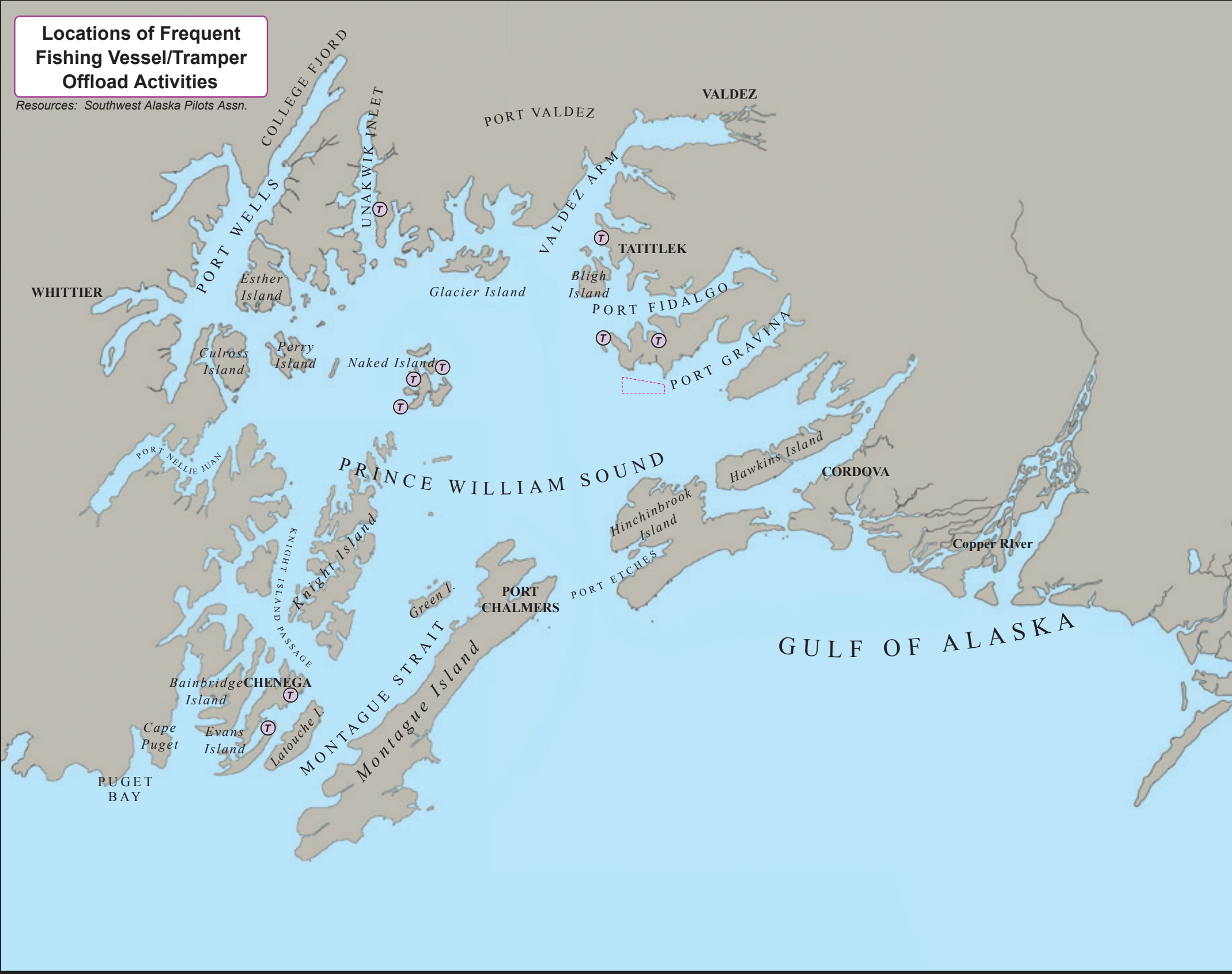
- Key Nearshore Fishing Grounds

- Hatchery

- Remote Release Site

### Locations of Frequent Fishing Vessel/Tramper Offload Activities

Resources: Southwest Alaska Pilots Assn.



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Figure H-4. Locations of Frequent Fishing Vessel/Tramper Offload Activities.

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## POTENTIAL PLACES OF REFUGE and RISK FACTORS

### RISK SYMBOLS

Potential Places of Refuge

Response Equipment Depot

Response Barge

Seasonal Response Barge

Tanker Route

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Frequent Fishing Vessel/Tramper Offload Activities

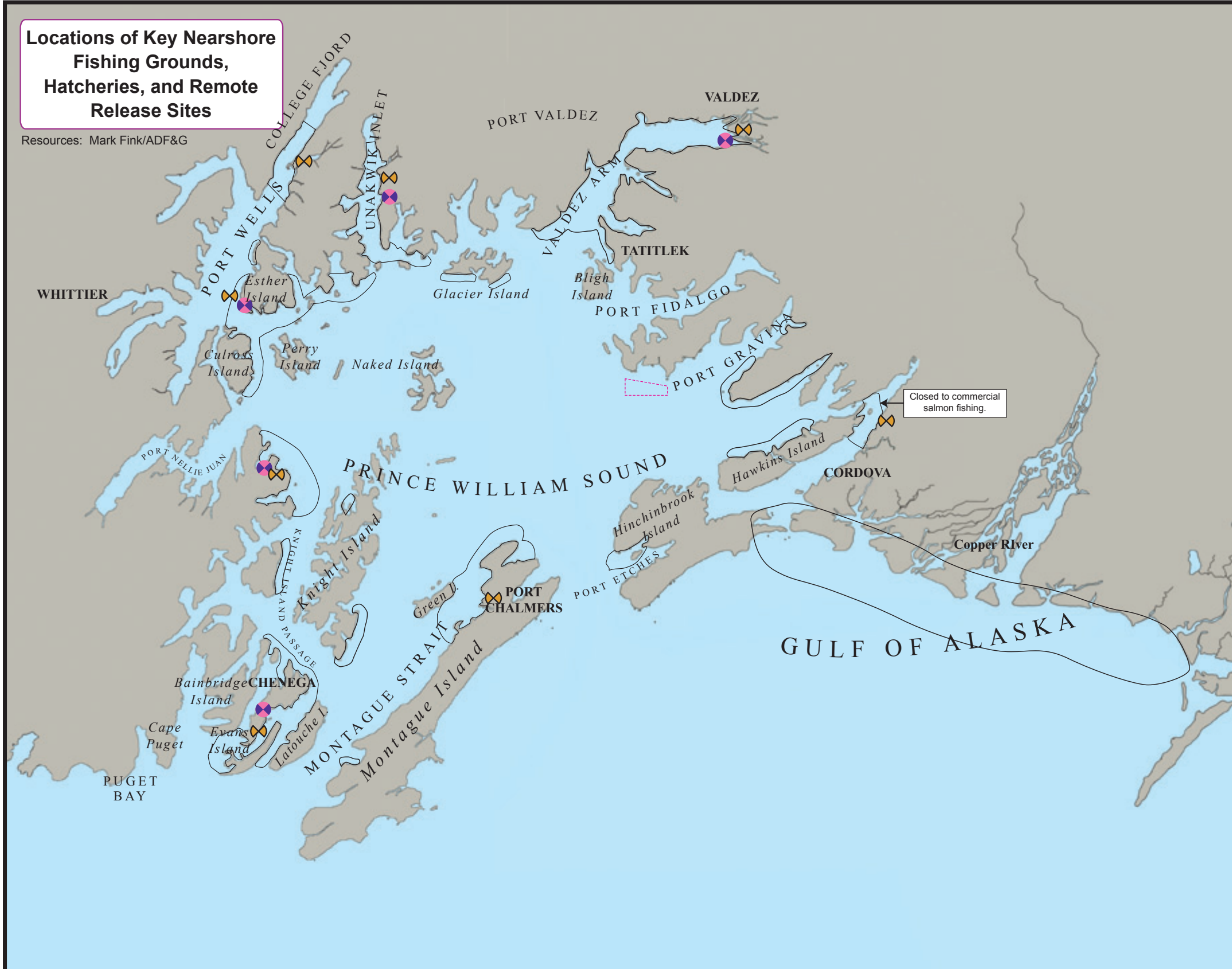
Key Nearshore Fishing Grounds

Hatchery

Remote Release Site

### Locations of Key Nearshore Fishing Grounds, Hatcheries, and Remote Release Sites

Resources: Mark Fink/ADF&G



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Figure H-5. Locations of Key Nearshore Fishing Grounds, Hatcheries, and Remote Release Sites.

# Prince William Sound Alaska

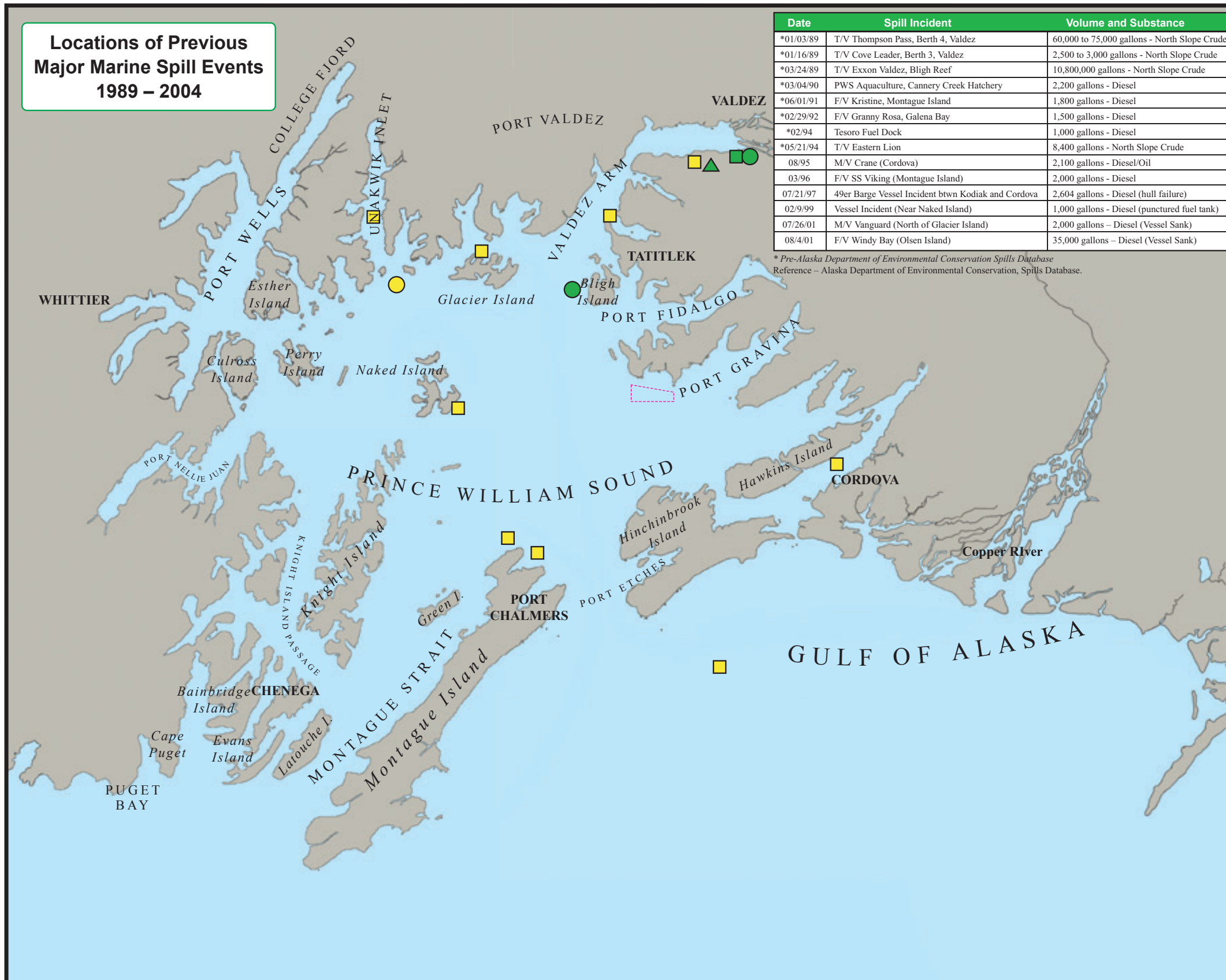
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Date	Spill Incident	Volume and Substance
*01/03/89	T/V Thompson Pass, Berth 4, Valdez	60,000 to 75,000 gallons - North Slope Crude
*01/16/89	T/V Cove Leader, Berth 3, Valdez	2,500 to 3,000 gallons - North Slope Crude
*03/24/89	T/V Exxon Valdez, Bligh Reef	10,800,000 gallons - North Slope Crude
*03/04/90	PWS Aquaculture, Cannery Creek Hatchery	2,200 gallons - Diesel
*06/01/91	F/V Kristine, Montague Island	1,800 gallons - Diesel
*02/29/92	F/V Granny Rosa, Galena Bay	1,500 gallons - Diesel
*02/94	Tesoro Fuel Dock	1,000 gallons - Diesel
*05/21/94	T/V Eastern Lion	8,400 gallons - North Slope Crude
08/95	M/V Crane (Cordova)	2,100 gallons - Diesel/Oil
03/96	F/V SS Viking (Montague Island)	2,000 gallons - Diesel
07/21/97	49er Barge Vessel Incident btwn Kodiak and Cordova	2,604 gallons - Diesel (hull failure)
02/9/99	Vessel Incident (Near Naked Island)	1,000 gallons - Diesel (punctured fuel tank)
07/26/01	M/V Vanguard (North of Glacier Island)	2,000 gallons - Diesel (Vessel Sank)
08/4/01	F/V Windy Bay (Olsen Island)	35,000 gallons - Diesel (Vessel Sank)

\* Pre-Alaska Department of Environmental Conservation Spills Database  
Reference - Alaska Department of Environmental Conservation, Spills Database.

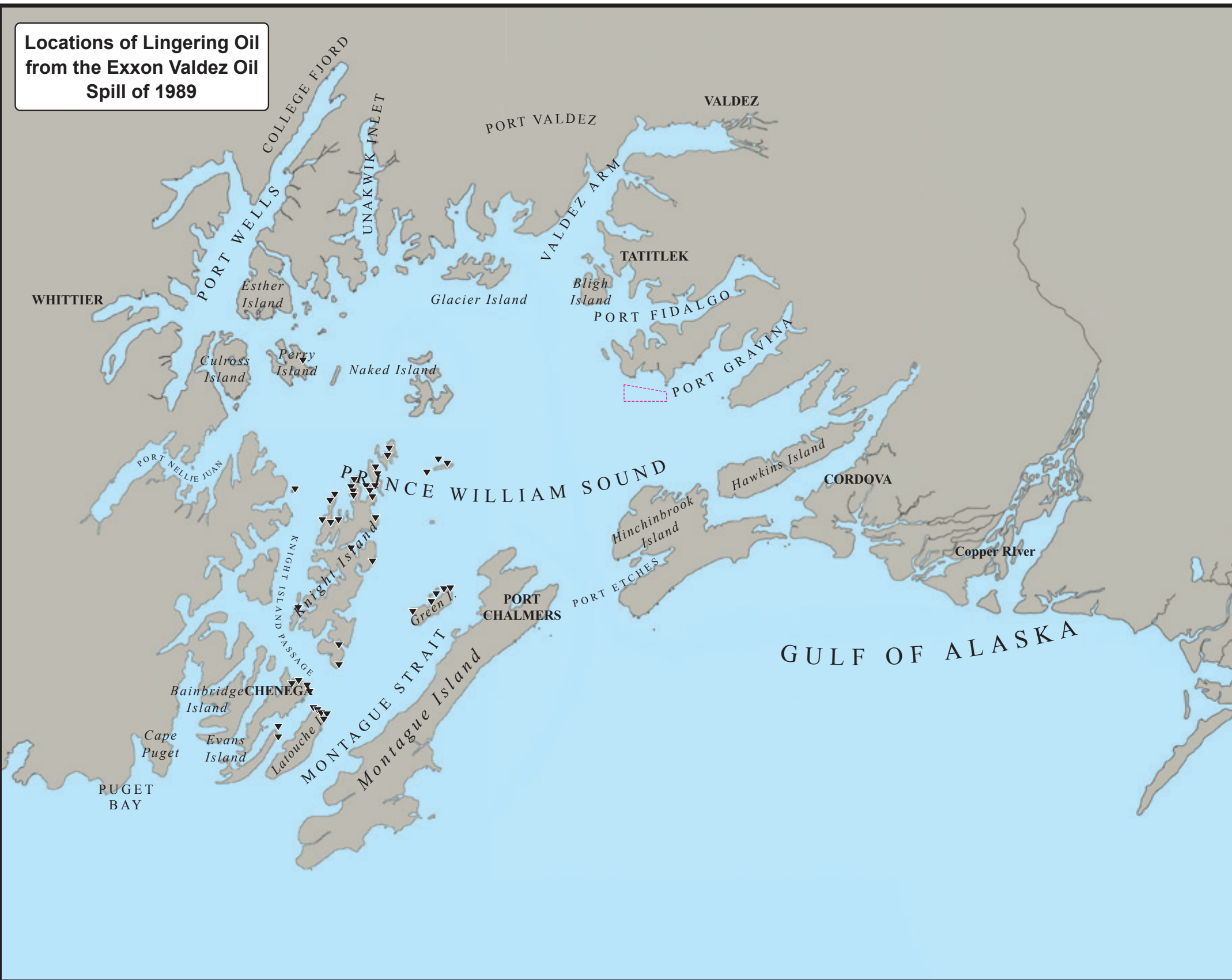


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Figure H-6. Locations of Previous Major Marine Spill Events.

Locations of Lingering Oil from the Exxon Valdez Oil Spill of 1989



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## POTENTIAL PLACES OF REFUGE and RISK FACTORS

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Figure H-7. Locations of lingering oil from the Exxon Valdez Oil Spill of 1989.

# Prince William Sound Alaska

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### RISK SYMBOLS

**POTENTIAL PLACES OF REFUGE**

- Anchorage
- Dock
- Mooring
- Grounding

**RESPONSE EQUIPMENT DEPOT**

- SERVS
- Chadux
- USCG
- DEC

**Response Barge**

- Response Barge
- Seasonal Response Barge

**Tanker Route**

- Tanker Route
- Secondary Tanker Route

**Cruise and AMHS Ship Traffic**

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**Cruise and AMHS Ship Ports of Call**

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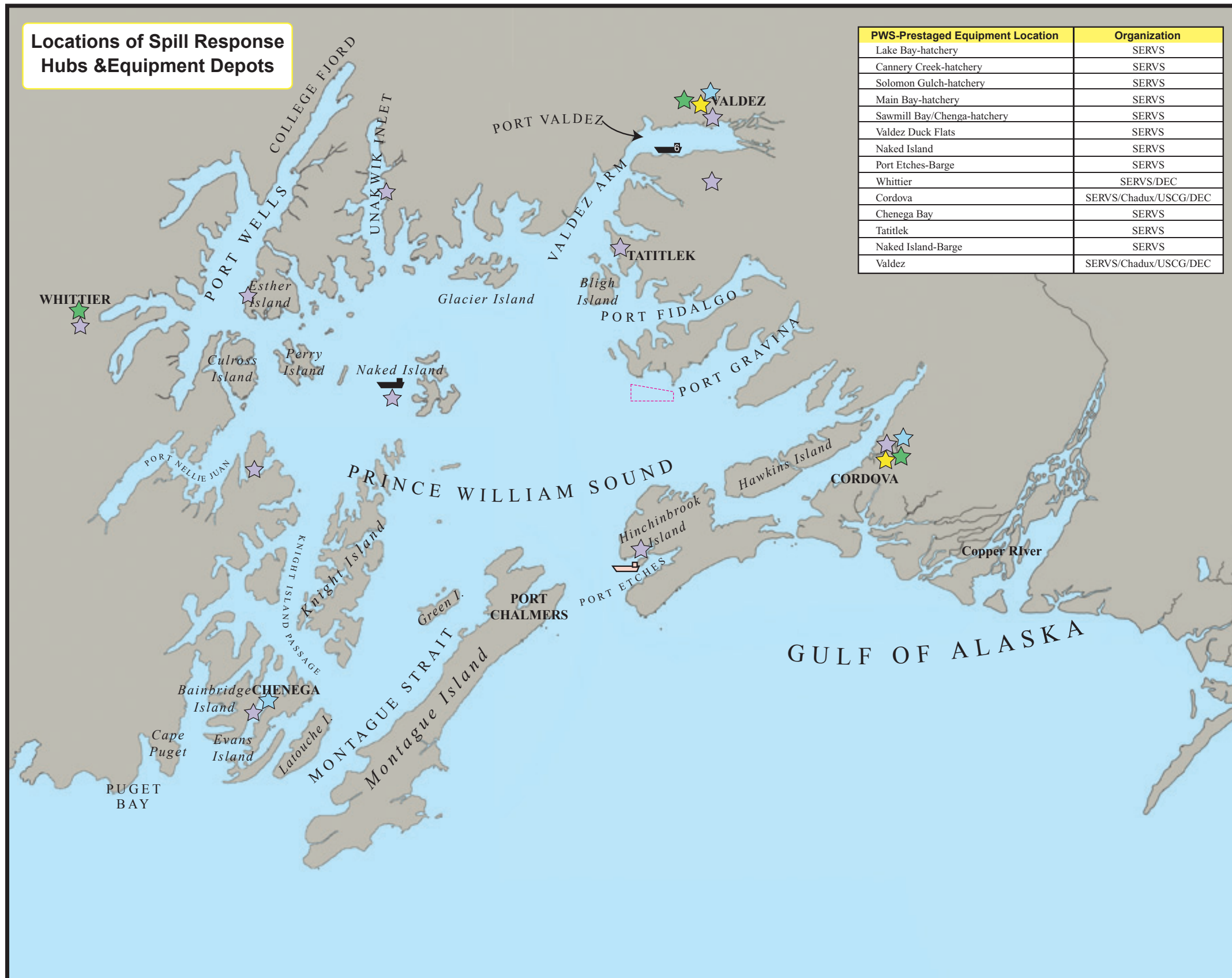
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**Lingering Oil from 1989 Exxon Valdez Oil Spill**

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PWS-Prestaged Equipment Location	Organization
Lake Bay-hatchery	SERVS
Cannery Creek-hatchery	SERVS
Solomon Gulch-hatchery	SERVS
Main Bay-hatchery	SERVS
Sawmill Bay/Chenga-hatchery	SERVS
Valdez Duck Flats	SERVS
Naked Island	SERVS
Port Etches-Barge	SERVS
Whittier	SERVS/DEC
Cordova	SERVS/Chadux/USCG/DEC
Chenega Bay	SERVS
Tatitlek	SERVS
Naked Island-Barge	SERVS
Valdez	SERVS/Chadux/USCG/DEC

### Locations of Spill Response Hubs & Equipment Depots



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Figure H-8. Locations of Spill Response Hubs and Equipment Depots.

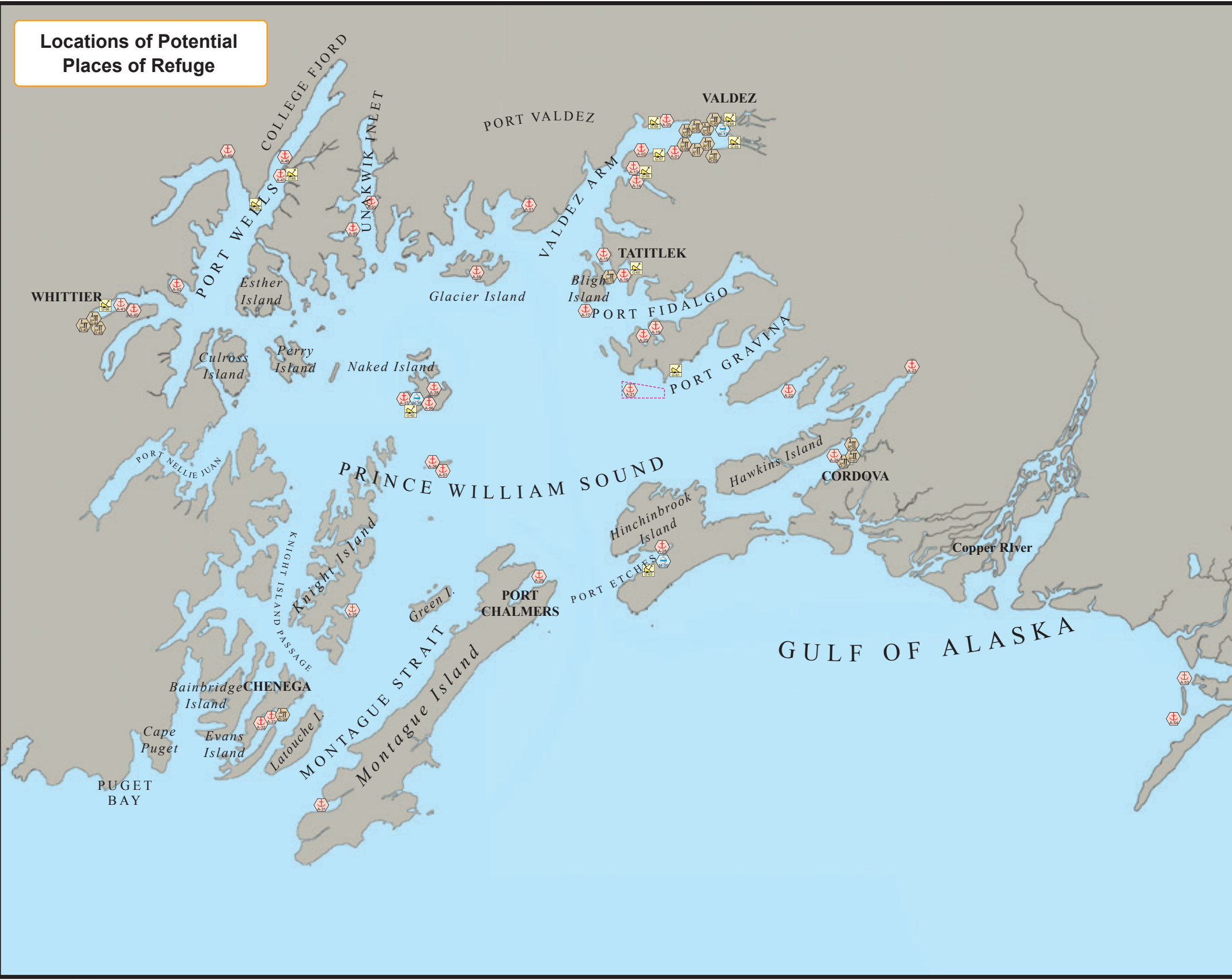


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Locations of Potential Places of Refuge

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Figure H-9. Locations of Potential Places of Refuge.

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Seasonal Response Barge

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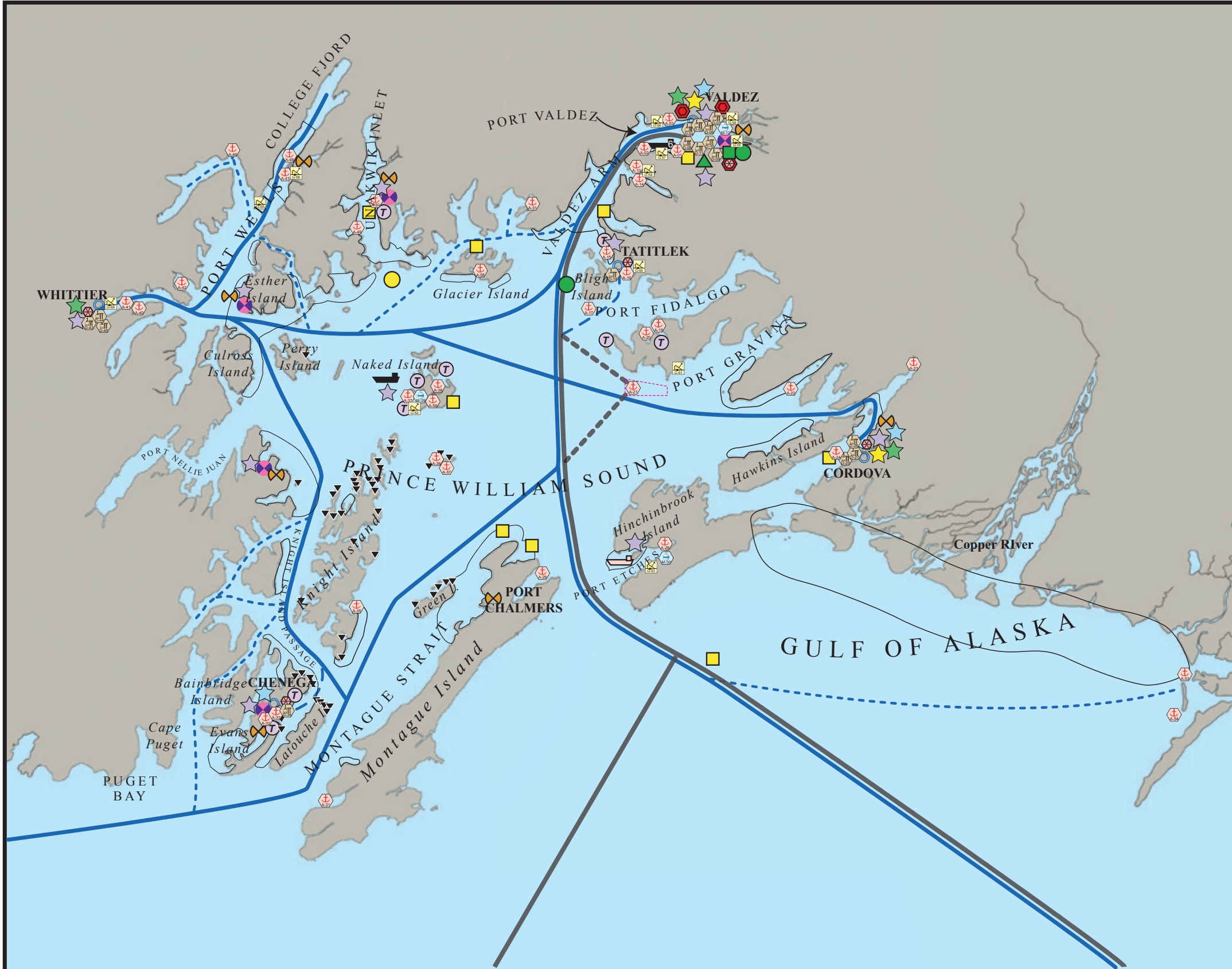
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Figure H-10. Potential Places of Refuge and all Risk Factors Combined.